What does it mean to imagine Africa at the centre of the world map? And to suggest a shift in geographical conventions that enables new possibilities to emerge? Through its Afropolitan mission, the University of Cape Town (UCT) aspires to leverage much more out of its historical and geographical location than before in contributing to new knowledge and the resolution of problems of African and global significance. As a hub of internationally recognised scholarship, the university is strengthening strategic alliances in Africa and the global South to become a pivot in multi-cornered partnerships involving North-South collaborations.

As the pursuit of knowledge and the delivery of learning become increasingly international, UCT – as one of the top ranked African universities – is rising to the challenge of rapid change in the higher education environment. Establishing a niche through which the university can claim its place as a global player involves extending our links in Africa and building on collaborative research initiatives with selected international partners around mutually agreed research themes. It also requires optimising our special natural environment as well as our location in a region, where finding solutions to the social, political and economic development imperatives that beset us, offers lessons of broader relevance internationally. Within such a framework, UCT is well positioned to increase the university’s international profile and to consolidate its identity as a sought-after destination for knowledge and expertise on Africa. Through nurturing research links and exchanges with our international partners, UCT is well positioned to build a profile of innovative, internationally significant institutions and programmes based on shared knowledge, mutual learning and ongoing dialogue.
Our Mission Statement

UCT aspires to become a premier academic meeting point between South Africa, the rest of Africa, and the world. Taking advantage of expanding global networks and our distinct vantage point in Africa, we are committed, through innovative research and scholarship, to grapple with the key issues of our natural and social worlds. We aim to produce graduates whose qualifications are internationally recognised and locally applicable, underpinned by values of engaged citizenship and social justice. UCT will promote diversity and transformation within our institution and beyond, including growing the next generation of academics.

Foundation Statement Underpinning the Mission Statement

Our Research-led Identity is Shaped by a Commitment To:

- academic freedom as the prerequisite to fostering intellectual debate, and free inquiry; ensuring that research informs all our activities including teaching, learning and service to the community;
- advancing and disseminating knowledge that addresses the key challenges facing society – South African, continental and global;
- protecting ‘curiosity driven research’;
- nurturing and valuing creativity in the sciences and arts including the performing and creative arts;
- stimulating international linkages of researchers and research groupings.

We Strive to Provide a Superior Quality Educational Experience for Undergraduate and Postgraduate Students Through:

- providing an intellectually and socially stimulating environment;
- inspired and dedicated teaching and learning;
- exposure to the excitement of creating new knowledge;
- stimulating the love of lifelong learning;
- the cultivation of competencies for global citizenship;
- supporting programmes that stimulate the social consciousness of students;
- offering access to courses outside the conventional curricula;
- attracting a culturally and internationally diverse community of scholars;
- guaranteeing internationally competitive qualifications;
- offering a rich array of social, cultural, sporting, and leadership opportunities;
- providing an enabling physical and operational environment.

In Advancing UCT as an Afropolitan University, We Will:

- expand our expertise on Africa and offer it to the world;
- extend our networks on the continent, along with our global connections and partnerships;
- promote student and staff exchanges, and collaborative research and postgraduate programmes;
- engage critically with Africa’s intellectuals and world views in teaching and research;
- contribute to strengthening higher education on our continent.

We Strive to Provide an Environment for Our Diverse Student and Staff Community That:

- promotes a more equitable and non-racial society;
- supports redress in regard to past injustices;
- is affirming and inclusive of all staff and students and promotes diversity in demographics, skills, and backgrounds;
- offers individual development opportunities to all staff;
- is welcoming as a meeting space for scholars from Africa and around the world.
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Message from the

Vice-Chancellor

It is the responsibility of the University of Cape Town to ensure that our research and innovation creates new information and pushes the boundaries of knowledge, for the development and transformation of society and the safeguarding of the planet. Our researchers have fulfilled this obligation admirably during the past year and I am pleased to present this report on research excellence at UCT during 2012.

We are privileged to have an exceptional community of researchers at UCT. Contributions to research, and achievements during 2012, are outlined in the report presented by the Deputy Vice-Chancellor. We showcase some prominent areas of research and inter-disciplinary themes, which continue to emerge across the university, and which play a pivotal role in our research enterprise. Some of these are:

- the enormous contribution of research being undertaken in astronomy to the national flagship projects of the Karoo Array Telescope (MeerKAT) and the Square Kilometre Array (SKA), one of the largest scientific experiments of all time;
- research that has direct relevance to national policies aimed at poverty reduction, promotion of growth, and the reduction of inequality;
- world-leading research undertaken by the Institute of Infectious Disease and Molecular Medicine;
- research on the development of new forms of digital technology to address the developmental problems within society, problems that do not exist in developed economies, where most of the world’s technology is created; and
- innovative research into water treatment, which impacts a broad range of sectors, ranging from industrial and commercial applications, to impacting the lives of all South Africans in a more direct manner.

One of the highlights in the research achievements of 2012 was the selection for further development of a molecule, code-named MMV390048, by Medicines for Malaria Venture (MMV), a non-profit foundation created to discover, develop, and deliver new, affordable antimalarial drugs through effective public-private partnerships. The promising new compound that was developed by UCT’s H3-D centre shows potent activity against multiple points in the malaria parasite’s lifecycle. This means it not only has the potential to become part of a single-dose cure for malaria, but might also be able to block transmission of the parasite from person to person. This is the first compound researched on African soil to enter pre-clinical development in partnership with MMV.

The above initiatives are making significant contributions to addressing societal problems and influencing growth and development, both in South Africa and on the continent. In addition to these, there are four inter-disciplinary, institution-wide initiatives that play an equally important role in solving current challenges: the Safety and Violence Initiative, the Schools Improvement Initiative, the African Climate and Development Initiative, and the Poverty and Inequality Initiative. An important milestone in 2012 was the hosting of
Towards Carnegie3: Strategies to Overcome Poverty and Inequality on behalf of the National Planning Commission.

The key purpose of the conference was to take stock of existing knowledge and debates and to stimulate cross-pollination of ideas across institutional, thematic, and geographic barriers.

One of the challenges in realising our ambitions in the research arena is to be optimally placed to collaborate internationally and advance global knowledge, while still solving local problems. This includes developing new research partnerships or strengthening existing ones with partners in Africa, and elsewhere in the global South. Increasingly, research that makes a difference in the world is being conducted by international consortia and collaborations. In our endeavours to facilitate and maintain research collaboration with international partners, UCT remained an active member in 2012 of the Worldwide Universities Network, which comprises 19 research-intensive universities spanning six continents.

Contributing to the achievements reflected in this report are our postgraduate students and postdoctoral researchers. In 2012, more than 6 000 students were registered for honours, master’s, and doctoral degrees at UCT. At the same time, there were 282 registered postdoctoral researchers at the university, of whom more than half were from outside South Africa. Our responsibility to educate the future generation of leaders extends to the African continent. Through a generous grant from the Carnegie Corporation for the Next Generation of Academics project, a cohort of trainee academics are being trained in the fields of infectious diseases, civil engineering, and economics. This project has enabled us to work closely with the universities of Ghana, Makerere and Witwatersrand.

We are grateful to all our donors, partners and research collaborators for supporting our vision for the development of research at UCT, enabling greater impact and greater engagement. It is thanks to these individuals and organisations, and indeed the work of the entire university community, that we are able to continue to deliver world-class research that advances the university and this continent. It is our intention to continue to engage strategically with the changing higher-education landscape in South Africa and to build research partnerships across Africa that will help shape our future.

Ngokungaxoxisiyo, enye yezinto ezithe zagqama kwimpumelelo yophando ngo-2012 kukukhethwa kophuhliso olugqwesileyo lwemoletyhuli (molecule) ebizwa ngokuba yi-MMV390048 yePhulo LoNyango LwesiFo SeeNgcongconi (Medicines for Malaria Venture [MMV]), umbutho ongenzi nzuzo oqulunqelwe ukufumanisa, ukuphuhlisa nokubonelela ngamachiza afikelelekekayo okukhusela isifo seMzantsi Afrika kuchaphazela ubomi babo bonke abeni boMzantsi Afrika ngendlela ethe ngqo.

Amalinge angentla enza igalelo elimandla ekujongeni iingxaki zoluntu nokuphembelela ukukhula kuqoqosho kunye nophuhliso eMzantsi Afrika nakwi-Afrika iphela. Ukongeza kula malinge, kukho amaziko jikelele oqeqesho olwamunye ngokubane.
Leading women scientists at UCT: Professor Valerie Mizrahi, Director of the Institute of Infectious Disease and Molecular Medicine, holds an A rating from the National Research Foundation. She is an international expert on Mycobacterium tuberculosis, the organism that causes human tuberculosis. In 2012, Professor Mizrahi was named as one of 13 of the world's leading basic-science researchers to receive the prestigious Senior International Research Scholar awards, made by the Howard Hughes Medical Institute in the United States.


Boodskap van die

VISE-K ANSELIER

Dit is die Universiteit van Kaapstad se verantwoordelikheid om te verseker dat haar navorsing en innovasie nuwe kennis skep en grensverskuiwend is ten behoewe van die ontwikkeling en transformasie van die samelewing en die beskerming van die aarde. Ons navorsers het in die afgelope jaar weereens hierdie plig uitstekend vervul en dus verskaf dit my besondere plesier om hierdie verslag, wat die uitnemendheid van die Universiteit van Kaapstad se navorsing tydens 2012 beskryf, aan te bied.

Die Universiteit van Kaapstad verskaf ‘n tuiste aan ‘n uitsonderlike groep navorsers, wie se prestasies tydens 2012 hiernaas opgesom word in die verslag van die Adjunk Vise-kanselier met verantwoordelikheid vir navorsing. Hierdie publikasie is ‘n vertoonvenster vir sommige van die mees prominente navorsingsgebiede en inter-dissiplinêre temas wat voortdurend in alle dele van die universiteit ontwikkel word, en wat ‘n sleutelrol in ons agafehe navorsingsonderneming speel. Sommige hiervan is:

- die enorme bydrae van die navorsing wat onderneem word in sterrekunde as deel van die nasionale vlagskip-projekte van die MeerKAT (Karoo Array Telescope) en die SKA (Square Kilometre Array) radioteleskope, as deel van een van die grootste wetenskaplike eksperimente van alle tye;
- baanbrekersnavorsing wat direk betrekking het op die nasionale beleid gemik op die vermindering van armoede en ongelykheid asook die bevordering van groei;
- wêreldleidende navorsing deur die Instituut vir Infeksiesiektes en Molekulêre Medisyne (IIDMM);
- nuwe navorsing oor die skep van digitale tegnologie om die ontwikkelingsprobleme binne die samelewing aan te spreek, veral probleme wat nie in ontwikkelde ekonomiese gebiede gestel sal word nie; en
- innoverende navorsing ivm waterbehandeling wat ‘n impak maak op ‘n wye verskeidenheid van sektore, wisselend van nywerheids- en kommersiële toepassings tot ‘n meer direkte impak op die lewens van alle Suid-Afrikaners.

Waarskynlik was een van die grootste hoogtepunte onder die Universiteit van Kaapstad se navorsingsprestasies gedurende 2012 die keuse deur *Medicines for Malaria Venture* (‘n internasionale nie-winsgewende stigting wat geskep is om nuwe, bekostigbare malariamiddels te ontdek, te ontwikkel en af te lewer deur middel van doeltreffende openbare–private vennootskappe) om ‘n molecule met die kodenaam MMV390048 verder te ontwikkel. Hierdie belowende nuwe chemiese verbinding wat deur die Universiteit van Kaapstad se H3-D sentrum ontwikkeld is, toon kratige werking teen verskeie faseette in die malaria-parasiet se lewenssiklus. Dit beteken dat dit nie net die potensiaal het om deel te wees van ‘n enkeldosis-geneesmiddel teen malaria nie, maar moontlik ook in staat sou kon wees om die oordrag van die parasiet van persoon tot persoon te verhinder. Dit is die eerste chemiese verbinding wat op Afrika-bodem tot die voorkliniese-fase ontwikkeld is.
Bogenoemde inisiatiewe maak ‘n aansienlike bydrae tot die aanspreek van maatskaplike probleme en kan ‘n invloed hê op groei en ontwikkeling beide in Suid-Afrika en die res van die vasteland. Benewens bogenoemde inisiatiewe, is daar vier verdere inter-dissiplinêre, instellingswyse inisiatiewe wat ‘n ewe belangrike rol in die oplossing van huidige uitdagings speel: die Veiligheids- en Geweld-inisiatief, die Skoolverbeteringsinisiatief, die Afrika Klimaat en Ontwikkelingsinisiatief, en die Armoede- en Ongelykheidsinisiatief. ‘n Belangrike mylpaal gedurende 2012 was die konferensie Towards Carnegie3: Strategies to Overcome Poverty and Inequality wat namens die Nasionale Beplanningskommissie aangebied is. Die hoofdoel van die konferensie was om bestaande kennis en debatte in oënskou te neem en kruisbestuiwing van idees oor institusionele, tematiese en geografiese hindernisse heen te stimuleer.

Een van die uitdaginge in die verwesenliking van ons ambisies in die navorsingsarena is om optimaal geplaas te wees vir internasionale samewerking en om globale kennis te bevorder, terwyl plaaslike probleme terselfdertydig ook opgelos word. Dit sluit die ontwikkeling van nuwe navorsingsvemoktakappe in, asook die versterking van bestaande verhoudings met vennotte in Afrika en elders in die globale Suide. Navorsing wat werklik ‘n verskil in die wêreld maak word al hoe meer gedoen deur middel van internasionale konsortiums en samewerking. In ons pogings om navorsingssamewerking met internasionale vennotte te handhaaf en verder uit te bou, was die Universiteit van Kaapstad tydens 2012 steeds ‘n aktiewe vennoot in die Worldwide Universities Network, wat uit 19 navorsings-intensiewe universiteite bestaan wat oor ses vastelande strek.

‘n Belangrike bydrae tot die prestasies in hierdie verslag word gelever deur ons nagraadse studente en post-doktorale navorsers. In 2012 was daar meer as ses duisende studente vir honneurs-, meesters- en doktorsgrade by die Universiteit van Kaapstad ingeskryf. Terselfdertydig was daar 282 geregistreerde post-doktorale navorsers by die universiteit, meer as die helfte afkomstig van buite Suid-Afrika. Ons beskou ons mede-verantwoordelikheid om die leiers van môre op te lei as een wat nie slegs Suid-Afrika omvat nie, maar ook die vasteland van Afrika as geheel insluit. So, byvoorbeeld, deur middel van ‘n ruim skenking van die Carnegie Korporasie vir ‘n projek onder die naam ‘The Next Generation of Academics’, word ‘n groep jong akademici opgelei in die studievelde van aansteklike siektes, siviele ingenieurswese en ekonomie. Hierdie projek het ons in staat gestel om nou saam te werk met die Universiteit van Ghana, Makerere en die Witwatersrand.

Ek wil my dank betuig teenoor al ons skenkers, venneke en medewerkers in navorsing vir die ondersteuning van ons visie vir die ontwikkeling van navorsing aan die Universiteit van Kaapstad. Dit is te danke aan hierdie individue en organisasies, en inderdaad die werk van die hele universiteitsgemeenskap, dat ons in staat is om steeds navorsing van wêreldgehalte te lewer. Dit is ons voorneme om vorentoe strategies betrokke te bly by die veranderende hoërondernemingscape in Suid-Afrika en om navorsingsvennootskappe regoor Afrika en die res van die wêreld te bou ten einde optimaal gestalte te gee aan ons toekoms.

Leading women scientists at UCT: Professor Jill Farrant of the Department of Molecular and Cell Biology holds an A rating from the National Research Foundation. Professor Farrant was the African/Arab States recipient of the 2012 L’Oreal-UNESCO Award for Women in Science. Her research revolves around resurrection plants – plants that appear to die in drought, but recover dramatically within 24 to 48 hours after rain, even after a year in a dry state. The potential outcome of her work, the production of drought-tolerant crops, has the aim of addressing food security needs in Africa.
Introduction by the DEPUTY VICE-CHANCELLOR

It is gratifying to report that UCT researchers have delivered a truly outstanding performance in 2012, and the university is fortunate to have been able to gather together so many dedicated people who work so hard to roll back the frontiers of knowledge, to keep the university at the cutting edge in so many fields, and to better society in our own country and beyond our borders.

It is against this backdrop that I have pleasure in reporting on progress in the past year.

The Faculty of Health Sciences became the first faculty from Africa to be listed in the top 50 of the Times Higher Education World University Rankings of Clinical, Pre-clinical, and Health Universities, an achievement that coincided auspiciously with the Faculty of Health Sciences’ centenary celebrations. Similarly, the Law Faculty was ranked in the top 100 of the Quacquarelli Symonds (QS) World University Rankings, the only African law school to have achieved this; and the Graduate School of Business was ranked by the QS Global 200 Business Schools Report as the top emerging global business school with the most appeal and recognition among international employers. Our performance in the ranking systems remains a measure of consistently high international standing and reputation, relative to the thousands of other universities around the world who are ranked by these systems.

Contributing to our performance in the ranking systems is our high number of publications in international journals (close to 90% of our journal production), which influences our international visibility and impact. These figures also feed into the national publication count system, as recognised by the Department of Higher Education and Training (DHET), and I am pleased to report that UCT achieved the second-highest national publication count in 2012, a total of 1,314.40 units for research publications produced in 2011 (each year’s figures are always for the performance of the previous year). The national publication count gives recognition to the production of books and conference proceedings, which also increased during the past year. In addition to this, we acknowledge the importance of the creative and performing arts as vital contributors to research and knowledge production, and their impact on society as a whole. Details of our 2012 research output are provided on the CD enclosed at the back of this report.

We continue to use the National Research Foundation’s (NRF) evaluation and rating system as a measure of benchmarking our research performance within South Africa. In the 2012 cycle UCT submitted the highest number of applications in the history of the NRF (118), resulting in the number of NRF-rated researchers at UCT, totalling 415. During this cycle, new A ratings were awarded to professors Don Ross and Harold Kincaid (the first ever in any commerce faculty in South Africa), Jack van Honk (Psychiatry and Mental Health) and Heribert Weigert (Physics), confirming their status as world leaders in their respective research fields. The A ratings of professors Igor Barashenkov, Doug
Butterworth (both Mathematics and Applied Mathematics), John de Gruchy (Religious Studies), Gerd Gäde (Zoology), Lionel Opie (Medicine), Clifford Shearing (Criminal Justice), and Dan Stein (Psychiatry and Mental Health), and Distinguished Professor Philippe-Joseph Salazar (Rhetoric Studies), were reconfirmed under this cycle. The NRF awarded P ratings, made to exceptional young researchers, to Dr Åke Fagereng (Geological Sciences) and Dr Andrew Hamilton (Physics).

The achievements of some of our other distinguished researchers were also recognised through a number of national awards. At the 2012 annual NRF awards function, Professor Tim Noakes (Human Biology) received the Lifetime Achiever award, Professor Kelly Chibale (Chemistry) was recognised as the Champion of Research Capacity Development at Higher Education Institutions, and Professor Anusuya Chinsamy-Turan (Zoology) received the Transformation of the Science Cohort award. Professor Alison Lewis (Chemical Engineering) was named Distinguished Woman Scientist in Physical and Engineering Sciences by the Department of Science and Technology (DST), while Dr Sindiso Mnisi-Weeks (Private Law) received the DST’s Emerging Researcher Award for the Development of Rural Women. Our research and innovation achievements were evident in the 2012/13 National Science and Technology Forum – BHP Billiton Awards, where honours went to Emeritus Professor Robert Millar (Medical Biochemistry), Professor Graeme Cumming (Zoology), and the Adaptive Real-Time Internet Streaming Technology (ARTIST) Collaborative Project between UCT, East Coast Access, and the Council for Scientific and Industrial Research.

Four new Research Chairs were awarded to UCT under the DST/NRF SARChI programme in 2012: Stable Isotopes in Archaeology and Palaeoenvironmental Studies, Environmental and Social Dimensions of the Bio-Economy, Reaction Engineering, and Industrial Computational Fluid Dynamics. There are now 33 such Chairs hosted by UCT.

Across-the-board support to researchers is essential if we are to maintain this track record and grow the next generation of scholars. Such support at UCT takes the form of a range of initiatives and formal programmes to enable academics to complete higher degrees, get published, access research funding, and generally develop a passion for research. The oldest of these programmes, the Emerging Researcher Programme (ERP), reached its tenth year in 2012. To date, the ERP has provided research-related support to more than 600 emerging researchers at UCT, across all disciplines.

As a university, we have set ourselves the strategic goal of moving from a research-led university to a research-intensive university. This will require careful planning and the will to succeed, in order to overcome a number of challenges in moving towards our goal.

The most important of such challenges facing UCT (and, in fact, all higher education institutions) is to secure the right amount of funding to realise our ambitions in the research arena. While we remain grateful for the funding for research from our main South African funding agency, the NRF, the reality is that such funding – for research generally, but especially for the experimental sciences – is under great pressure. Because so much of NRF funding is tied for specially directed purposes (such as funding for rated researchers, SARChI Chairs, and Centres of Excellence), calls for the funding of actual research projects have been inadequate and irregular, and UCT’s research output is already being harmed – despite the fact that the university...
has done its best to shore up these researchers over the last few years. Secondly, the DHET’s direct spending on research in universities is only 9.1% of the total budget devoted to higher education and this is not favourable to research-led universities. Thirdly, the ongoing economic crisis in the world has had a detrimental effect on the funding of research by industry and philanthropic funders. For UCT’s research to retain its current level of impact and influence (and of course we do not want to remain static but improve), we will need to right-size the funding for our research effort.

Growing our postgraduate numbers and placing UCT as an international destination of choice for higher-degree students requires sufficient and appropriately skilled supervisory capacity. The recently established office of the Director of Postgraduate Studies intends to provide concentrated leadership at a senior level to prioritise the development of every aspect of postgraduate study and the postdoctoral sphere, and to ensure the best possible experience for the maximum number of students at this level. I am pleased to announce the recent appointment of Dr Nelleke Bak to this position.

Research that uses human participants or animals is required to undergo an ethics review. I thank UCT’s research ethics and animal ethics committees, overseen by two Senate-level committees, for their commitment, diligence, and excellent work. The work of these committees contributes significantly to the high ethical quality of research that emanates from UCT. In this regard, we also look forward to the appointment of a manager of the recently established Office of Research Integrity.

In 2012, we celebrated 125 years of women in research at UCT and the pages that follow later in this report draw attention to this achievement. In a continuation of the research themes profiled in our 2011 research report, we showcase the outstanding research being conducted across the university, which is increasingly taking on a multi- and interdisciplinary approach to finding solutions for problems facing our continent and the world.

In 2012, Dr Marilet Sienaert was appointed as Executive Director, Research. The leadership role played by the Research Office in supporting and enhancing the research enterprise at UCT was recognised in the change in status of the department’s Director to that of Executive Director.

I am especially grateful to our donors and sponsors who generously contribute to our research endeavour, to our research partners who choose to collaborate with UCT, and to the committees, individuals, and departments across the university who contribute to raising the profile of research at the university.

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1 218 Research Contracts

R682 million Value of Research Contracts

415 NRF-rated Researchers

33 SARChI Research Chairs

1 314.40 units Publication Count

2 500 Journals, Books, and Proceedings

25 864 Students

8 249 Postgraduate Students

1 391 Doctoral Students

282 Postdoctoral Research Fellows

4 892 International Students

2 004 International Postgraduate Students

R159 million Postgraduate Funding
Previously consisting of three separate but complementary offices – the Research Office, Research Contracts and Intellectual Property Services (RCIPS), and the Postgraduate Centre and Funding Office (PGC&FO) – the Department of Research and Innovation was re-organised in 2012, and now comprises the Research Office and the PGC&FO under one umbrella, and RCIPS. As part of the consolidation of activities supporting the postgraduate and postdoctoral sectors at UCT, we look forward to the appointment of Dr Nelleke Bak as the Director for Postgraduate Studies in 2013.

These interventions herald an important era in the history of the institution, signalling the university’s commitment to establishing UCT as a world-class higher-education institution.

Each of the offices that make up the department plays a key role in supporting UCT’s research performance, from maximising access to bursaries, scholarships and grants to developing capacity and increasing research impact, as well as assisting researchers to enter into complex research contracts.

Research Office

The Research Office aims to further UCT’s vision of becoming a research-intensive university with a global reach. Through engagement with relevant parties, it operates as a pivot between academics and the external research environment, and helps to align research interest and expertise with institutional priorities, as well as national and international imperatives.

The scope of activities includes expanding access to external funding opportunities and grants, developing and supporting proposals, administering a suite of internal grants through a proposal-driven, committee-managed process, accrediting and evaluating the university’s research groupings, tracking UCT’s research output and impact, managing researcher development programmes, fostering a culture of inter- and transdisciplinary research, forging new and strategic partnerships, and implementing the strategic projects of the University Research Committee. The office is currently organised into four units, with a fifth node envisaged for 2013, when the Office of Research Integrity will be established, which will work collaboratively with researchers and the relevant Senate ethics committees to promote responsible conduct of research, and further enhance the service-oriented ethos of the office.

Key to research success is the funding with which to undertake research. In a national funding landscape with rapidly diminishing resources, the Research Office invested in a database of funding opportunities that provides access to all funding opportunities for which researchers on the African continent are eligible. Research Professional Africa
is a customisable database that provides researchers with access to information about funding opportunities specific to their own research areas. When the database was rolled out to the UCT community during 2012, subscriptions peaked at 550 by year end, with more than 3 000 international funding opportunities being made available to researchers. Furthermore, the Research Office provided substantive technical support to researchers applying for funding from the United States’ National Institutes of Health (NIH), which resulted in 20 such proposals being developed in 2012 with UCT as the applicant institution. On the national front, the Research Office actively provided assistance with 400 applications for funding and rating from the NRF.

In addition to supporting access to grants, another key priority is to help develop researcher capacity. The Research Office runs pioneering programmes to assist academics in furthering their profiles, in which all faculties participate.

The Emerging Researcher Programme (ERP) reached its tenth year in 2012 and continues to provide support that ranges from counselling by a programme co-ordinator to more structured mentorship sessions, as well as workshops and seminars. It awards modest grants through a developmental process of proposal writing and its impact is reflected in the rapid growth from 44 participants in its founding year to 548 by the end of 2012. Fifty-six joined in 2012 alone.

Through the Programme for the Enhancement of Research Capacity (PERC), the Research Office works with faculties, departments, and individuals to offer support to the more established researcher. Activities to support this sector of the research community include preparing staff to apply for NRF rating and/or re-evaluation, promoting inter- and transdisciplinary research, providing financial and intellectual support for Africa-based research and the production of Africa-centred knowledge.

The work of PERC and ERP is further complemented by Supervision Training and the Mellon Visiting and Retired Scholars Mentorship Project. The latter aims at giving further individualised support to young academics through structured mentoring organised within selected host departments that apply for such support through a competitive process. (Also see feature on research development initiatives at UCT, on pages 22–25).

The support provided by the Research Office is delivered within the framework of the university’s mission and also its research strategy. In collaboration with the International Academic Programmes Office, the office strives to realise UCT’s Afropolitan vision of playing a consistent and visible role on the continent that is in line with the university’s position as one of Africa’s leading universities. Already a recipient of the NIH’s International Extramural Associate Research Development Award (IEARDA), the office was awarded a supplementary grant that enabled collaboration with other IEARDA grantees to transfer their skills to research managers and administrators on the African continent. In conjunction with the University of Zambia, Moi University in Kenya and Mbarara University of Science and Technology in Uganda, workshops were conducted in Lusaka and Cape Town in 2012. The latter workshop, hosted by the Research Office, was attended by 38 delegates from 25 institutions in sub-Saharan Africa.

UCT’s relationship with international organisations plays an equally important role in fostering our engagement with the international research community. Such relationship-building is supported by the Research Office and happens in a variety of ways, including participation in formally structured bodies, such as the Worldwide Universities Network, as well as through formal agreements with strategically selected international partners where there is already evidence of strong and productive collaboration in a selected area. In 2012, special focus was given to partnerships with the International Centre for Education, Marine and Atmospheric Sciences over Africa, a joint initiative between several laboratories in South Africa and France, and the establishment of a consortium focused on social science research and PhD/researcher training with the University of Ghana, Dar es Salaam, Ibadan, Makerere, and Nairobi.

Key to the success of each of the support structures is effective communication and the appropriate organisation and storage of knowledge. Information linking each of the above, coupled with an effective grants-management system, will soon be incorporated into an online Research Portal being developed in partnership with UCT’s Information and Communication Technology Services. There is also a concerted shift towards open-access platforms, with policies and structures currently under development to maximise open scholarship in the realm of research.

Over the last year in particular, and thanks to a very efficient and hardworking team, the Research Office has expanded its partnership with the research community. We salute our researchers and look forward to an excellent year of productivity ahead as we consolidate and build on these foundations.
One of the fruits of the university’s research activities is the stream of ideas and inventions with commercial and social potential. This year’s Innovation Evening and the associated Innovation brochure again left me amazed and proud – every year we have so much to celebrate and are continually blessed with new rising stars. For example, the 36 new disclosures in 2012 included 14 brand-new UCT inventors. Similarly, 19 new UCT patent holders were among the recipients of the 26 patents granted in 2012.

2012 also saw UCT taking equity in the printed silicon electronics spin-out, PST Sensors (Pty) Ltd, and in the process assigning 13 patent families (with 19 patents being granted in that portfolio in 2012) to the company. Another spin-out, Southern Access Technologies, now re-named Strait Access Technologies Holdings (Pty) Ltd & Strait Access Technologies (Pty) Ltd, received extensive support and investment from the Technology Innovation Agency (TIA) and Bidvest Ltd. In addition, CapeRay Medical (Pty) Ltd raised a second round of funding through the IDC Venture Capital Fund.

Tuluntulu (Pty) Ltd was the only spin-out company formed in 2012 based on UCT technology, following three in 2011. But a number are waiting in the wings and much time has been spent on planning for the formation of several other companies that are likely to be launched during the course of 2013. Tuluntulu (Pty) Ltd was formed to commercialise intellectual property (IP) developed by a TIA-funded consortium led by the CSIR, to which UCT had contributed IP. The technology, Adaptive Real-Time Internet Streaming Technology (ARTIST) uses algorithms to adjust quality to available bandwidth to ensure viewing continuity. The success of this technology solution was recognised through an award from the NSTF-BHP Billiton for Outstanding Contribution to Science, Engineering, Technology, and Innovation through Research Leading to Innovation in a Corporate Organisation or Institution.

Probably one of UCT’s most successful social responsiveness projects, the Red Cross Children’s Hospital Poison Information Centre, has launched its re-developed 30-year-old poisons information system on an Internet-enabled platform with mobile device accessibility. The database, already in use at more than 30 centres throughout South Africa, as well as Botswana, Zimbabwe, Mozambique, Kenya, and Nigeria, will, through this new platform, ‘Afritox’, become accessible to the broader medical-practitioner community.

Research contracts to the value of R682 million were processed, which is slightly down from the R722 million of 2011. This should, however, be seen in the context of the dramatic increases that were experienced over the last few years – from R337 million in 2006, to R550 million in 2010, and the exceptionally high R722 million in 2011.

RCIPS’s activities have been greatly enhanced following funding support by the National Intellectual Property Management Office (NIPMO). We were able to appoint new staff
as well as external experts to review ‘innovation hotspots’ within UCT and develop appropriate strategies. We thank NIPMO for this support.

Many new initiatives are on the cards for 2013, but I will mention just two. ‘IP Savvy’ will allow our researchers to improve their intellectual property knowledge through online modular presentations and, on successful completion of a quiz, researchers are awarded a certificate certifying them as ‘IP Savvy’.

We are also going to introduce the Café Scientifique concept to Cape Town. These events, sometimes dubbed as ‘science for the sociable’, bring people together in a friendly, informal ‘pub’ atmosphere in an after-work, happy-hour context to discuss and explore the latest ideas in science and technology in laypersons’ terms. In essence, it will start with an informal talk on a key UCT invention given by the inventors themselves, who will highlight key aspects of their research and the resulting commercial opportunities, followed by question and answer exchanges, debate and general discussion around the technology – an opportunity for everyone to express an opinion, expert or otherwise.

Always exciting, always lekker! Imnandi!

Unbundling connectivity problems

Research indicates that globally, online video usage has exploded. But this is not the case in Africa, as it simply does not work.

A South African consortium has developed and introduced a world-first technology for the African market, facilitating video streaming to mobile devices.

The consortium, funded by the Technology Innovation Agency, and consisting of the Council for Scientific and Industrial Research (CSIR), UCT, and East Coast Access, developed the technology known as ARTIST (Adaptive Real-Time Internet Streaming Technology) that allows streaming video to be viewed on mobile devices, in low bandwidth or congested environments.

The technology was commercialised and a new company called Tuluntulu (meaning ‘stream’ in Zulu) launched.

ARTIST utilises patented technology to deliver unbroken live video streams with fully integrated social media interactivity. Users can use existing devices – Android smart phones and/or tablets – and existing mobile phone networks. The technology works on 3G and EDGE (low bandwidth), which is the dominant system used in rural areas in South Africa, Africa and other developing countries.

The technology can be used extensively in commerce, but also has specific application in health and education, particularly for rural areas. The intention is to launch into South Africa, into Africa and then target the Asian market, before making the offering global.

The work of the consortium, which includes UCT’s professors Mqhele Dlodlo and Gerhard de Jager, was acknowledged through an innovation award at the 2012/13 NSTF-BHP Billiton Awards.
The Postgraduate Centre and Funding Office is a service-provision area accountable to the university’s Postgraduate Studies Funding Committee, which in turn, reports to the Board for Graduate Studies, both of which are in the academic cluster of committees and accountable to Senate.

Increasing the absolute numbers of both local and international postgraduate students, and improving retention rates, are two of UCT’s primary goals. Important for the success of these goals and objectives is a strong cohort of postgraduate students. In order to ensure that the professional sector of the country and continent is adequately provided for through the emergence of excellent graduates, broad-based support for these sectors is an imperative.

Similarly, support to postdoctoral researchers is crucial, as these academics-in-training constitute a very valuable link in the research production chain and relieve the dwindling numbers of academic staff and researchers in South Africa and on the continent of Africa. The numbers of postdoctoral researchers that register for up to five years at UCT have increased steadily since 2002, and the university hopes to further increase these numbers in the next five years.

Support structures and resource mechanisms that add quality to the lives and experience of these individuals have been established, and are constantly being monitored, reviewed, and extended. The office’s work supports the university to achieve targeted recruitment and, through its policies and practices, encourages students to complete their degrees and to graduate in the minimum time-frame.

The appointment of the Director of Postgraduate Studies in 2013 will allow an increased focus on the consolidation and extension of such support structures.

Several strategic partnerships to support the postgraduate sector were continued and new ones were established in 2012. These include the UCT/CSIR Scholarship programme, the UCT/SKA Doctoral Scholarships, and master’s bursaries from the African Institute for Mathematical Sciences. The UCT PhD staff bursaries as well as opportunities provided through the Worldwide Universities Network initiative will become operational in 2013. These awards target students in specific areas of study and are sponsored by the university and external partners.

Trusts, foundations, and individuals provide significant contributions to the support and development of postdoctoral research fellows and senior students at UCT. The sponsors of such programmes provide the university with opportunities to attract the country’s best postdoctoral researchers and students, and enable them to pursue their research and studies with minimal financial stress. Postdoctoral research fellows are strongly supported by individual departmental fellowships, the National Research Foundation, and through generous sponsorship by the Claude Leon Foundation.
The university’s flagship postgraduate scholarship programmes include the AW Mellon Cross-faculty Scholarships, the Harry Crossley Research Fellowships, the UCT/Harry Crossley Green Matter Scholarship, the D & E Potter Fellowship programme, the Carnegie Corporation’s Developing the Next Generation of Academics programme, the UCT/CSIR scholarships, and the Woolworths Fellowships. These programmes provided full-cost funding to carefully selected students, most of whom are required, as a condition of award, to plan and hold ex-departmental seminars based on their research.

International and refugee students received around 30% of all funding administered by the office in 2012. Included are the Faculty International Students’ Bursaries established to provide funds to international students to cover the International Term Fee, the UCT Scholarships for International and Refugee Students, and funds provided to international and refugee students for mobility. The generous grant from the Sigrid Rausing Trust, which provided scholarships for refugee students, and for which we remain very grateful, came to an end in 2012.

The UCT Postgraduate Centre
The Postgraduate Centre is a dedicated space for master’s and doctoral students, as well as postdoctoral research fellows, in which they can meet, and use the computer and Internet stations provided. A lounge area provides space for users to read a variety of journals, magazines, and newspapers, and the adjacent TB Davie Seminar Room provides a space to hold seminars. Through its activities and available facilities, the Postgraduate Centre aims to promote the interests of postgraduate students and postdoctoral research fellows in synergy with faculty and departmental facilities and services.

The UCT Research Associateships were established to provide prestigious awards to reward the research excellence of master’s and doctoral students, as well as to acknowledge the work of their supervisor(s). In 2012, 20 master’s and doctoral awards were made.

Every year, malaria kills between 600,000 and a million people. Of those affected, more than 90% are from sub-Saharan Africa and 86% are below the age of five. The malaria parasite is beginning to display signs of drug resistance, and thus there is an urgent need to develop new drugs to treat the disease effectively. South Africa records 7,000 cases of malaria per year, and 79% of those are imported.

In a landmark development, a compound discovered in 2012 by UCT’s Drug Discovery and Development Centre (H3-D), directed by founder Professor Kelly Chibale, in conjunction with the Medicines for Malaria Venture (MMV), the Eskitis Institute at Griffiths University (Australia), the Swiss Tropical and Public Health Institute (Switzerland), Monash University (Australia), and Syngene (India), has been selected by MMV for its potent activity against multiple points in the malaria parasite’s lifecycle. The compound, named MMV390048, from the aminopyridine class, not only has the potential to become part of a single-dose cure for all strains of malaria, but might also be able to block transmission of the parasite from person to person.

The compound was selected on the basis of initial results by the Swiss-based MMV for further development – making it the first compound researched on African soil to enter preclinical development in partnership with MMV.

“This is a significant victory in the battle to alleviate the burden of disease in the subcontinent,” declared Naledi Pandor, Minister of Science and Technology, when the discovery was announced at UCT in August 2012. “Clearly the war on this disease is not yet won, but I am excited by the role that our excellent scientists have played in this milestone in finding a potential cure for malaria, and possibly preventing its transmission.”
UCT Vice-Chancellor Dr Max Price added: “H3-D was founded at UCT in 2010 for this very purpose: to develop African expertise towards solving the health problems that beset the developing world. We trust this clinical candidate is the first of many contributions Professor Chibale and his team will be making to the advancement of international medicine.”

The aminopyridine series was initially identified by Griffith University scientists in Australia as part of MMV’s extensive malaria-screening campaign of around 6 million compounds. A team of scientists from H3-D, led by Professor Chibale, further scrutinised and explored the antimalarial potential of the series. With parasitological, pharmacological, and contract chemistry support from the Swiss Tropical and Public Health Institute (Switzerland), the Centre for Drug Candidate Optimisation at Monash University (Australia), and Syngene (India) respectively, the H3-D team selected the most promising compounds from the series to be optimised and retested. In just 18 months the team had identified and developed a candidate suitable for preclinical development.

Dr Tim Wells, MMV’s Chief Scientific Officer, reiterated that the discovery is a great achievement and an excellent example of the quality of research that can be fostered in Africa. “We look forward to seeing more exciting compounds emerge from Kelly’s team and are proud to be collaborating with H3-D; not only is it conducting excellent science today, it is also providing world-class training for the next generation of African scientists.”

Professor Kelly Chibale and his team (Dr Diego Gonzalez Cabrera, Dr Tanya Paquet, Dr Ze Han, Dr Aloysius Nchinda, and Dr Leslie Street) share a moment in the laboratory where they are blazing a trail in the fight against malaria.

The clinical candidate is in line to enter clinical trials in early 2014.

What is so unique and exciting about MMV390048?

- It is very potent: it displayed a complete cure of animals infected with malaria parasites in a single dose given orally, and thus has the potential to cure millions of people.
- It is active against a wide panel of resistant strains of the malaria parasite.
- Developing the drug has made possible the training of more than 10 local scientists and cemented strong relationships with international partners.
A flagship research development and support initiative, UCT’s Emerging Researcher Programme (ERP), reached its tenth year in 2012. Whereas most higher-education institutions are faced with the challenge of an ageing cohort of established researchers nearing or entering retirement, the ERP and other targeted research support interventions at UCT are proving to be successful in growing and nurturing the next generation of academics. Other interventions include the Programme for the Enhancement of Research Capacity, the Mellon Visiting and Retired Scholars Mentorship Project, and the Next Generation of Academics project.

The Emerging Researcher Programme

A cross-faculty programme located in UCT’s Research Office, the ERP strives to ensure the transfer of essential research skills from experienced researchers to those academics who have yet to establish a research career. With almost a decade of experience, the ERP offers support across all scientific disciplines.

The success of this programme is evidenced by its growth: in its founding year, the programme had 45 participants; by the end of 2012, this number had increased more than tenfold, with a total of 548 academics having received some form of support from the ERP since its inception. Participation in the programme remains voluntary, and many members who have ‘emerged’ choose to retain links with the ERP and to receive an evolving form of support.

During 2012, the ERP offered 41 seminars and 25 workshops across all disciplines. Topics ranged from research planning and understanding the H-index and impact factors, to planning for a successful sabbatical and open-access publishing.

The ERP offers modest grants for research development purposes. The entire grants process is used as a capacity-building exercise, from assistance in developing the proposal and submitting the application, through to the production of appropriate outputs that correspond to goals identified in the proposal itself. In this way, the ERP aims to equip researchers with the skills required to compete successfully for external grants. In 2012, 82 research development grants in excess of R2.6 million were awarded. This is made possible through funding provided by the University Research Committee, the Carnegie Corporation, the Mellon Foundation, and the Education, Training and Development Practitioners’ Sector Education and Training Authority.

One of the most important tasks of the ERP is to develop excellent supervisors of postgraduate research. Through the supervision training programme, novice researchers are guided through the strategic, relational, and procedural issues associated with master’s and PhD supervision. The programme is open to all academic staff, whether they are supervising postgraduate students for the first time or seasoned academics who wish to update and strengthen their supervision skills.

Programme for the Enhancement of Research Capacity

The Programme for the Enhancement of Research Capacity (PERC), established in 2008, provides a framework for supporting both mid-career and established researchers. It also has a key objective of strengthening collaborative research networks with partners in the global South and particularly in Africa. It does this through a range of initiatives that encourage collaborative, cross-disciplinary research that links UCT staff to research colleagues elsewhere in Africa.

In 2012, a total of 221 academics attended one or more of the ten PERC seminars, two which were specifically geared towards mid-career support. Seminars were offered by UCT and visiting international staff, including Professor Debbie Epstein (Cardiff University) and Professor Jane Kenway (Monash University).

A large part of PERC support is directed at preparing staff to apply for an NRF rating, though support is also given for career planning, promotion goals, and publication strategies.

One of the highlights of 2012 was the visit by Professor Paulin Hountondji from the National University of Benin, who became the second annual PERC visitor. He is one of Africa’s best known philosophers and Emeritus Professor and Honorary Dean of the Faculty of Humanities at the National University of Benin. Professor Hountondji presented a series of seminars and a Vice-Chancellor’s
Open Lecture titled *Heritage and Progress: a Dilemma of Contemporary African Culture*.

In an effort to stimulate dialogue on interdisciplinary research at UCT, PERC hosted a series of workshops and seminars in 2012, led by a number of eminent researchers, including prominent scholar and UCT graduate Professor Frank Kessel of the College of Education at the University of New Mexico. Professor Kessel strongly supports the creation of innovative inter- and transdisciplinary approaches to research, which is also being encouraged by many global academic and funding agencies, as a way of addressing urgent social problems such as poverty, health inequities, violence, and sustainable development.

Research grants awarded through PERC are seen as developmental and applicants are supported to construct their research proposals, as well as to undertake the research. In 2012, funding from the AW Mellon Foundation enabled the awarding of three grants valued at R165,000 each, bringing the total number of current PERC projects to 10 across four faculties. One measure of the success of the PERC-funded projects is the extent to which these projects establish research ties with partners in Africa. To date, ties have been forged with researchers in Botswana, Ghana, Kenya, Lesotho, Malawi, Mozambique, Namibia, Nigeria, Rwanda, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe.

The Mellon Visiting and Retired Scholars Mentorship Project

The donor-funded Mellon Visiting and Retired Scholars Mentorship Project is intended to establish a one-on-one mentorship relationship between developing researchers and a visiting or retired scholar within a mentee’s specific discipline. This project dovetails with the ERP and PERC to build and strengthen a new generation of researchers. Visiting or retired scholars commit up to one year of their time to the mentee. The AW Mellon Foundation has extended its support until the end of 2014.

Since its inception, 37 mentors have participated in the project, the majority of whom are from outside South Africa: the United States of America, United Kingdom, the Netherlands, Israel, Germany, Canada, Nigeria, and Australia. Approximately 170 researchers have benefited from mentoring interventions, which have resulted in a wide range of outputs, such as peer-reviewed articles, book chapters, conference papers, grant applications, and doctoral graduands. In 2012, 35 mentees participated in the seven active mentorships.

Next Generation of Academics Project

Research support extends to ensuring that South Africa and the rest of Africa can count on a vibrant academic profession in the future. Funded by the Carnegie Corporation, the Next Generation of Academics in Africa project aims to develop a cohort of trainee academics in the fields of infectious diseases, civil engineering and economics to create a competitive pool of young scholars who can be recruited into academic careers in Africa. The initial two-year grant (2011–2012) has been extended by a renewal grant for a further three years (2013–2015). The fields were selected on the basis of their importance in relation to national and continental priorities, the inherent difficulty of attracting students to academia in these fields, rather than the lucrative public or private sector, supervisory capacity, and a suitable pool of candidates who meet the Carnegie dual criteria of a commitment to staying in academia and coming from previously disadvantaged population groups, including women.

The aim is to complete the training of 76 doctoral students and 16 postdoctoral fellows by 2015 in the context of innovative supervisory hubs that consist of a mixture of doctoral students, postdoctoral fellows, mentors, and supervisors. The hub models vary across the relevant disciplines, but common denominators include a team-based approach, mentorship differentiated from supervision, a teaching component, workshops, feedback seminars, and support groups.

The project has a reference group consisting of the universities of Ghana, Makerere, the Witwatersrand, and UCT. Meetings of the reference group took place in Nairobi (2011) and Kampala (2012) to share good practice and the lessons learned in the training and development of a next generation of African scholars. The third such meeting will be hosted by UCT in 2013.

Thanks to extensive quantitative and qualitative data that are being gathered from the project, the lessons learned are being documented and will be analysed to contribute to new ways of thinking about PhD training in the future, institutionally, but also nationally and on the continent.
Faridah Chebet joined the University of Cape Town in 2011 as a PhD scholar under the Carnegie-funded Next Generation of Academics in Africa programme (described further on page 24). In 2012, she was appointed as a full-time lecturer in the Department of Civil Engineering at UCT, and continues to pursue her studies on a part-time basis. She is undertaking her doctoral research within the Geotechnical Research Group, whose main emphasis is seeking innovative and environmentally sustainable solutions to challenges of ground improvement involving soil as an engineering material.

In the midst of increasing human population and the resulting need to develop more civil engineering infrastructure to serve the growing population, geotechnical engineers in developing countries, faced with limited financial resources, continue to search for cost-effective and sustainable ways of improving the engineering properties of construction soils. Presently, polymer-based geosynthetics and geofibres are widely used in the construction industry as reinforcement materials. The Geotechnical Research Group in the Department of Civil Engineering, under the supervision of Dr Denis Kalumba, is undertaking extensive research on reusing waste material, such as tyre waste, carpet waste, and plastic bag waste as reinforcement inclusions in soil to establish viability for use in ground improvement schemes. These materials are abundant, but are by and large destined for disposal or incineration and yet their unique properties can once again be beneficial in a sustainable materials stream. Investigation into the reinforcing properties of these materials is being carried out mainly through soil laboratory testing and numerical analyses.

As a member of the Geotechnical Research Group, Faridah’s main areas of interest are geotechnical engineering ground-improvement, soil reinforcement, and geo-environmental sustainability. Her doctoral thesis focus is on the improvement of engineering properties of soils by means of reinforcement, using alternative materials such as plastic waste. Soil material is extensively used to build geotechnical structures such as highway embankments, road sub-grades, earth dams, foundations, embankments for flood protection, and slope stabilisation.

Due to expansion of cities, marginal sites that were previously disregarded due to poor engineering soils have become prime land for construction and this has created the need for modification or improvement of soils on these sites. Soils with poor strength properties can generally be made into viable construction material when properly reinforced and therefore ground improvement is increasingly considered for many infrastructure projects. To date, a paper on the research findings was submitted and presented at the International Conference on Ground Improvement and Ground Control in Australia in 2012. A second paper has been selected for presentation at the International Conference on Soil Mechanics and Geotechnical Engineering in Paris, France.

Faridah believes that the structured training within the Carnegie Programme has been invaluable in preparing her for the roles and responsibilities of being an academic and finding the balance between research and teaching. As a Carnegie Fellow, she was exposed to the day-to-day academic duties, taking on a substantial teaching load and undergoing systematic mentorship on how to facilitate student learning and respond to student needs. She describes her experience under the Carnegie Fellowship as “a journey of personal growth and continual self-discovery”.

Originally from Kapchorwa, a district on the slopes of Mt Elgon in Uganda, Faridah attended Makerere University, where she completed her undergraduate studies in Civil Engineering. She went on to obtain a master’s degree in Geotechnical Engineering at the University of Manchester, and then joined UCT to pursue a PhD in Geotechnical Engineering.

Faridah’s appointment in 2012 as a full-time academic in the Department of Civil Engineering was a defining moment for her, which she describes as a “coming of age”.

Faridah Chebet

Growing the Next Generation

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Research Dashboard
Research Funding

UCT’s vision for the development of research recognises the importance of focusing our efforts and resources in selected areas, in order to take the quality and impact of our research to the next level. The DST/NRF Centres of Excellence and Competence Centres, the South African Research Chairs Initiative, and UCT’s Signature Themes for research and university-accredited research groupings provide frameworks to achieve this goal. Our research is made possible through generous donations, scholarships and fellowships, and through research contracts and grants from national and international funding agencies.

Funding through research contracts

Research contracts to the value of R682 million were processed in 2012. These contracts vary from short-term contracts to multiyear contracts with multi-million-rand budgets, involving both local and international funders. In 2012, 1,218 contracts were signed.

Research contracts to the value of R90.26 million were entered into with South African government departments, public enterprises and statutory bodies in 2012. South African science councils, national research centres and non-profit entities accounted for R48.5 million, of signed contracts, whereas contracts with South African industry were valued at R111.4 million. Major South African industry partners include the Eskom Group, Anglo Group, Old Mutual, Rustenburg Platinum Mines, and the Sasol Group.

At an international level, 572 contracts to the value of R431 million were entered into with entities from 48 countries. The major source of foreign funding is the USA (R211.8 million), followed by the United Kingdom (R82.6 million), Canada (R35.6 million), Belgium (R23.5 million), and the Netherlands (R22.5 million).

The most prominent funder of research in 2012 was the National Institutes of Health, and contracts to the value of R73.3 million were, directly or indirectly (through collaboration with USA universities), entered into. Contributions through the Bill and Melinda Gates Foundation amounted to R40.7 million and the Aeras Global TB Vaccine Foundation contributed R37.4 million.

The Medical Research Council, with contracts to the value of R28.8 million, was the major United Kingdom contributor, followed by the Wellcome Trust (R24.5 million). Contracts to the value of R21.6 million and R19 million were respectively entered into with the European Commission and the European and Developing Countries Clinical Trials Partnership, which operates from the Netherlands. Canada’s main contributor was the International Development Research Centre, with contracts to the value of R17.4 million.

National agency funding through research grants

The National Research Foundation (NRF) remains a significant funder of research at UCT. In 2012, the total grants awarded from the NRF declined to R208 million, with 766 grants at an average grant size of R271,540, compared to R224 million in 2011, with 848 grants, at an average grant size of R264,150. These amounts include carried forward grant awards from 2011 as well as the actual grant awards for 2012. The decline in 2012 can be attributed to many factors, including budget constraints and policy changes in the NRF’s funding landscape and priorities. Figure 1 shows the percentage of NRF grant awards to UCT in 2011 and 2012 by funding purpose.

- Established researchers
  The majority (55%) of the NRF funding support to UCT in 2012 was allocated to supporting established researchers across all knowledge areas and disciplines, through the Competitive Programmes for Rated and Unrated researchers (R19.3 million), Incentive Funding for Rated Researchers (R18.9 million), and the South African Research Chairs Initiative (R76.4 million for the DST/NRF Chairs).

- National and strategic priorities
  Fifteen percent (R30.7 million) of NRF funds awarded to UCT in 2012 was to support research on national and strategic priorities. The bulk of this funding is ring-fenced by the Department of Science and Technology to support their Research and Development Strategy and
Research excellence
UCT was awarded R13 210 177 in 2012 for the two DST/NRF Centres of Excellence, c*change (see page 172) and Birds as Keys to Biodiversity Conservation (page 108). UCT also co-hosts a node of the DST/NRF Centre of Excellence for Biomedical TB Research (page 61).

National and international collaborations
Five percent of UCT’s funding from the NRF in 2012 was allocated to support collaborations mainly through the South African Science and Technology Bilateral Agreements and the Knowledge Interchange Programme. Mainly due to a timing difference, there was a decrease in total funding from R16 617 629 in 2011 to R10 247 305 in 2012 (with an average grant size of R119 698), with many bilateral funding calls being issued late in 2012 and the outcomes communicated in 2013.

Emerging researchers
The Thuthuka Programme aims to develop human capital for research and innovation. In 2011, the NRF launched a new Thuthuka Programme that was implemented for 2012 funding and that consisted of three funding tracks, namely the PhD track, post-PhD track, and the NRF-rating track. The NRF also set support targets for this programme in terms of black and female researchers.

These changes, together with limited NRF funding, resulted in UCT being unable to grow its Thuthuka budget in 2012, this remaining at approximately
R3 million. UCT's Emerging Researcher Programme (see page 23) will continue to play a complementary role in supporting this target group.

UCT is also a beneficiary of funding from the South African Medical Research Council, which awards research grants for individual projects, research-unit funding, and career-development and training awards. In 2012, awards valued at R15 783 326 were made for new projects and fellowships, in addition to renewal grants, and the funding for scholarships and bursaries reported on page 30.

**POSTGRADUATE STUDENTS AND FUNDING**

Increasing the absolute numbers of both local and international postgraduate students, and improving retention rates, are two of UCT’s primary goals. In order to ensure that the professional sector of the country and continent is adequately provided for through the emergence of excellent graduates, broad-based support for these sectors is an imperative.

The creation of the post of Director, Postgraduate Studies, and the mandate to connect and communicate between the different structures and resource mechanisms that support postgraduate students have given new impetus to improving the UCT experience of this sector of the research community.

In 2012, 4 739 awards were administered to 2 464 honours, master’s and doctoral students at UCT, to a total value of R159 455 046.

**Sources of funding**

- **UCT departmental awards** accounted for 32.5% of all funding administered in 2012, and included more than 30 new departmental scholarships and fellowships. These awards are intended to support continuing and new students or doctoral graduates with specific skills and research interests.

- **The National Research Foundation** continues to be a major funder of postgraduate students. In 2012, 904 bursaries and scholarships were awarded to honours, master’s and doctoral students, to a total value of R46 395 844.

- **The Medical Research Council** provides support for master’s and doctoral students who are studying in areas of the health sciences. In 2012, 12 bursaries and scholarships were awarded to postgraduate students, to a total value of R760 000.

- **The UCT Research Associateships** provide prestigious awards to recognise the research excellence of master’s and doctoral students across all disciplines, as well as to acknowledge the work of their supervisor(s). In 2012, 20 master’s and doctoral awards were made, valued at R840 000.

- In 2012, 25 master’s and 45 doctoral students were awarded **UCT Conference Travel Grants**, valued at R178 397 and R627 221 respectively, which enabled them to present papers locally and internationally. **Table 4** lists the areas of study represented and the travel destinations visited during 2012.

- **UCH Scholarships for International Travel** enable master's and doctoral students to undertake research visits to internationally recognised institutions for a minimum of two and a maximum of 10 months. In 2012, awards were made to 32 master's and doctoral students for international travel, valued at R1 274 515.

- Through the **National Student Financial Aid Scheme** offered by the national Department of Higher Education and Training, 31 honours students and 12 master’s students were awarded loans to the value of R1 157 819 and R366 168 respectively.

- In 2012, 12 students received scholarships valued at R1 083 486 through the **UCT/CSIR Scholarship Programme**. The awards are funded equally by UCT and the CSIR and provide high-value scholarships to honours, master’s, and doctoral students whose areas of study fall within the CSIR’s priorities.

- Four postgraduate students were funded through the **Commonwealth Scholarship Programme** in 2012 in the following areas of study: management science or philosophy (master’s), economics for development (master’s), intellectual history (master’s), and environmental engineering (doctoral).

- The generous **David and Elaine Potter Fellowships** provide full-cost support to excellent master’s and doctoral students who intend to contribute to civil society in South Africa by leveraging their educational advantage in any discipline. Since its inception in...
2004, more than 75 students have been supported. In 2012, 19 awards were made (including continuing students) valued at R2 010 310. Areas of study ranged across disciplines, from applied mathematics, chemistry and historical studies, to philosophy and social anthropology.

The Harry Crossley Research Fellowships are full-cost and are available to South African students for full-time study in any research-related degree, with the exception of students whose studies are in the areas of politics or religion. The fellowships are granted on the basis of academic merit and financial need to students proceeding to honours, master’s and doctoral degrees. In 2012, 27 students received Harry Crossley Research Fellowships (including continuing students), valued at R1 868 000.

The Harry Crossley Foundation is one of UCT’s most generous and long-standing donors. In addition to the Fellowship Programme, the Foundation provides support to postgraduate students in the form of need-based bursaries, a postdoctoral fellowship, funds for research in health sciences, and an annual grant for the supply and maintenance of equipment in the Postgraduate Centre.

The UCT/Woolworths Fellowship Programme supports master’s and doctoral students whose research is in the areas of environmental issues and probiotics. In 2012, four students received awards valued at R320 000.

The AW Mellon (cross-faculty) Scholarship Programme provides support to master’s and doctoral students registered in specific areas of study in the humanities, law, and commerce. In 2012, 21 awards were accepted to the value of R2 264 473.

In 2012, 96 international and 20 refugee students were awarded R2 667 500 and R730 000 respectively through the UCT Scholarships for International and Refugee Students. International students received 31% of the total funding provided to postgraduate students at UCT in 2012. The UCT Refugee Students’ Scholarship programme funded through the Eric Abrahams Scholarships was augmented by a donation from the Sigrid Rausing Trust, which funded 11 of the 20 refugee students. The programme commenced in 2007 and has funded 56 students to a total value of R3 574 333. This number includes some students who were funded for two degrees, i.e. honours and master’s. Table 3 illustrates the source of funds used for international student support, as well as the breakdown of students from SADC, other countries in Africa (non-SADC), and the rest of the world.

Table 1: Total awards made to postgraduate students in 2012 by source of funds

<table>
<thead>
<tr>
<th>Degree</th>
<th>Awards</th>
<th>UCT (central)</th>
<th>Departmental funds</th>
<th>Donations</th>
<th>Investments</th>
<th>MRC</th>
<th>NRF</th>
<th>State</th>
<th>External*</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Honours</td>
<td>Number</td>
<td>242</td>
<td>93</td>
<td>171</td>
<td>59</td>
<td>3</td>
<td>191</td>
<td>31</td>
<td>79</td>
<td>869</td>
</tr>
<tr>
<td></td>
<td>Value</td>
<td>R2 798 500</td>
<td>R2 432 472</td>
<td>R3 383 046</td>
<td>R626 793</td>
<td>R240 000</td>
<td>R5 443 000</td>
<td>R1 157 819</td>
<td>R2 745 719</td>
<td>R18 827 349</td>
</tr>
<tr>
<td>Master’s</td>
<td>Number</td>
<td>598</td>
<td>558</td>
<td>185</td>
<td>203</td>
<td>2</td>
<td>407</td>
<td>12</td>
<td>285</td>
<td>2250</td>
</tr>
<tr>
<td></td>
<td>Value</td>
<td>R8 129 897</td>
<td>R23 482 763</td>
<td>R5 232 506</td>
<td>R3 048 141</td>
<td>R100 000</td>
<td>R1 957 567</td>
<td>R366 168</td>
<td>R5 944 024</td>
<td>R65 875 066</td>
</tr>
<tr>
<td>Doctoral</td>
<td>Number</td>
<td>464</td>
<td>460</td>
<td>154</td>
<td>117</td>
<td>7</td>
<td>306</td>
<td>0</td>
<td>112</td>
<td>1620</td>
</tr>
<tr>
<td></td>
<td>Value</td>
<td>R8 303 221</td>
<td>R25 989 895</td>
<td>R12 264 552</td>
<td>R4 027 021</td>
<td>R420 000</td>
<td>R21 381 277</td>
<td>0</td>
<td>R2 366 666</td>
<td>R74 752 632</td>
</tr>
<tr>
<td>Total</td>
<td>Number</td>
<td>1304</td>
<td>1111</td>
<td>510</td>
<td>379</td>
<td>12</td>
<td>904</td>
<td>43</td>
<td>476</td>
<td>4739</td>
</tr>
<tr>
<td></td>
<td>Value</td>
<td>R19 231 618</td>
<td>R51 905 130</td>
<td>R20 880 104</td>
<td>R7 701 955</td>
<td>R760 000</td>
<td>R46 395 844</td>
<td>R1 523 987</td>
<td>R11 056 408</td>
<td>R159 455 046</td>
</tr>
</tbody>
</table>

*External awards reflect external funds for student support, and are received and processed by the Fees Office.
### Table 2: Postgraduate funding awards by degree level and faculty in 2012

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Honours</th>
<th>Master's</th>
<th>Doctoral</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of students receiving awards</td>
<td>Number of awards made</td>
<td>Value of awards</td>
<td>Number of students receiving awards</td>
</tr>
<tr>
<td>Commerce</td>
<td>31</td>
<td>53</td>
<td>R1 148 555</td>
<td>92</td>
</tr>
<tr>
<td>Engineering &amp; the Built Environment</td>
<td>36</td>
<td>49</td>
<td>R20 057</td>
<td>303</td>
</tr>
<tr>
<td>Health Sciences</td>
<td>54</td>
<td>93</td>
<td>R2 010 235</td>
<td>219</td>
</tr>
<tr>
<td>Humanities</td>
<td>229</td>
<td>388</td>
<td>R6 041 960</td>
<td>305</td>
</tr>
<tr>
<td>Law</td>
<td>0</td>
<td>0</td>
<td>R0</td>
<td>40</td>
</tr>
<tr>
<td>Science</td>
<td>129</td>
<td>207</td>
<td>R5 960 823</td>
<td>268</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>479</td>
<td>790</td>
<td>R16 081 630</td>
<td>1 194</td>
</tr>
</tbody>
</table>

### Table 3: Summary of awards made to international and African students by region in 2012

<table>
<thead>
<tr>
<th>Source of Funds</th>
<th>Awards</th>
<th>Africa (non-SADC)</th>
<th>International</th>
<th>SADC</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>UCT (central)</td>
<td>Awards made</td>
<td>228</td>
<td>134</td>
<td>83</td>
<td>445</td>
</tr>
<tr>
<td></td>
<td>Value</td>
<td>R 4 362 500</td>
<td>R 2 537 514</td>
<td>R 2 189 362</td>
<td>R 9 089 376</td>
</tr>
<tr>
<td>Departmental funds</td>
<td>Awards made</td>
<td>136</td>
<td>97</td>
<td>210</td>
<td>443</td>
</tr>
<tr>
<td></td>
<td>Value</td>
<td>R 7 857 640</td>
<td>R 5 559 503</td>
<td>R 9 841 164</td>
<td>R 23 258 307</td>
</tr>
<tr>
<td>Donations</td>
<td>Awards made</td>
<td>39</td>
<td>12</td>
<td>69</td>
<td>120</td>
</tr>
<tr>
<td></td>
<td>Value</td>
<td>R 2 846 500</td>
<td>R 4 293 260</td>
<td>R 3 393 679</td>
<td>R 6 660 439</td>
</tr>
<tr>
<td>Investments</td>
<td>Awards made</td>
<td>15</td>
<td>17</td>
<td>46</td>
<td>78</td>
</tr>
<tr>
<td></td>
<td>Value</td>
<td>R 276 740</td>
<td>R 390 018</td>
<td>R 1 305 383</td>
<td>R 1 972 141</td>
</tr>
<tr>
<td>National Research Foundation</td>
<td>Awards made</td>
<td>17</td>
<td>11</td>
<td>53</td>
<td>81</td>
</tr>
<tr>
<td></td>
<td>Value</td>
<td>R 1 113 649</td>
<td>R 696 199</td>
<td>R 2 872 997</td>
<td>R 4 682 845</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>Awards made</td>
<td>435</td>
<td>271</td>
<td>461</td>
<td>1167</td>
</tr>
<tr>
<td></td>
<td>Value</td>
<td>R 16 457 029</td>
<td>R 9 612 494</td>
<td>R 19 602 585</td>
<td>R 45 672 108</td>
</tr>
</tbody>
</table>
### Table 4: Conference travel destinations of postgraduate students in 2012

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Field of study</th>
<th>Destinations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commerce</td>
<td>Business Administration, Economics, Information Systems, Statistics</td>
<td>Thailand, USA, South Africa (Pretoria)</td>
</tr>
<tr>
<td>Engineering &amp; the Built Environment</td>
<td>Chemical Engineering, Civil Engineering, Electrical Engineering, Geomatics</td>
<td>Malaysia, USA, Uganda, South Africa (Langebaan), Australia, Singapore, Germany</td>
</tr>
<tr>
<td>Health Sciences</td>
<td>Anatomy and Cell Biology, Biokinetics, Clinical Science and Immunology, Exercise Science, Human Genetics, Neurosciences, Pharmacology, Physiology, Psychiatry, Public Health, Radiotherapy</td>
<td>Canada, USA, Singapore, South Africa (Port Elizabeth, Durban), Washington, Belgium, Spain, Germany, Canada</td>
</tr>
<tr>
<td>Humanities</td>
<td>Fine Art, French Language and Literature, Justice and Transformation, Linguistics, Philosophy, Psychology, Social Anthropology, Sociology, Theatre and Performance</td>
<td>South Africa (Durban, Johannesburg, Pretoria), USA, Senegal, Sweden, France, Berlin</td>
</tr>
<tr>
<td>Law</td>
<td>Criminal Justice</td>
<td>Malawi</td>
</tr>
<tr>
<td>Science</td>
<td>Applied Maths, Astronomy, Chemistry, Climate Change and Development, Conservation Biology, Molecular and Cell Biology, Physical Oceanography, Physics</td>
<td>Portugal, Scotland, South Africa (Bloemfontein, Skukuza), USA, Brazil, Sweden, Ukraine, England, Singapore, Tanzania</td>
</tr>
</tbody>
</table>

#### Institutions visited by postgraduate students in 2012 as a result of support from UCT scholarships for international travel

- **USA**: Emory University, International Space University, University of California, Athinoula A Martinos Centre, Charlestown, Harvard University, Boston, University of Connecticut, USA
- **Canada**: Simon Fraser University, Carleton University, University of Western Ontario, University of British Columbia
- **Africa and the Middle East**: University of Malawi, Malawi, Technion Haifa Institute of Technology, Israel
- **Asia**: Amedkar University, New Delhi, India
- **Europe and the United Kingdom**: National Institute for Research in Computer Science and Control, France, Ludwig Institute for Cancer Research, United Kingdom, Cambridge University, United Kingdom, King’s College London, United Kingdom, University of Balearic Islands, Spain, University of Brest, France, Forschungszentrum Julich, Germany, Plymouth Marine Laboratory, United Kingdom, Royal Botanic Gardens, United Kingdom, Institute for Neural Signal Transduction, University of Hamburg, Germany; University of Central Lancashire, University of Kingdon, University of Pierre and Marie Curie, France, Institut de Biologie Structurale Jean Pierre Ebel, France
Postdoctoral Research Fellows

Postdoctoral research fellows (PDRFs) are much sought after at UCT in view of their potential to strengthen the research enterprise, and relieve the dwindling numbers of academic staff and researchers in South Africa and on the continent of Africa. The number of postdoctoral researchers that register for up to five years at UCT has increased steadily since 2002, and the university hopes to further increase this number in the next five years. In 2012, 282 registered postdoctoral research fellows received more than R52 million in funding support. As can be seen from Table 6, individual academic departments and the NRF remain the strongest supporters of this sector. However, donated funds, such as the sponsorship received from the Claude Leon Foundation, play a vital role in attracting and sustaining PDRFs at UCT.

The majority of PDRF registrations are in the Science and Health Sciences faculties. UCT support increasingly aims to move beyond only financial administration of the sector. To this end, increased attention is being paid to the quality of the postdoctoral experience, as well as advocacy to recognise the critical role they play.

In 2012, 35 PDRFs attended conferences in 21 countries and received mobility grants valued at R535 397. Some PDRFs are registered at UCT but receive external support which is not administered by the PGC&FO. 282 PDRFs are recorded as being registered, but only 267 of these received UCT-administered fellowships.

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Number of registered PDRFs</th>
<th>Number of fellowships awarded</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commerce</td>
<td>8</td>
<td>19</td>
<td>R1 787 732</td>
</tr>
<tr>
<td>Engineering &amp; the Built Environment</td>
<td>21</td>
<td>41</td>
<td>R3 324 495</td>
</tr>
<tr>
<td>Health Sciences</td>
<td>99</td>
<td>168</td>
<td>R20 292 827</td>
</tr>
<tr>
<td>Humanities</td>
<td>26</td>
<td>34</td>
<td>R3 662 981</td>
</tr>
<tr>
<td>Law</td>
<td>4</td>
<td>7</td>
<td>R919 291</td>
</tr>
<tr>
<td>Science</td>
<td>124</td>
<td>187</td>
<td>R22 157 664</td>
</tr>
<tr>
<td>Total</td>
<td>282</td>
<td>456</td>
<td>R52 144 990</td>
</tr>
</tbody>
</table>

Table 6: Postdoctoral Research Fellowships by source of funds in 2012

<table>
<thead>
<tr>
<th>Source of funds</th>
<th>Number of fellowships made</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>UCT funds</td>
<td>70</td>
<td>R4 940 168</td>
</tr>
<tr>
<td>Departmental funds</td>
<td>234</td>
<td>R29 533 179</td>
</tr>
<tr>
<td>Donations</td>
<td>16</td>
<td>R2 641 058</td>
</tr>
<tr>
<td>Investments</td>
<td>1</td>
<td>R12 000</td>
</tr>
<tr>
<td>Medical Research Council</td>
<td>3</td>
<td>R390 000</td>
</tr>
<tr>
<td>National Research Foundation</td>
<td>132</td>
<td>R14 628 585</td>
</tr>
<tr>
<td>Total</td>
<td>456</td>
<td>R52 144 990</td>
</tr>
</tbody>
</table>
Table 7: Postdoctoral conference and research travel, 2012

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Number of travel grants made</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commerce</td>
<td>2</td>
<td>R37 463</td>
</tr>
<tr>
<td>Engineering &amp; the Built Environment</td>
<td>5</td>
<td>R64 859</td>
</tr>
<tr>
<td>Health Sciences</td>
<td>8</td>
<td>R131 998</td>
</tr>
<tr>
<td>Humanities</td>
<td>3</td>
<td>R47 937</td>
</tr>
<tr>
<td>Law</td>
<td>1</td>
<td>R16 431</td>
</tr>
<tr>
<td>Science</td>
<td>16</td>
<td>R236 709</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>R535 397</td>
</tr>
</tbody>
</table>

Figure 2: Growth in postdoctoral research fellows at UCT, 2003–2012

Figure 3: Value of postdoctoral fellowships, 2003–2012
National Research Foundation Evaluation and Rating

The National Research Foundation’s rating system is an international benchmarking tool used to assess the quality of research. The system contributes to the building of a globally competitive science system in South Africa and encourages rated researchers to impart their skills to the next generation of researchers through supervision and collaboration.

World-leading expertise

UCT was awarded four new A ratings in 2012, to professors Harold Kincaid and Don Ross (Commerce) and professors Heribert Weigert (Physics) and Jack van Honk (Health Sciences). The A ratings of professors Igor Barashenkov (Mathematics and Applied Mathematics), Clifford Shearing (Criminal Justice), Lionel Opie (Medicine), Doug Butterworth (Mathematics and Applied Mathematics), John de Gruchy (Religious Studies), Gerd Gäde (Zoology), and Dan Stein (Psychiatry and Mental Health), and Distinguished Professor Philippe-Joseph Salazar (Rhetoric Studies), were renewed on re-evaluation.

Recognising future leaders

The NRF annually awards P ratings to young researchers who demonstrate the potential to become future leaders in their research field. Structural geologist Dr Åke Fagereng and particle physicist Dr Andrew Hamilton were the recipients of new P ratings in 2012.

Description of NRF rating categories

- **A**: World leaders renowned for the high quality and impact of their research.
- **B**: Researchers with considerable international stature.
- **C**: Established researchers who produce research of an international standard.
- **P**: Young researchers (within five years from PhD) who are recognised internationally as having the potential to become future leaders in their field.
- **Y**: Young researchers (within five years from PhD) who show promise of becoming established researchers within a five-year period after evaluation.
- **L**: Late entrants into research (this category is being phased out by the NRF).

![Figure 4: Number of NRF-rated researchers at UCT, 2008–2012](image-url)
Unlocking the secrets of a simply brilliant universe

Despite what he calls the “long and often complicated path” it takes to uncover the laws of physics, Dr Andrew Hamilton, who was awarded an NRF P rating for his continuing insights into understanding the Universe at its most fundamental level, believes they are inherently simple.

Dr Hamilton’s academic journey has spanned three continents and has seen him contribute to more than 200 peer-reviewed publications as a member of two large proton collider experiments, ATLAS and the Collider Detector at Fermilab in the USA. He joined UCT’s Department of Physics as a lecturer in July 2011, following a five-year stint at the ATLAS experiment, which he joined as a postdoctoral fellow with the University of Geneva. The ATLAS project is one of two general-purpose detectors at the Large Hadron Collider at the European Centre for Nuclear Research (CERN), the decades-long experiment to detect the Higgs boson particle. Here, Dr Hamilton focused on helping to develop the ATLAS trigger system.

“The trigger system is a vital component of the experiment that selects which events to record for further analysis and which to discard,” he explains.

His true interest, however, lies in analysing and interpreting the data collected by the trigger, specifically data related to the Higgs boson’s decay into two photons, which is what the Higgs boson does in the Standard Model of the Universe.

Dr Hamilton’s teaching career began at the University of Alberta as a teaching assistant in 2001, and evolved into the supervision of master’s and doctoral students at the University of Geneva. He also co-ordinated the doctoral programme at the Swiss Institute of Particle Physics from 2010 to 2011. At UCT, he has been teaching physics from first-year to honours level, and previously taught nuclear and particle physics and advanced nuclear physics to senior undergraduate students.

What inspires his curiosity about the smallest stuff that makes up our Universe? “The idea of breaking down our understanding of the Universe into its most fundamental pieces attracted me to particle physics,” he says. “The ability to observe a physical phenomenon as profound as the Higgs boson has kept me interested.”

Dr Hamilton’s present research interests revolve around Standard Model direct photon production studies. He plans to continue research at the high-energy frontier of particle physics. Due to the fundamental nature of contemporary particle physics, Dr Hamilton admits that the impact of his and his peers’ research on society might not be immediately visible.

“Just as people doing fundamental research in the early 20th century could not have predicted that an understanding of quantum mechanics would lead to the development of the computer, we don’t know where our current fundamental research will lead.”

Seismic counts for earthquake geologist

At just 30, earthquake geologist and lecturer in structural geology in the Department of Geological Sciences Dr Åke Fagereng was awarded a P rating from the National Research Foundation in 2012. These ratings can be awarded only once, but there is an expectation that the recognition and support will grow not only his body of work, but a new generation of young geologists in his wake.

Dr Fagereng received his PhD in 2010, but already has a sizeable publications list, mostly papers published in the past two years. With funding from the South African...
National Antarctic Programme, he is presently conducting a three-year project to study deep crustal processes recorded in the Antarctic rocks. That means looking for ancient, active fault lines that have been exposed to high temperatures and pressures from the Earth’s shifting plates.

Studying the microscopic properties and formation of rocks, Dr Fagereng unravels the age-old stories rocks tell about the geophysical processes that occur deep in the Earth’s crust. His recent research is broadening the understanding of subduction zone fault processes (where one tectonic plate, or piece of the Earth’s crust, is forced under another after colliding), particularly those factors that affect the ‘seismic style’ of the subduction megathrust interface. The latter occurs when the ocean floor is forced under a continent and slip occurs on this interface. How the interface responds (its ‘seismic style’) determines whether it produces large earthquakes like those in Japan and Sumatra, or creeps along slowly and silently, as is the case in the Philippines.

Dr Fagereng also studies the physical processes behind the recently discovered seismic phenomena of episodic tremor. These are ‘earthquakes’ of very low frequency and slow slip, characterised by seismic rumbling, or tremor, and slow slip along the tectonic plates. Usually, these events are imperceptible to humans and are not destructive. Through his project, he is collaborating with researchers in New Zealand on the development of theoretical models for fault behaviour and conditions. They intend to compare geological observations in well-studied exhumed fault zones, regions of rock showing significant displacement along the fractures as a result of movement in the Earth’s crust. A large chunk of this work will also be done off-shore, drilling through a fault section between the Pacific and Australian tectonic plates, a major earthquake zone, down through 2km of water and 6km of rock.

Dr Fagereng is renowned among the ‘fault community’ for his extraordinary integration of geological and geophysical data. His geological maps trace and document fault lines, those places where the rock formations and chemical compositions point to weaknesses in the Earth’s crust. The field studies are used to elucidate seismogenic behaviour.

He is currently also working with students on the Naukluft Thrust, in Damaraland, Namibia, and has students working in the Cape Fold Mountains on a project to monitor intraplate seismicity at a microseismic scale.

Dr Fagereng was also recognised for the impact of his work through a UCT College of Fellows Young Researcher Award in 2012, as well as a Claude Leon Merit Award for Young Lecturers.

**A-rating milestone for Commerce dean**

Professor Don Ross, economics professor and chair of the executive board of the International Network for Economic Methodology, became the first dean of a South African commerce faculty to be awarded an A rating by the National Research Foundation.

Professor Ross’s research unites economic methodology, experimental economics and econometrics, cognitive science, and the philosophy of science. Among his recent achievements has been the launch of the Research Unit in Behavioural Economics and Neuroeconomics.

Professor Ross believes methodological work should be directly integrated with empirical research. Since 2008 he has led an international research team of experimental economists and psychologists in applying his ‘anti-behaviouralist’ approach. This emphasises modelling differences among people at the population level, rather than trying to model special features of individuals and then aggregating them. Professor Ross and his colleagues have specifically applied this method to the study of addiction and other forms of impulsive consumption. This produces results of direct relevance to policy at the population scale, rather than clinical advice. Thus the method is characterised as ‘structuralist’ and ‘anti-individualist’ empirical microeconomics.


In 2007, together with Professor James Ladyman, he co-published a broadened exploration of his general structuralist and anti-individualist metaphysical perspective across the whole of the sciences, particularly quantum physics. This book, *Every Thing Must Go: Metaphysics*...
Naturalized (2009), received highly favourable reviews. It has been taught in graduate seminars around the world and has been the subject of book symposia at four international conferences. A follow-up collection of essays titled Scientific Metaphysics, which he co-edits with professors Ladyman and Kincaid, is expected for publication in 2013.

Professor Ross has produced 13 major policy reports for clients such as the National Department of Trade and Industry. Between 2006 and 2010, he was director of research for the National Responsible Gambling Programme. He has taught and applied game theory throughout his career, and it informs the majority of his work. He is the author of the game-theory article in the Stanford Encyclopaedia of Philosophy.

That last category reflects some of Professor Kincaid’s recent work at UCT. He has contributed to a few projects with the Research Unit in Behavioural Economics and Neuroeconomics (RUBEN), an interdisciplinary group of researchers in the School of Economics that uses economic experiments to examine the role that social, cognitive, and emotional factors play in economic decision-making.

At RUBEN, Professor Kincaid has been involved in studies looking at the prevalence of gambling in South Africa, and at problem gamblers and at-risk gamblers.

There are particular dynamics to local gambling, he explains. In South Africa, it is by and large the poor who have serious gambling problems. Rather than frequenting casinos, they stake their money on informal and illegal enterprises, such as dice and card games, and the lotto-like numbers game called iFafi.

Professor Kincaid’s current research includes a project funded by the NRF, that looks at the risk behaviour of fruit farmers, as well as a study among the poor in Cape Town and Atlanta (USA), which draws on behavioural economics to consider risk and time attitudes, as well as the social and economic factors involved in transitions in and out of extreme poverty.

New frontiers: Chemistry, the brain and behaviour

A world leader and pioneer in the multidisciplinary field of hormones, the brain, and human social-emotional behaviour, Professor Jack van Honk received an A rating from the National Research Foundation in 2012. Almost 15 years ago he became the world’s first researcher to use both hormonal manipulation and brain-stimulation techniques to gain direct insight into the psychobiological mechanisms underlying human social-emotional behaviour.
Professor Weigert’s research centres on matter as it occurred in the early Universe, very shortly after the Big Bang, when the Universe was immensely hot – more than 100,000 times hotter than the centre of the sun. “This state of matter, the quark gluon plasma, is recreated today at the most powerful particle accelerators we have – the Large Hadron Collider at CERN in Switzerland, and the Relativistic Heavy Ion Collider at Brookhaven National Laboratory (BNL) on Long Island near New York,” says Professor Weigert.

He describes himself as a theoretical physicist and was one of the driving forces in the formulation of what is known today as the Colour Glass Condensate, another extreme state of matter that sets the initial conditions in the accelerator experiments at CERN and BNL. One of his reasons for moving to UCT was to join a growing group of both theorists and experimentalists directly involved in this massive international effort to uncover the deepest secrets of the Universe.

His research underpins the development of innovative treatment strategies, such as hormone manipulation and transcranial magnetic stimulation, to treat fear and aggression disorders like psychopathy, impulsive aggression, psychological trauma, and human phobia.

“Social neuroscience,” according to Professor Van Honk, “provides an excellent foundation for the creation of a so-called common body of knowledge, as it combines techniques and insights gained from psychology, sociology, neuroscience, biology, and economics. My personal interest in this fascinating realm is not only to gain fundamental understandings of the psychology of human social behaviour, but also to understand and seek innovative treatments for the psychopathologies of fear and aggression.”

Within the Department of Psychiatry, Professor Van Honk is building capacity in psychobiological research among psychiatric populations. He also supervises research in social phobia and psychological trauma. Another project he leads, together with colleague, Dr Barak Morgan (Department of Human Biology), is a new line of research on Urbach-Wiethe disease (UWD), an extremely rare genetic-developmental disorder, characterised by bilateral focal calcifications of the amygdala in the brain. Research has shown that the amygdala play an important role in the ‘social brain’, processing memory and emotional reactions, such as social threat processing, empathy, and fear conditioning. The Northern Cape is home to almost 20% of the estimated 200 people worldwide to suffer from UWD.

### Shedding light on the Universe’s deepest secrets

Looking back into the deepest recesses of time, into a Universe immeasurably different from the one we know today, has earned UCT’s Professor Heribert Weigert an A rating from the National Research Foundation.
Newly rated researchers are listed in bold text.

Abiodun, B
Abratt, RPA
Abratt, VR
Ackermann, RR
Adhikari, M
Alexander, MG
Altwegg, R
Amor, A
Ansorge, IJ
Archer, A
Archibald, M
Ardington, CS
Armitage, NP
Badri, M
Baets, W
Bagraim, J
Barashenkov, IV
Barnard-Naude, J
Barnes, K
Barr, GDI
Bassett, B
Bateman, E
Baum, R
Becker, M
Beighton, PH
Benjamin, P
Bennett, TW
Beushausen, H
Bezuizenhout, D
Bhorat, HI
Bickford-Smith, Jv
Biekpe, N
Blackburn, JM
Blake, EH
Blom, D
Blumenthal, M
Bolton, JJ
Boonzaier, F
Boonzaier, F
Bordy, E
Bosch, AN
Bosch, T
Bourne, SA
Bowen, PA
Branch, GM
Bratka, V
Braun, D
Breier, M
Britton, DT
Brombacher, FH
Bronner, GN
Brown, ITJ
Brundrit, J
Bruyns, PV
Bulfer, A
Burch, V
Burchell, J
Burgers, W
Butler, A
Butterworth, DS
Cairns, MR
Cameron, R
Carignan, C
Case, J
Chan, A
Chege, G
Chibale, K
Chiderer, DS
Chigona, WMG
Chimpanango, S
Chinsamy-Turan, A
Chirikure, S
Chirwa, D
Chung Kim Yuen, S
Clayes, MC
Clarkson, C
Clarkson, CP
Cleynans, JWA
Cochrane, JR
Cohen, B
Collins, M
Colvin, CJ
Combrinck, MI
Compton, JS
Comrie, CM
Cooper, BL
Cooavadia, IC
Corder, HM
Corin, K
Cormille, JI
Coyne, VE
Cramer, MD
Crankshaw, O
Crawford, RJM
Cumming, G
Dalvie, MA
Dandara, C
Darch, C
Davidowitz, B
Davids, L
De Blok, E
De Gruchy, JW
De Jager, G
De Jager, K
De Vos, P
De Vries, P
Deglon, DA
Denny, LA
Deumert, A
Dheda, K
Distiller, N
Domínguez, CA
Douglas, TS
Draper, C
Driver, KA
Dunne, P
Dunsky, PKS
Dutton, Y
Dyer, R
Ebobisse, F
Eckardt, F
Egan, TJ
Ekama, GA
Ellis, GFR
Everson, V
Fagan, A
Fagereng, Å
Fallowo, O
Farrat, JHM
Fearick, RW
Feast, M
February, EC
Fers, L
Folly, K
Franzidis, J
Fraser, DM
Gäde, G
Gain, J
Gammon, DW
Gaunt, CT
Gilson, L
Gilson, L
Glazewski, JI
Glenn, I
Godby, M
Goedecke, JH
Gray, C
Greenberg, LJHL
Griffiths, CL
Guo, R
Haerting, M
Haines, LM
Hamann, R
Hamilton, A
Hamilton, C
Hapgood, J
Hardman, JC
Harris, C
Harrison, STL
Hart, M
Hattingh, A
Haupt, A
Hedderon, TAJ
Hellaby, CW
Herman, R
Hewett, ML
Hewitson, BC
Himonga, C
Hoadley, U
Hoffman, MT
Horowitz, WA
Horsnell, WGC
Howells, FM
Hunter, R
Ivanovsky, A
Illing, N
Inggs, SC
Ingle, R
Isafiade, A
Jackson, GE
Jacobs, DS
Jacobs, M
Janelidze, G
Jawitz, J
Jeebhay, H
Jelsma, J
Kalula, ER
Kaminer, D
Kaplan, D
Kelly-Laubscher, R
Kew, MC
Khan, A
Khumalo, N
Kidson, S
Kincaid, H
Klak, C
Klatzow, PJL
Klopper, S
Klump, HH
Knutsen, RD
Koelble, TA
Kohn, T
Kolbe-Alexander, T
Kraan-Korteweg, RC
Kriger, JEJ
Kritzinger, PS
Kruger, T
Kunzi, H-P A
Kuttel, M
Kyobe, ME
Lambert, E
Lambert, MI
Lamberts, RP
Lang, CI
Lang, DM
Langdon, G
Langerman, FS
Le Roex, AP
Le Roux, P
Leane, V
Lecour, S
Leibbrandt, M
Levit, N
Lewis, AE
Little, F
London, L
Louw, J
Low, I
Lubbe, S
Lucas, M
Luchett, K
Luiz, J
Lund, C
Maartens, G
Mager, A
Mall, AS
Marais, P
Marco, H
Marsden, G
Martin, D
Martin, R
Mattes, RB
Mayosi, BN
McBrindle, V
McIntyre, D
McKinney, C
Meadows, ME
Meintjes, EM
Meintjes, G
Meissner, P
Mendelsohn, R
Mesthrie, R
Meyers, PR
Micklefield, L
Midgley, JJ
New NRF ratings: Dr Megan Becker (left) and Dr Kirsten Corin (right) of the Department of Chemical Engineering.
The Department of Science and Technology’s South African Research Chairs Initiative (SARChI) was designed to strengthen the ability of the country’s universities to produce high-quality research and innovation output and, through this, increase the quality of the training of postgraduate students, thereby contributing more directly to growing the knowledge economy in South Africa. The SARChI Programme is managed by the National Research Foundation.

The Chairs are expected to contribute significantly towards helping universities realise their strategic research plans, and the initiative is intended to provide a base on which to consolidate and extend excellence in research. Although the programme aims to attract South African and other international research expertise from abroad, internal candidates are also considered for these Research Chairs.

UCT is now home to 33 SARChI Research Chairs after a further four awards were made in 2011/12 in the following strategic areas:

- Stable Isotopes in Archaeology and Palaeoenvironmental Studies
- Environmental and Social Dimensions of the Bio-economy
- Reaction Engineering
- Industrial Computational Fluid Dynamics

### DST/NRF SARChI CHAIRS AT UCT

- Animal Evolution and Systematics – Professor David Jacobs
- Functional Proteomics – Professor Jonathan Blackburn
- Archive and Public Culture – Professor Carolyn Hamilton
- Astrophysics and Space Science – Professor Thomas Jarrett
- Bioprocess Engineering – Professor Susan Harrison
- Brain Imaging – Associate Professor Ernesia Meintjes
- Cancer Biology (vacant in 2012)
- Catalysis (vacant in 2012)
- Climate Change – Professor Bruce Hewitson
- Clinical Neurosciences Research – Associate Professor Marc Combrinck
- Computational Mechanics – Professor Daya Reddy
- Customary Law – Professor Chuma Himonga
- Drug Discovery – Professor Kelly Chibale
- Social Science Chair in Economic Growth – Professor Haroon Bhorat
- Environmental and Social Dimensions of the Bio-Economy – Associate Professor Rachel Wynberg
- Health and Wealth in South Africa – Professor Diane McIntyre
- Industrial Computational Fluid Dynamics (vacant in 2012)
- Immunology of Infectious Diseases in Africa – Professor Frank Brombacher
- Infection and Immunity of Poverty-related Diseases – Professor Keertan Dheda
- Islam, African Publics, and Religious Values – Professor Abdulkader Tayob
- Land Reform and Democracy in South Africa: State and Civil Society Dynamics – Professor Lungisile Ntsebeza
- Marine Ecology and Fisheries – Professor Astrid Jarre
- Migration, Language, and Social Change – Professor Rajend Mesthrie
- Minerals Beneficiation – Professor J-P Franzidis
- Modelling of the Coupled Ocean-land-atmosphere Phenomena Related to Climate (vacant in 2012)
- Extragalactic Multi-wavelength Astronomy – Professor Claude Carignan
- Poverty and Inequality Research – Professor Murray Leibbrandt
- Reaction Engineering (vacant in 2012)
- Scientific Computing – Professor Kevin J. Naidoo
- Security and Justice – Professor Clifford Shearing
- Stable Isotopes in Archaeology and Palaeoenvironmental Studies – Professor Judith Sealy
- Urban Policy – Professor Edgar Pieterse
- Vaccinology – Professor Anna-Lise Williamson
Stable Isotopes in Archaeology and Palaeoenvironmental Studies

Judith Sealy, the newly-appointed South African Research Chair in Stable Isotopes, Archaeology and Palaeoenvironmental Science, is Professor of Archaeology and the former Head of the Department of Archaeology at UCT. She also heads UCT’s Stable Light Isotope Laboratory, a major facility housing analytical equipment.

Professor Sealy obtained her PhD from UCT in 1989, for a thesis centred on stable isotope techniques of dietary reconstruction in ancient human skeletons. Her work has included laboratory and field studies, investigating archaeological questions ranging from the emergence of modern humans approximately 200 000 years ago, to the origins of slaves brought to the Cape in the colonial era. Her main focus has been on coastal hunter-gatherers of the past 10 000 years, using isotope approaches to explore variations over time and space in the diets people consumed, and using these patterns to elucidate larger-scale processes of economic and social change. Her work has also contributed to the development and improvement of stable isotope methods and techniques.

Professor Sealy has published more than 75 peer-reviewed journal articles and book chapters, including articles in *Nature and Science*. She is currently an Associate Editor of the *Journal of Archaeological Science* and a member of the editorial boards of *Azania and Southern African Humanities*; she was formerly editor of the *South African Archaeological Bulletin*. She is a Fellow of the Royal Society of South Africa and of the University of Cape Town, and holds a B1 rating from the NRF. *(Also see page 106).*

Environmental and Social Dimensions of the Bio-economy

Associate Professor Rachel Wynberg holds the South African Research Chair in the Environmental and Social Dimensions of the Bio-economy, and is the deputy director of the Environmental Evaluation Unit at UCT. She holds two cum laude master’s degrees from the University of Cape Town, one in Marine Biology, and the other in Environmental Science, and a PhD from the University of Strathclyde, Glasgow.

She is well recognised as a leading scholar on the bio-economy, reflected in her B2 NRF rating. Her work is focused on bio-politics, the commercialisation and trade of biodiversity, access and benefit sharing, and the social and environmental implications of new biotechnologies. She has consulted and published widely on these topics, including more than 140 scientific papers, book chapters and technical reports, and four recent co-edited books. She is currently serving on the board of three non-profit organisations and is also a member of the Expert Committee for the UK Government’s Darwin Initiative, one of the largest and most significant global funders of biodiversity projects.

Associate Professor Wynberg’s scholarship is characterised by an unusual breadth of experience as a researcher, policy advisor, and activist, demonstrating her strong commitment to social justice and transformation in the sphere of biodiversity conservation and use. Because of the complexity of her research topic, and the importance of developing a holistic and integrated understanding in this field, she has consciously developed a research strategy crossing many disciplines and engaging a body of literature and colleagues across the humanities, arts, and sciences. *(Also see page 162).*
**UCT Signature Themes for Research**

What research challenge could faculties propose to tackle, that would not only be embedded in our location in Africa but would also be of global importance?

This was one of the questions that led to the formation of signature themes at UCT, which encourage collaborative, interdisciplinary research that crosses disciplinary and faculty boundaries. Through a rigorous ‘bottom up’ process, faculties responded to a call to come up with problem-based collaborative research themes that would capture the imagination of students and lead to exciting discoveries. Over and above the strong research groups operating across the university, the signature theme framework intends to stimulate cross-faculty collaboration that would result in more than ‘business as usual’.

Through a competitive process and with limited seed funding, five themes were established between 2006 and 2007: African Cities, Brain and Behaviour, Drug Discovery, Marine Research, and Minerals to Metals. More recently, through a strategic process led by the Vice-Chancellor, the African Climate and Development Initiative emerged as the sixth signature theme in 2011. Strong academic leadership and a vibrant research team are part and parcel of the signature theme concept. To date, the themes have been able to demonstrate the leveraging ability and impact of their world-class research, not only on their immediate environment but also more broadly on the global south. As hubs that attract increasing numbers of postgraduate students and postdoctoral fellows, the themes excel but remain under pressure to maintain a leading edge.

**National Centres of Excellence and Competence Centres**

Funded by the South African Department of Science and Technology, the national centres of excellence and competence centres act as hubs for high-quality research and development in areas of national priority. The centres and nodes often involve significant interdisciplinary collaboration with other universities, publicly-funded research organisations, governments, and industry. They serve as important research training sites for postgraduate students.

UCT hosts two national Centres of Excellence, Birds as Keys to Biodiversity Conservation, and c*change, and co-hosts a node of the Centre of Excellence for Biomedical TB Research. UCT also co-hosts the Hydrogen Catalysis Competence Centre with Mintek.

The Centres of Excellence are managed by the National Research Foundation.

**Research Groupings**

A significant part of the exciting and diverse research carried out at UCT occurs within formal research groups, which incorporate members and students from across departments and faculties. Both through discipline-specific and cross-disciplinary approaches, their research is making a significant contribution towards understanding and alleviating some of society’s major challenges.

At the end of 2012, there were 71 formally constituted research groupings at UCT. These included five newly-accredited groupings in 2012: African Collaboration for Quantitative Finance and Risk Research (Commerce), the Policy Research in International Services and Manufacturing (Commerce), the UCT Tourism and Events Research Unit (Commerce), Centre for Transport Studies (Engineering & the Built Environment), and the Lung Infection and Immunity Unit (Health Sciences).
UCT Knowledge Co-op

The UCT Knowledge Co-op builds on UCT’s tradition of social responsiveness, aiming to make it easier for community partners to access UCT’s skills, resources, and professional expertise. In the second year of its pilot phase, the focus was on expanding the number of collaborative projects with civic society and the public sector while also enhancing its visibility within UCT and in the wider community.

During 2012, 40 new topics for collaborative research or practical support were submitted to the facility, bringing the total number to 108. Fourteen of these arose from partnerships going back to previous years, indicating a deepening of UCT–community partnerships. The topics came from organisations ranging from provincial government departments to grassroots community groups, and local and international NGOs, as well as some programmes run by UCT students.

Ten new projects were initiated during the year, and another four were carried over from 2011. These include studies into experiences of breast-cancer patients and alternative energy sources for pumping water, as well as more hands-on ones involving computer training in organisations or the design for a school hall. Forty-five students and 15 academics partnered with community groups in these projects, of which eight were completed in 2012, bringing the total completed to 15.

Alongside this a Code of Good Practice for Engaged Scholarship with External (non-academic) Constituencies has been produced for academics, with a student version in process. This document aims to build the capacity of academics to take on supervision of collaborative research, and to prepare students for their involvement.

Internationally, the UCT Knowledge Co-op is part of the Living Knowledge network. During May, the project manager of the Co-op participated in a Science Shop Summer School and the LKS conference on Re-imagining Research Relationships – Co-creating Knowledge in a Democratic Society in Bonn, Germany. This was a first opportunity to share insights through a conference paper drawing on a three-year, NRF-funded study to evaluate the model of the Co-op.

The website – http://www.knowledgeco-op.uct.ac.za – has contributed to increasing the visibility of the Co-op both within UCT and beyond.

Safety and Violence Initiative

The Safety and Violence Initiative (SaVI) was established at UCT in 2010 with support from the Vice-Chancellor’s Strategic Fund and facilitates debate, research and interventions across the university on understanding, and responding to violence, as well as promoting safety.

SaVI brings together scholars from various faculties across UCT, including Commerce, Health Sciences, Humanities, Law, and Engineering & the Built Environment. Its mission is to establish sustained research collaborations that will contribute to promoting safety, reducing violence, and raising awareness about these issues within South Africa (and in due course in other African countries). A key feature of SaVI’s role is to develop theory and to translate this into practice. A director for SaVI (Guy Lamb) was appointed in October 2012.

UCT researchers under the auspices of SaVI undertook five distinct research projects in 2012, namely:

- Violence interrupters: establishing a specialised cohort of domestic-violence social workers through an evidence-based violence-intervention approach;
- Violence and substance abuse at a Cape Town trauma centre;
- Violence and substance abuse in South Africa;
- The development of a brief intervention for substance users attending trauma clinics in the Western Cape;
- Use of new information and communications technology to consolidate post-conflict reintegration of former combatants and peace-building in Africa.

SaVI hosted two seminars in 2012 that directly related to informing discussion and decision-making in relation to communities affected by high levels of violence in Cape Town. In response to the rapid increase in violence in Khayelitsha over the past few years, the first seminar was held to consider the conditions and developments in Khayelitsha in relation to other areas in Cape Town, as well as to initiate a public conversation about how UCT can play a constructive role in promoting safety in violence-affected areas in the Western Cape. A second seminar was held in Hanover Park – widely considered to be one of the communities in Cape Town most affected by gang violence – which discussed youth programmes and lower-risk lifestyle support programmes that could reduce and prevent gang violence in this area.
Three UCT researchers were recognised for their outstanding work in 2012, through the National Research Foundation’s special recognition awards.

Professor Timothy Noakes was honoured with the NRF Lifetime Achievement award for his pioneering work in sports science research, Professor Anusuya Chinsamy-Turan received the Transformation of the Science Cohort Award for her achievements as a palaeobiologist, and Professor Kelly Chibale was named the NRF’s Champion of Research and Capacity Development at Higher Education Institutions in South Africa.

Vice-Chancellor Dr Max Price said of the accolades: “These awards celebrate three remarkable academics whose work has helped position UCT as an African hub of intellectual activity and research: exploring the continent’s prehistory, the science behind excellence in sports, and the potential of different chemical compounds to cure Africa’s diseases. They are part of UCT’s platform for nurturing the next generation of academics for many other universities in the country and on the continent.”
Professor Timothy Noakes has steadily built an international reputation in the area of sports science, biokinetics, and sports medicine. His research has not only challenged established dogma in the area of exercise and sports training, but also broken new ground in our understanding of human physiology and endurance.

The work of Professor Noakes and his research group has influenced a number of areas of endurance sport. For example, his recommendations have led to changes in practice regarding fluid ingestion. This and his other work led to the awarding of the Lifetime Achievement in Marathon Sports Medicine Research Award by the International Marathon Medical Directors Association in 2009, and resulted in the publication of his book Waterlogged: The Serious Problem of Over-Hydration on Endurance Sports, the culmination of 30 years of research that controversially exposes the false science advocated by the sports-drink industry in the USA in the marketing of their products, and examines the serious medical condition known as exercise-associated hyponatraemia, a condition first described and causation determined by Professor Noakes.

A noteworthy focus of his work has been on the Central Governor Theory of Fatigue during Exercise, which posits that the brain regulates exercise, controlling physical activity so that its intensity cannot threaten the body’s homeostasis (internal stability) by causing ischaemic damage to the heart or other organs. This work led to a series of articles in the British Journal of Sports Medicine in 2005. His most recent article on this topic has attracted close to 7,000 Internet views, one of the highest for any article published in Frontiers of Physiology.

Professor Noakes began teaching of the sports sciences at UCT in 1981 and has supervised or co-supervised 77 MSc, MPhil, MD, and PhD graduates at UCT in areas such as sports medicine, exercise science, and physiology. He also founded the UCT/MRC Research Unit for Exercise and Sports Medicine, one of the longest-standing research units of the Medical Research Council. He also co-founded the Sports Science Institute of South Africa.

Professor Noakes has been a National Research Foundation A1-rated scientist since 2004. He maintains an H-index of 59 and his work has attracted well over 12,000 citations. He has authored/co-authored more than 80 book chapters, as well as over 425 internationally peer-reviewed articles in journals such as the New England Journal of Medicine, the International Journal of Sports Medicine, and the SA Medical Journal. He also currently serves on the editorial boards of 16 international journals.

He received the Citation Award from the American College of Sports Medicine in 1996, was elected founder member of the International Olympic Committee Science Academy in 1999, received the International Cannes Grand Prix Award for Research in Medicine and Water in 2001, and was awarded an Honorary Fellowship by the Faculty of Sport and Exercise Medicine in the UK in 2008. In 2011, he received an honorary doctorate from the Vrije University in Amsterdam. He is a Visiting Professor in Neuroscience and Biomedical Systems at the University of Glasgow, and in Sports Medicine at Sri Ramachandra University in India. In 2008, in recognition of his ‘excellent contribution to the field of sport and the science of physical exercise’, he was awarded the Order of Mapungubwe (Silver) by President Thabo Mbeki.

He is currently director of the UCT/MRC Research Unit for Exercise Science and Sports Medicine and Discovery Health Chair of Exercise and Sports Science at UCT.

A veteran of more than 70 marathons and ultramarathons, Professor Noakes authored the book Lore of Running (1985), which is now in its fourth edition. The book, which is regarded as a runner’s ‘bible’, draws on his research to explore the physiology of training, temperature regulation, ergogenic aids, injury prevention and treatment, and challenges much of the commonly held assumptions about running. His recently released autobiography, Challenging Beliefs: Memoirs of a Career, describes the significant themes and achievements in his scientific career.
Transformation of the Science Cohort Award

Professor Anusuya Chinsamy-Turan is a global expert on the microscopic structure of the bones of extinct and extant vertebrates. She is also head of the newly established Department of Biological Sciences at UCT (combining the former departments of botany and zoology).

The NRF award adds to several other highly acclaimed awards that recognise the value and impact of her work. Early in her career, she received an NRF President's Award and was awarded the Royal Society Meiring Naudé Gold Medal. In 2003 she was awarded the National Science and Technology Forum Award for Outstanding Contribution to Science, Engineering, and Technology. This was followed by the 2005 South African Woman of the Year Award, which acknowledged her contribution to science in terms of both research and science communication to the wider public. In the same year she received the Distinguished Woman Scientist Award from the South African Department of Science and Technology.

She is former president of the Association of South African Women in Science and Engineering (SAWISE), former deputy president of the Academy of Science of South Africa, and has also served as director of Iziko Museums’ Natural History Collections (which includes the South African Museum). Professor Chinsamy-Turan previously served as the chair of the Advisory Board of Scifest Africa, the biggest science festival in Africa, and currently serves as a board member for the US-based Jurassic Foundation. She is a Fellow of the University of Cape Town, the Royal Society of South Africa, and the World Academy of Science.

Display of the alternating types of bone tissue present in the bones of the polar dinosaurs.
Professor Chinsamy-Turan has published extensively – both in international scientific journals (including four publications in Nature, and a recent publication in Nature Communications) and in the popular press. Her academic book *Microstructure of Dinosaur Bone – Deciphering Biology Through Fine Scale Techniques* was published by Johns Hopkins University Press, USA, in 2005 and her popular-level book for children titled *Famous Dinosaurs of Africa* was published by Struik, SA, in 2008. Her latest academic book is titled *Forerunners of Mammals: Radiation, Histology, Biology* (2012, Indiana University Press, USA), and she has another in the pipeline with Cambridge University Press.

### Champion of Research and Capacity Development at Higher Education Institutions in South Africa

Professor Kelly Chibale holds the South African Research Chair in Drug Discovery at UCT, and is the director of the MRC/UCT Drug Discovery and Development Research Unit. He is a former co-director of the UCT Drug Discovery Signature Theme and established the Drug Discovery and Development Centre (H3-D) in 2010.

Professor Chibale joined the University of Cape Town in 1996 and has since built up an outstanding and impressive record of attracting and successfully supervising students and postdoctoral researchers, particularly those from designated groups. He has supervised to graduation 26 PhD and 21 MSc students. His research focuses on the discovery of potential drugs that fight malaria, tuberculosis, and helminth (parasitic worm), as well as cardiovascular and fibrosis diseases. His research group currently comprises 44 researchers, including 17 postdoctoral fellows, 19 PhD students, and 8 MSc students.

Professor Chibale has identified the need for South African scientists to enhance the drug-discovery capability of the country to address its health needs in particular, but also those of the rest of the African continent. Thus research into the discovery of potential medicines against the major diseases in South Africa and Africa is critical, along with the training of a new generation of South African and African scientists with the key modern pharmaceutical-industry skills required to discover modern medicines. In response to this need, Professor Chibale has developed a number of partnerships with major global organisations, including pharmaceutical companies and not-for-profit organisations, which have been critical in building the much-needed research capacity and infrastructure at both UCT and other higher-education institutions in South Africa.

In a major breakthrough in 2012, Professor Chibale led the UCT drug-discovery team that discovered a compound that he and international research collaborator Medicines for Malaria Venture (MMV) hope will lead to the development of a single-dose treatment for malaria. The compound, named MMV390048, is the first compound researched on African soil to enter preclinical development in partnership with MMV. This project was voted and awarded the 2012 MMV Project of the Year award. In addition, the news of a possible single-dose cure for all strains of malaria not only dominated headlines around the world following its release in August 2012, but Elsevier’s *Malaria Nexus* review voted it their most popular story of 2012. (Also see page 20).

Professor Chibale has published more than 130 articles in peer-reviewed journals, including a number of publications in leading journals in the field of drug discovery, such as the *Journal of Medicinal Chemistry* and *Drug Discovery Today*.

His recent awards have included the 2010/11 NSTF–BHP Billiton Awards in the category TW Kambule NRF Senior Black Researcher. This award gave recognition to Professor Chibale’s role in the establishment of H3-D, Africa’s first integrated modern drug-discovery centre, and the setting up of various modern technology platforms for the discovery of potential medicines. In 2009, he was elected Life Fellow of UCT and Fellow of the Royal Society of South Africa. He was also awarded the Alan Pifer Research Award for 2011. This is the UCT Vice-Chancellor’s award made annually “to a single researcher at UCT in recognition of outstanding research that demonstrates relevance to the advancement and welfare of South Africa’s disadvantaged people”.
Eleven UCT scholars featured among the winners of the 2012 South African Women in Science Awards, presented by the national Department of Science and Technology.

Leading the procession of UCT women was Professor Alison Lewis, who was named Distinguished Woman Scientist in the Physical and Engineering Sciences, and Dr Sindiso Mnisi Weeks who received the Emerging Researcher Award in a special category that recognised the use of science and technology to develop rural women and end poverty. This theme, which was in line with the 2012 United Nations theme for women, namely ‘Empower rural women and end hunger and poverty’, also took cognisance of Parliament’s theme for 2012, ‘Knowledge Economy and Development Opportunities’.

Professor Hanni Mostert (profiled on page 192) was runner-up in the category ‘Distinguished Young Women Scientists: Social Sciences and Humanities’. DST fellowships for doctoral students were awarded to Joyce Mwangama, Gladwell Nganga, and Toni-Lee Sterley, and fellowships for master’s students went to Matsopiane Maserumule, Lombe Mutale, siblings Narjis and Sumaiyya Thawer, and Akhona Vava.
Distinguished Woman Scientist in Physical and Engineering Sciences

Professor Alison Lewis graduated with a BSc (Chemical Engineering), MSc (Chemical Engineering), and PhD, all from the University of Cape Town. She is a registered professional engineer and a professor in the Department of Chemical Engineering at UCT. She is also the UCT Orator.

Her interest in chemical engineering grew after she was inspired by the realisation that the practical application of mathematics and chemistry was fundamental to the field. She started a new group specialising in crystallisation and precipitation research, and the group has since become an accredited research unit at UCT. The research unit is funded by a range of national and international companies and consists of five staff members, one postdoctoral researcher, and 15 postgraduate students. Since the research unit’s inception, 24 master’s and PhD students have graduated and between them, they have published more than 100 international peer-reviewed publications, a patent, eight book contributions, and 85 conference presentations.

Both her MSc and PhD degrees focused on applied mathematical models for water treatment, and her research interests revolved around water treatment and, more recently, water refining.

Professor Lewis’s research highlights crystallisation as a tool to purify metals such as platinum, palladium, and rhodium, as well as its potential to treat contaminated water such as acid mine drainage. She believes that it is essential to design water-treatment processes that are sustainable; they must not only produce pure water, but also recover the contaminants as useful products. This is one of her main research focus areas.

Professor Lewis has received a number of awards and honours, including the 2010 NRF President’s Award for Research Capacity Development and a number of best conference paper and poster awards. She is also a member of the Academy of Science of South Africa and a fellow of the South African Academy of Engineering.

Award for the Development of Rural Women – Emerging Researcher

Dr Sindiso Mnisi Weeks completed her DPhil in Law in 2009 at the University of Oxford, where she was a Rhodes Scholar. She is a graduate of the University of Cape Town, from which she obtained a BA and LLB, both with distinction. Dr Mnisi Weeks is currently a senior researcher in the Centre for Law and Society (formerly the Law, Race and Gender Research Unit) at UCT, working on the rural women’s action research programme, which combines research and policy work on women, authority, and property in terms of customary law. During 2011 and 2012, she was also a senior lecturer in UCT’s Department of Private Law, where she co-taught African Customary Law.

Her publication work spans customary law, women’s rights, traditional institutions, and the Constitution. Dr Mnisi Weeks has successfully supervised 17 student interns, fieldworkers, and research assistants. Her publication record includes eight peer-reviewed journal articles, three book chapters, and several legislative submissions.

Her main focus has been with rural women’s exclusion from law-making and decision-making practices in traditional communities, as well as their participation in national legislative processes. Using methods that include rural women’s participation, she has publicly challenged these forms of exclusion and the implications they have for rural women’s ability to attain social and economic security.

Dr Mnisi Weeks’s current research focuses on vernacular dispute-resolution forums in South Africa, and she has been actively involved in the co-ordination and representation of the multisector resistance to the passing of the Traditional Courts Bill. Her experience includes policy work, public education, and media publicity. As an emerging researcher, her recognition at an international level is steadily growing. She has been invited to contribute to publications alongside senior academics abroad and to deliver one of the keynote addresses at an international conference due to be held in Brazil in 2013.

Dr Mnisi Weeks is a former clerk of the Deputy Chief Justice of the Constitutional Court of South Africa, Dikgang Moseneke. She has won the Ismail Mahomed South African Law Reform Commission Essay Competition, among other awards. She was named one of the 200 Young South Africans (in the business and law category) by the Mail & Guardian in 2011, and she was part of the Law, Race and Gender research team that was awarded the Social Responsiveness Award by UCT in 2011.
Seven UCT scholars were finalists in the prestigious 2012/13 National Science and Technology Forum–BHP Billiton awards, the 15th such event that recognises, acknowledges, and promotes excellence in the South African research and development community. The annual event is the flagship project of the largest and most prominent multi-stakeholder representative forum for science, engineering, technology, and innovation (SETI) organisations in South Africa.

Professor Graeme Cumming of the Faculty of Science received the TW Kambule NRF-NSTF Award to an Individual for an Outstanding Contribution to SETI through Research and its Outputs over the last 5 to 10 years. Professor Cumming is the Pola Pasvolsky Chair of Conservation Biology in the Department of Zoology (now Biological Sciences).

The ARTIST (Adaptive Real-Time Internet Streaming Technology) team (a collaborative effort between the Council for Scientific and Industrial Research, UCT, and East Coast Access) won the category for ‘an Individual or a Team for an Outstanding Contribution to SETI through Research leading to Innovation: in a Corporate organisation or Institution’. From the UCT side, intellectual property (IP) was developed by a team of researchers in the Department of Electrical Engineering, headed by Associate Professor Mqhele Dlodlo, Professor Gerhard de Jager, and Dr Guy-Alain Lusilao Zodi. This IP has been licensed by the Consortium to start up Tuluntulu, which is currently commercialising it.
Professor Robert Millar, director of the Mammal Research Unit at the University of Pretoria and Senior Research Scholar in UCT’s Faculty of Health Sciences, received the NSTF award made to an individual for an outstanding contribution to SETI over a lifetime.

Other finalists from UCT were Professor Dan Stein, head of the Department of Psychiatry and Mental Health and director of the MRC Unit on Anxiety Disorders at the University of Stellenbosch, Professor Karen Siwa-Hahne, director of the Hatter Institute for Cardiovascular Research in Africa (Department of Medicine, UCT), and director of the Soweto Cardiovascular Research Unit at the University of the Witwatersrand, and Associate Professor Kobus van Zyl, who was part of the Aqualibrium Civil Engineering Team.

**T W Kambule NRF-NSTF Award to an Individual for an Outstanding Contribution to SETI through Research and its Outputs over the last 5 to 10 years**

Professor Graeme Cumming, Pola Pasvolsky Chair of Conservation Biology in the Department of Zoology (now Biological Sciences), received the 2012/13 T W Kambule NRF-NSTF Award, for his research into the theory and application of complexity theory in ecological and social-ecological systems.

Professor Cumming studied Zoology and Entomology at Rhodes University and then attended Oxford University, UK, on a Rhodes Scholarship. While at New College, Oxford, he completed his doctorate on ‘The Evolutionary Ecology of African Ticks’. From Oxford he moved to the University of Wisconsin-Madison, where he was funded by a D H Smith Postdoctoral Fellowship from The Nature Conservancy (TNC). In Madison, he worked with TNC and Professor Steve Carpenter at the Center for Limnology on applying species-based models to management and conservation-related problems in freshwater systems. After two years as a postdoctoral research fellow, he was hired as an Assistant Professor in the Department of Wildlife Ecology and Conservation at the University of Florida (UF). He left UF at the end of 2005 to take up the Pola Pasvolsky Chair in Conservation Biology at the University of Cape Town’s Percy FitzPatrick Institute.

Professor Cumming has a wide range of interests, which centre on understanding spatial aspects of ecology and the relevance of broad-scale pattern-process dynamics for ecosystem (and social-ecological system) function and resilience. He is also interested in the applications of landscape ecology and complexity theory to conservation and the sustainable management of natural resources.

Research currently being undertaken by Professor Cumming and his students falls into two main programmes.

The first focuses on water birds and their parasites, pathogens, and movement ecology. This programme is currently addressing the complex movement patterns of waterfowl around Southern Africa and their role in the spread of pathogens (particularly avian influenza and avian malaria), plant seeds, and aquatic invertebrates. Waterfowl movements have important implications for waterfowl and wetland conservation, human health, and poultry production. The second programme focuses on the topic of spatial resilience and is using protected areas as a case study for understanding the relevance of location, spatial context, connectivity, and network membership for social-ecological sustainability.

Professor Cumming has published more than 100 peer-reviewed journal articles and book chapters, including two books. He has successfully supervised more than 30 postgraduate students and is a past recipient of the Meiring Naudé Medal of the Royal Society of South Africa, which is awarded for ‘scientific achievement by a scientist under the age of 35 years’. His current research is funded by the National Research Foundation and a complexity scholar award from the James S McDonnell Foundation.
Celebrating One Hundred Years Of Health Sciences At UCT
The Medical School of 1912 has grown into a 21st-century Faculty of Health Sciences, comprising a range of health disciplines including basic, clinical, rehabilitation and public health sciences. The current-day mission of the faculty is to address health challenges by promoting quality and equity in healthcare services, educating health practitioners for life and undertaking cutting-edge, relevant research. The reach and impact is extensive as the faculty keeps pace with global approaches to academic health sciences, accelerating efforts to improve health on our continent, and building a future through which we will sustain our contributions to health throughout the world. With a modernised curriculum, the demographic profile is transformed and the admissions of students from all corners of our country and beyond have increased substantially. Increasingly, the faculty’s staff, like that of the rest of the university, enjoys an international reputation for excellence, and graduates continue to make their mark in the world.

In 2012 the Faculty of Health Sciences celebrated a century of extraordinary growth, achievement and excellence in advancing health, nationally and globally. This milestone marked the passing of one hundred years since the opening of the first medical school buildings on the Hiddingh Campus on 6 June 1912. UCT has the oldest medical school in sub-Saharan Africa, and has educated some of the finest minds in the country. We have also produced some of the greatest medical advances to arise from Africa, such as the first test of its kind for pregnancy, the first successful heart transplant, and the research that led to the development of the computerised tomography (CAT) scanner.

The late Emeritus Professor Chris Barnard who performed the world’s first successful heart transplant in 1967 at Groote Schuur Hospital.

Amongst the more than 70 centenary-branded events held during 2012 were a number of research-related activities. These included the inaugural Wolfson Memorial Colloquium, with a keynote address titled A New Agenda for Global Health by Baron Peter Piot, Professor of Global Health and Director of the London School of Hygiene and Tropical Medicine. A centenary academic debate was held on the topic ‘Cholesterol is not an important risk factor for heart disease and current dietary recommendations do more harm than good’, with arguments from UCT’s Professor Tim Noakes (proponent) and Dr Jacques Rossouw of the National Institutes of Health in the USA. A community partnership event and a more focused community-collaboration event highlighting the faculty’s work with the Masiphumelele region, titled Masiphumelele – Bringing science to the community, and hosted by the Desmond Tutu HIV Centre. A centenary edition of the South African Medical Journal was created to showcase some of the academic highlights from the faculty over the last century, as well as its more recent research.

One of the key messages that the centenary celebrations conveyed was that the faculty has ‘a prestigious reputation for medical achievement and cutting-edge research that has impacted on health globally’. Over the next pages, we share achievements of the Faculty of Health Sciences and flagship university health-related research initiatives.
The Institute of Infectious Disease and Molecular Medicine (IIDMM) is the largest research entity at the University of Cape Town. As a trans-faculty postgraduate research institute, its focus is on infectious diseases, particularly HIV/AIDS and tuberculosis; non-communicable diseases, such as prevalent cancers; genetic medicine; and molecular medicine, including drug discovery. In 2012, the IIDMM was home to 27 full members, nine associate, 12 affiliate (early/mid-career researchers) and nine adjunct members. 150 master’s and PhD students were hosted, as were 76 postdoctoral research fellows and 140 research-funded staff.

The goals of the institute are focused on high-quality, internationally competitive research, relevant to Africa. Additionally, the institute aims to influence health policy and practice, and to be a major training hub in Africa for biomedical, clinical and public health researchers. It is particularly important that the work of the institute is translational – that the discoveries and pursuits are taken from the laboratories and applied in our communities. Importantly, the IIDMM’s research themes, which are determined by members’ specific interests, align closely with national health priorities.

Consistent with its established reputation, the IIDMM has continued to grow in research excellence and output. Journal publications for the institute at the end of 2012 totalled over 200, and included papers published in Nature Medicine (impact factor 22.5), Lancet (impact factor 38) and American Journal of Respiratory and Critical Care Medicine (impact factor 11). Collaborative research continued with colleagues based at 15 South African institutions, 17 African institutions in 12 other countries, and 122 institutions in 27 countries further afield, and included 42 consortia.

The vision of the IIDMM is to be a centre of excellence where researchers work together to tackle diseases of major importance in Africa. As a postgraduate research institute that fosters world-class research at the intersection of the basic, clinical and public health sciences, the IIDMM has become home to some rising stars whose work is attracting major attention in the global arena.
Tackling Critical Questions in TB Vaccine Research in SATVI

To implement the mission of the South African Tuberculosis Vaccine Initiative (SATVI) – "Innovative and high-quality TB vaccine research in Africa, to impact the global epidemic" – a research group, led by Professor Willem Hanekom and Dr Tom Scriba, has been testing six new TB vaccine candidates in 15 completed or ongoing clinical trials. SATVI also addresses other critical clinical, epidemiological, immunological and human genetic questions in TB vaccine development.

Research at the Intersection of TB and HIV

HIV has driven a dramatic resurgence of the TB epidemic and a quarter of all HIV-associated TB cases globally are diagnosed in South Africa.

The research of early-career scientists Graeme Meintjes and Wendy Burgers is focused at the intersection of HIV and TB. Associate Professor Graeme Meintjes is an infectious-diseases physician whose research is targeted at improving understanding and clinical management of conditions affecting patients with advanced HIV disease. He was awarded a five-year Wellcome Trust Intermediate Fellowship in 2012 that will support a prospective cohort study of 660 patients admitted to hospital with HIV-associated TB. This study is aimed at defining contributors to the high mortality in these patients and improving treatment strategies. He is also principal investigator of a randomised controlled trial of prednisone for the prevention of the TB-associated immune reconstitution inflammatory syndrome, a frequent complication occurring during early antiretroviral therapy in patients with HIV and TB. This trial is funded by an EDCTP Strategic Primer Award made in 2012. Dr Wendy Burgers is a UCT and University of Cambridge-trained immunologist who holds a five-year Wellcome Trust Intermediate Fellowship. She leads a growing research group of three postdoctoral research fellows and four postgraduate students, seeking to understand why HIV infection leads to a greater susceptibility to TB. Also funded by a Senior Fellowship Award from the EDCTP, her work takes the unique perspective of attempting to understand immunity to TB and the effect of HIV at the site of disease, the lung. She is also principal investigator on an NIH grant focusing on identifying the mechanisms of excessive immune activation during HIV infection, a process that drives progression to AIDS. These studies could reveal important new targets for immune intervention during HIV infection.
Research Projects

Building Capacity in Bioinformatics and Computational Biology

In 2012 Associate Professor Nicola Mulder and Dr Darren Martin from the Computational Biology (CBIO) Group at the IIDMM together published 27 papers or chapters in the international peer-reviewed literature.

These papers covered a remarkable diversity of topics, from the development of advanced computational methods for analysing bacterial and viral protein and nucleic acid interaction networks to the application of these and other computational tools to detailed analyses of many of Africa’s most prevalent infectious diseases. While the foundation of CBIO’s research strategy has been the development of extensive networks of local and international collaborators (many of whom work at the cutting edge of either infectious disease or computational biology research), its success has been primarily based on the training and excellent work of a constant stream of top master’s and PhD students and postdoctoral research fellows from across Africa. A particular highlight for the group in 2012 that enables this is the award to Associate Professor Mulder of a $12-million NIH-funded Human Heredity and Health in Africa (H3Africa) grant aimed at nurturing and growing computational biology-based research collaboration and student training networks across Africa. The CBIO group is co-ordinating bioinformatics groups in more than 30 institutions across 15 African countries through the H3ABioNet project. (Also see page 65.)

Tackling Critical Questions in HIV Prevention and Pathogenesis

In 2012, Professor Carolyn Williamson (HIV Diversity and Pathogenesis Group) and Associate Professor Jo-Ann Passmore (HIV Mucosal Immunology Group) together published 20 papers in international peer-reviewed journals and one book chapter focusing on HIV prevention and pathogenesis.

A highlight was a paper in Nature Medicine which demonstrated that HIV mutation, in an attempt to avoid host immune detection, was required for the evolution of potent HIV-specific broadly cross-neutralising antibodies. Understanding how to elicit broadly cross-neutralising antibodies through vaccination is a major question in Professor Williamson’s field and her laboratory played a leading role in this discovery. She and Associate Professor Passmore also co-authored two important studies in the Journal of Infectious Diseases highlighting the failure of the syndromic management approach to adequately treat sexually transmitted infections in women in communities with high HIV incidence rates. After the acquisition of HIV, genital inflammation remained a significant predictor of worse clinical HIV disease outcome. In recognition of their notable track record in mucosal immunology and HIV transmission, Professor Williamson, Associate Professor Passmore and four other members of the IIDMM were awarded a competitive R5-million EDCTP Strategic Primer grant aimed at bringing together a multicentred mucosal immunology consortium of investigators committed to establishing scarce skills capacity for mucosal research surrounding HIV prevention trial sites in South Africa.
The major focus of the UCT node of the DST/NRF Centre of Excellence for Biomedical TB Research (CBTBR), which was established in 2011, is on strengthening the node’s research thrusts in fundamental research in the physiology and metabolism of *Mycobacterium tuberculosis* of relevance to drug discovery and drug resistance. The node is engaged in three inter-related drug-discovery projects. Two of these form part of large international TB drug consortia funded by the Bill and Melinda Gates Foundation and the European Union Seventh Framework Programme respectively. The third project is being carried out under the auspices of the South African Tuberculosis Research and Innovation Initiative, funded by the Technology and Innovation Agency. This project has formed the basis of a new university-wide collaborative partnership with Professor Kelly Chibale’s group in the H3-D Centre for Drug Discovery.

Further efforts in 2012 have focused on identifying opportunities for new collaboration with other TB research groups in the IIDMM, including the Desmond Tutu HIV Centre, the Clinical Infectious Diseases Research Initiative and the South African Tuberculosis Vaccine Initiative, in studies that can capitalise on the CBTBR’s expertise in mycobacterial genetics, genomics, biochemistry and physiology. Encouraging progress has been made in this area, with several new projects under discussion.

A major research output in 2012 was a publication in *Chemistry & Biology* by Dr Garth Abrahams, Professor Valerie Mizrahi and international collaborators at the US National Institute of Allergy and Infectious Diseases, Seattle BioMed and Cambridge University describing the development and application of engineered strains of *Mycobacterium tuberculosis* as novel tools for TB drug discovery. In another important development, Dr Krishmooorthy Gopinath and Dr Digby Warner succeeded in identifying the protein responsible for uptake of vitamin B12 by *Mycobacterium tuberculosis*. This work, which was carried out in collaboration with colleagues at the Swiss Federal Institute of Technology in Lausanne with funding from the Swiss-South Africa Joint Research programme, was presented at two international conferences in France, and has been submitted for publication.

Professor Mizrahi was selected as a Senior International Research Scholar of the Howard Hughes Medical Institute (HHMI) in 2012. Her five-year grant from the HHMI will support programmes in fundamental TB research and advanced postgraduate training at the UCT node.
Driven by the large burden of childhood respiratory illnesses in South Africa and Africa, Professor Heather Zar of UCT’s Department of Paediatrics and Child Health has built a strong clinical translational research programme focused on developing strategies to improve child lung health. This has been underpinned by the growth of a busy clinical research unit at the Red Cross War Memorial Children’s Hospital and training of several master’s and doctoral students. She is currently leading a new initiative that will see an expanded paediatric clinical research unit completed this year, with satellite sites in community settings, enabling growth of clinical research and building much capacity in child health in South Africa and Africa.

This research addresses the leading causes of childhood illness and death in African children – tuberculosis, pneumonia, HIV-associated respiratory illness and asthma. A strong focus has been on evolving new strategies for diagnosis, prevention and treatment of pneumonia – the major killer of children under five years of age – including those for HIV-infected children. A recently completed project included a study of the impact of the new pneumococcal conjugate vaccine (introduced in 2009 in South Africa) on hospitalisation for childhood pneumonia and on the cause of pneumonia. Tuberculosis, the major cause of death in South Africa and a relatively neglected, important cause of childhood illness, has been another focus, particularly the development of better ways to diagnose and prevent childhood TB. This work has been supported by grants from the National Institutes of Health (NIH) and the European Developing Country Clinical Trials Partnership.
Together with Professor Mark Nicol (Head of Microbiology at UCT) and a research team, Professor Zar recently published the first landmark papers showing the usefulness of GeneXpert – a rapid way to diagnose TB that simultaneously diagnoses drug-resistant disease – when used in children. The studies, published in the leading journals *Lancet Infectious Diseases* and *Clinical Infectious Diseases*, showed that TB could be rapidly detected on induced sputum or on nasal mucus in 75% of children with culture-confirmed disease. Such findings have changed global practice, with potential major impact for improving diagnosis and treatment of childhood TB; the World Health Organisation has recently recommended this as the standard of care for children with suspected TB living in areas of high HIV prevalence or drug resistance.

Such findings have changed global practice, with potential major impact for improving diagnosis and treatment of childhood TB; the World Health Organisation has recently recommended this as the standard of care for children with suspected TB living in areas of high HIV prevalence or drug resistance.

Prevention of TB in HIV-infected children has been another strong area of research. Professor Zar and her group have previously shown that isoniazid (INH), a drug used to treat TB, was highly effective in reducing mortality and preventing TB in HIV-infected children with advanced HIV/AIDS. Building on this, a key recent publication showed that INH had an additive effect to antiretroviral therapy in preventing TB in such children. In 2012, Dr Lisa Frigati, a MMed student supervised by Professor Zar, received the best-publication award in the Department of Clinical Sciences for a young investigator for this work, which was published in the prestigious journal *Thorax*.

In a first for the African continent, Professor Zar recently set up a birth cohort study (the Drakenstein Child Lung Health Study), which is funded by the Bill and Melinda Gates Foundation. This multidisciplinary study investigates the determinants of pneumonia and the long-term impact on child health with focus areas including nutrition, infectious diseases, environmental exposures, psychosocial factors, maternal and paternal health, and genetic and immunological factors. To date, almost 500 pregnant women have been enrolled and 260 babies born. There are 13 postgraduate students working on different aspects of the study; several have been awarded prestigious national and international grants for sub-studies nested in the Drakenstein cohort. Exciting preliminary results have emerged from some of these areas, particularly those led by Professor Mark Nicol (microbiology aspects), Professor Landon Myer (epidemiological aspects), Professor Dan Stein (psychosocial aspects) and Dr Aneesa Vanker (environmental aspects). Another first for the African continent is the use of infant lung function in this study, which has been led by Dr Di Gray, a PhD student, for which she received a Wellcome Trust training award. The pilot results from infant lung-function testing indicate excellent success in performing this, and substantial differences in lung function in six-week-old infants compared to their European or North American counterparts, suggesting an innate vulnerability to pneumonia.

More recently, the research focus has expanded to include a study of the health of HIV-infected adolescents, a growing population with unique, but poorly understood, health needs. Together with co-investigator Professor Landon Myer, Professor Zar was awarded a large five-year grant from the NIH to study the development and progression of respiratory, cardiac and neurocognitive disease in a cohort of HIV-infected adolescents. This multidisciplinary research involves collaborators in the Departments of Paediatrics and Child Health, Medicine, Public Health, and Psychiatry, and the IIDMM, and has the potential to identify mechanism of disease and novel preventative and treatment strategies.
Genomic and Proteomic Research

UNLOCKING THE SECRETS OF DISEASE

Genomic and proteomic researchers at UCT’s Faculty of Health Sciences are pushing the boundaries of science and unlocking new knowledge, with the potential to develop new cures and more effective treatments for diseases common in the developing world, such as tuberculosis, HIV/AIDS and cancer. The potential for commercial application of this knowledge is also extensive.

Functional genomics research has the potential to yield the sort of information, discoveries, and inventions that translate into future biomedical advances and commercial activity. For instance, a functional genomics programme that studies patterns of protein and lipid expression in peripheral fluids taken from a group of tuberculosis (TB) patients could lead researchers to discover molecular markers that diagnose TB. These would then form the basis of a new point-of-care diagnostic test for TB that works in low-resource settings. This would be a major healthcare innovation in the developing world, and generate commercial activity worldwide.

This field of speciality requires state-of-the-art, high-throughput analytical technologies. Fortunately, these are now available locally and Department of Science and Technology investments in the Centre for Proteomic and Genomic Research, along with capital equipment acquired by UCT and partner universities, is transforming the Western Cape into an oasis of genomic and proteomic research.

The future prospects for major breakthroughs at UCT in both infectious and non-communicable diseases are bright, even though it is a long and often rocky road that leads to discovery and validation of the sort of disease-associated biomarkers that can be translated into lifesaving health care innovation.

Research programmes in this area are heavily dependent on the availability of sophisticated bioinformatics tools and the expertise to analyse and make sense of the vast quantities of raw experimental data generated – an area of increasing strength for UCT.

South Africa provides a remarkable wealth of clinical resources, including a population that represents more than 95% of the world’s human genetic diversity, along with
a heavy burden of existing and emergent diseases. However, programmes are notoriously expensive, due to the scale of research – many thousands of genes, proteins, or small molecules are measured in parallel, through time and under different environmental conditions, in a large number of biological samples, in order to enable statistically significant quantitative conclusions.

Research is heavily dependent on the availability of sophisticated bioinformatics tools and expertise to analyse and make sense of the vast quantities of raw experimental data generated – an area of increasing strength for UCT.

This is beyond the scope of traditional South African funding agencies. Fortunately, major international donors are increasingly committing to funding functional genomics research at UCT. Examples of these partnerships include the National Institutes of Health and the Wellcome Trust that, together with the African Society for Human Genetics, fund the Human Heredity and Health in Africa initiative (H3Africa); the Bill & Melinda Gates Foundation (BMGF); the European and Developing Countries Clinical Trial Programme (EDCTP); and the Canadian Institutes for Health Research (CIHR).

South Africa provides a remarkable wealth of clinical resources, including a population that represents more than 95% of the world’s human genetic diversity, along with a heavy burden of existing and emergent diseases.

The H3Africa initiative studies the genomic and environmental determinants of disease in Africa, supporting African population-based genomic studies of common, non-communicable and communicable diseases. It also aims to build capacity for genomics research; create and expand genomics research infrastructure on the African continent, by supporting the development of a bioinformatics network and pilot biorepositories; and fund studies of the societal implications of genetic and genomics research.

African population-based genomic studies of common, non-communicable disorders, such as heart and renal disease, and communicable diseases like tuberculosis, is critical and is being led by African scientists – many of whom are at UCT.

Researchers typically work in multidisciplinary collaborations across a number of experimental platforms, which are made possible through established collaborative networks within UCT and beyond.

The future prospects for major breakthroughs in both infectious and non-communicable diseases is bright, even though it is a long and often rocky road that leads to discovery and validation of the sort of disease-associated biomarkers that can be translated into lifesaving healthcare innovation.
Professors Nicola Illing and Vivienne Russell investigate the molecular aspect of brain-behaviour studies. Professor Illing has a particular interest in gene expression, with an interest in how psychological stress changes gene expression in the brain. In order to begin to address this question, she mentored a student project that focused on comparing gene expression in white cells and in the brains of rodents exposed to stress. The data were the first to be published in this area, and have led to a patented test. She is currently working with a postdoctoral research fellow on gene expression in white cells in people who abuse methamphetamine.

Genes are ultimately translated into proteins. Professor Russell and postdoctoral research fellow Dr Jacqueline Dimatelis have focused on protein expression in animal models of stress and of substance use. Their work suggests that the combination of early-life adversity and later methamphetamine use results in more alterations in protein concentration in a key area of the brain – the nucleus accumbens – which is involved with reward systems.
processing. Ultimately, the hope is that, by understanding such molecular processes in more detail, new targets for treatment can be developed.

Professor Erneta Meintjes is the DST/NRF SARChI Chair in Brain Imaging, and has played a particularly important role in conducting clinical research relevant to the BBI mission. Her work has included studies of children with fetal alcohol syndrome, as well as children with neuroHIV/AIDS, and involves collaborations with clinician-scientists abroad and locally. Much of her research is funded by the National Institutes of Health. As children are not easily able to lie still during imaging, she and her collaborators at the Massachusetts General Hospital have developed new MRI sequences, which facilitate motion correction during the analysis of scans.

Dr Katherine Sorsdahl, the project manager of the BBI, says that he is pleased that women scientists are making such a large contribution to the BBI, and notes that, when it comes to BBI postdoctoral research fellows and doctoral students, women are again taking the lead. A number of young scientists have focused on translational science in particular, moving between “the bench and the bed”: Dr Fleur Howells, for example, has undertaken a series of animal and human studies in order to address the role of particular neurotransmitter systems in mental disorders.

“Our aim,” Professor Stein says, “is to go from bench to bed and beyond, in order to begin to address key questions in the brain-behaviour sciences, and to find new approaches to the diagnosis and treatment of mental disorder.” The BBI is keen to attract more staff and students to work in this area.
Physical activity and exercise are the fulcrums around which the UCT/MRC Research Unit for Exercise Science and Sports Medicine (ESSM) research is conducted, and the unit adopts an integrated approach to research. Broadly, the unit’s research falls into three focus areas, covering the spectrum from physical activity for health, to clinical sports medicine, to exercise for performance. These focus areas are inter-linked by a multidisciplinary approach that borrows from the disciplines of, among others, genetics, molecular science, nutrition, physiology, biochemistry and biomechanics to better understand every aspect of physical activity and exercise. That broad strategy, delivered through the application of basic and applied sciences, has resulted in a number of key research projects in 2012.
Celebrating 100 Years of Health Sciences

The Study and Promotion of Physical Activity for Health

The goal of this project is to study barriers to and factors that facilitate health-seeking behaviours such as physical activity, in various settings and populations, in order to develop and then measure the effectiveness of interventions aimed at improving these lifestyle behaviours and health status. This project is led by Dr Tracy Kolbe-Alexander, who leads ESSM’s public health and physical activity research, along with Professor Vicki Lambert.

Working in conjunction with Discovery Vitality, academics from the University of the Witwatersrand, and Emory University, Dr Kolbe-Alexander has helped to develop and evaluate the Healthy Company Index in South African companies. The first in a series of peer-reviewed publications was published in the Journal of Occupational and Environmental Health. In recognition of her research in this area, Dr Kolbe-Alexander was asked to serve as a panelist and speaker at the recent Global Healthy Workplace Awards and Summit in London. A similar project is the South African Fittest City Index, which compares the health and fitness profiles of eight metropoles. Finally, in an African first, Dr Kolbe-Alexander investigated the relationship between the built environment and physical activity in older adults, finding that neighbourhood safety was one of the main barriers to physical activity while the neighborhood aesthetics played a role in increasing activity among those over the age of 60 years.

Professor Lambert and her team have been focusing on the ecological determinants of adult and childhood obesity, as part of the five-country, NIH-funded, Modelling the Epidemiological Transition Study, spearheaded by the Department of Epidemiology and Community Health at Loyola University in Chicago, and including the Seychelles, Ghana, Jamaica, USA and South Africa. More recently, Professor Lambert has served as the in-country PI for the 12-country ISCOLE Study (International Study of Childhood Obesity, Lifestyle and the Environment). Data from this study will be used to formulate the third in a series of Healthy Active Kids South Africa Report Cards (2007, 2010, and now 2014), and forms the basis of two doctoral studies. Finally, Professor Lambert was a member of a prestigious writing group for The Lancet’s Physical Activity Series of five scholarly peer-reviewed manuscripts which appeared in July 2012 in conjunction with the London 2012 Olympics, and had as the primary focus the global evidence for physical activity and health.

Prevention and Management of Chronic Diseases

South Africa faces enormous challenges as a result of the rising prevalence of obesity and associated disease such as cardiovascular disease and diabetes. Paradoxically, these diseases of “excess” occur against a South African context of poverty, and the combination has significant implications for the health of our country.

For the last couple of years, Dr Lisa Micklesfield and Dr Julia Goedecke have explored various methods to measure visceral adipose tissue (VAT), the fat around the organs associated with metabolic disease. Waist circumference can be used as an indirect measure of VAT; however, there are a number of limitations with this method, and for this reason they have assisted with developing a method to more accurately estimate VAT using dual x-ray absorptiometry technology.

This work was subsequently published in the Journal of Obesity, and has subsequently received a fair amount of attention both internationally and locally. This methodology has since been included in the dual energy x-ray absorptiometry software (DXA) to allow for more accurate measurement of VAT using this technology. Future research will include examining the association between this DXA-derived measure of VAT and disease outcomes in different populations and hopefully will increase our understanding of this association.
Sporting Performance, Medicine and Sports Injuries

The Paralympic Games of London in 2012 were the biggest, most successful and, by virtue of a comprehensive series of research studies conducted by ESSM in partnership with the International Paralympic Committee, the most researched Paralympics in history.

The 2012 London Paralympics showcased the performances of over 4,000 athletes from 164 nations. It was also the opportunity for a comprehensive evaluation of injury and illness from a team of ESSM researchers, led by Professors Wayne Derman and Martin Schwellnus, in collaboration with the International Paralympic Committee.

The research, published in a series of papers in the British Journal of Sports Medicine, described a web-based surveillance system that captured statistics of 3,565 athletes, from 160 nations, to provide a goldmine of data involving 49,910 athlete days.

Among the intriguing findings was that the patterns of injury and illness are different from those of able-bodied athletes – more upper-limb injuries (shoulder, hand, wrist and elbow) occur in Paralympic athletes than in able-bodied athletes. “Interestingly,” explains Professor Derman, “this is true even in lower-limb amputees, and is likely because normal daily activities like getting in and out of cars places a greater load on the upper limbs, making them more susceptible to injury as a result of sports participation.”

The research also found that one in nine athletes developed an illness during the Paralympic Games, and that non-respiratory tract illnesses, including urinary tract and skin conditions, are more common than respiratory tract infections in Paralympic athletes. “The implication is that medical care for Paralympic athletes is very different from that of able-bodied athletes, and team physicians must be mindful of these differences when planning their intervention strategies for both prevention and treatment of illness and injury,” explains Professor Derman.

Sporting performance and injury research also has a genetic slant through the work of Professor Malcolm Collins and Drs Alison September and Mike Posthumus. Having previously identified various DNA sequence variants associated with tendon and ligament injuries, the group has continued this but with the ambition of expanding into a more mechanistic understanding of genes and injury. “It is important for us to move beyond simply associating gene variants with injury. We want to determine how these variants are involved in altering risk,” explains Professor Collins. This means borrowing from other techniques, including cell and molecular biology, to add to world-leading genetic research already conducted by ESSM.

ESSM have also, over the last year, developed a research-consultant relationship with SA Rugby’s safety programme, BokSmart, directed by Dr Wayne Viljoen, an ESSM graduate. “SA Rugby has set up an excellent infrastructure to log and monitor cases, and we are helping analyse the data to identify how to improve implementation and direct future policy,” explains Professor Mike Lambert, who has overseen the project from ESSM’s side, along with PhD student James Brown.
Developing the Potential of Garlic to Fight Cancer

Garlic (Allium sativum) has been used in folk medicine for centuries both as a food flavour-enhancer and for its beneficial health effects. Although the pungent garlic taste is not universally loved, the beneficial medicinal properties are widely known to fight infections, heart disease and cancer. These medicinal properties are attributed to the organosulfur compounds found in crushed cloves, of which the compound E/Z-ajoene is one of the major constituents (“ajo” comes from the Spanish for “garlic”).

Traditional garlic extracts have yielded low amounts of ajoene as part of a mixture of products. Professors Roger Hunter and Iqbal Parker and Dr Catherine Kaschula have developed the first synthetic route to ajoene analogues, which has been patented by UCT. The researchers identified the ajoene anti-cancer “pharmacophore” (the group of atoms in the molecule of a drug that are actually responsible for the drug’s action) to be the disulfide, with the vinyl and sulfoxide groups further enhancing activity. This facilitates the design and synthesis of more-potent ajoenes than the natural product. These are currently undergoing pre-clinical evaluation.

Recently, a fluorescent-tagged ajoene has for the first time enabled the UCT researchers to track ajoene’s activity within the cancer cell, as shown in the photomicrographs. It is now thought that ajoene interferes with protein-folding in the cancer cell, which induces programmed cell death (apoptosis). This novel anti-cancer mechanism can be used in a multi-pronged approach with current anti-cancer therapeutics to kill cancer cells.

Fluorescent images of MDA-MB-231 breast cancer cells treated with a blue fluorescing-ajoene. Breast cancer cells (B) were stained with a dye which causes the endoplasmic reticulum (ER) of the cell to fluoresce red (A) and then treated with the blue-fluorescing ajoene (C). An overlay of both red and blue fluorescent signals shows a “pink” signal (D) indicative of the fluorescing ajoene localising to the ER (red + blue = pink).
Research Groupings
associated with this theme

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**Lung Infection and Immunity Unit**

The Lung Infection and Immunity Unit (LIU) comprises approximately 40 students and staff embedded within the Division of Pulmonology in the Department of Medicine at UCT. The research focus is on lung infections and diseases of poverty, including tuberculosis, pneumonia and HIV. The unit also has a clinical trials division, which is located within the UCT Lung Institute. The unit’s research focus areas include the pathogenesis, diagnosis and outcomes of multi-drug-resistant pulmonary infections, the development and evaluation of field-friendly diagnostics for TB and other pulmonary infections, and the immunology of pulmonary infections with special emphasis on regulatory T-cells and innate immunity.

The LIU is a WHO-associated African Network for Drugs and Diagnostics Innovation Centre of Excellence. The work of the unit has informed policy documents on drug-resistant TB and diagnostics, and seminal work has been published about the immunology of pulmonary TB.

Capacity-development activities have included the organisation of several popular annual courses attended by researchers from all over Africa, the establishment of clinical recruitment infrastructure at clinical trial sites in Cape Town, and the training and mentorship of clinician scientist PhD students. A recently filed patent has spawned a UCT spin-off company that is developing a diagnostic test for extrapulmonary tuberculosis.

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**Hatter Institute for Cardiovascular Research In Africa**

The aims of the Hatter Institute for Cardiovascular Research in Africa are to facilitate national and international research collaborations, to consolidate and expand existing efforts to combat the most serious cardiovascular threats to health, and to improve overall prosperity in the region. Major research areas are cardiac disease and maternity, cardioprotection, cardiovascular genetics and Heart of Africa projects. In Africa, cardiovascular disease is the most common cause of maternal death in pregnant women. The objective of the institute’s Cardioprotection Group is the delineation of novel cardioprotective pathways that can be activated to limit cell death in various pathophysiological conditions such as heart failure, myocardial infarction or diabetes. The Cardiovascular Genetics Group aims to discover the genetic basis of inherited heart diseases that cause sudden death. This work involves the study of rare families with monogenic disease (that is, inherited cardiomyopathies and arrhythmogenic disorders), and the delineation of the genetic architecture of complex traits associated with sudden death (such as cardiac hypertrophy). These studies hold promise of discovering the critical biological pathways that can be targeted by drugs to prevent sudden cardiac death. The Heart of Africa Pan-African Hypertension Cohort was established in 2010 to describe the epidemiology and characteristics of pulmonary hypertension in Sub-Saharan Africa.

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Members of the Lung Infection and Immunity Unit
Adolescent Health Research Unit

Adolescents face a wide range of health problems, owing to a combination of biological, social, and psychological factors. There is thus a niche for a research facility that focuses specifically on the health needs of adolescents. The Adolescent Health Research Unit at UCT builds on existing research and collaborations to co-ordinate, promote and facilitate research into all aspects of adolescent health. The specific aims of the unit are to facilitate cutting-edge inter-disciplinary research that addresses key national public adolescent health priorities; to promote networking among adolescent health researchers, practitioners, and policy makers; to increase the profile of the Faculty of Health Sciences in the arena of world-class adolescent health research; to provide policy consultation at local, provincial, national, and international levels; and to increase and improve educational offerings in adolescent health at undergraduate and postgraduate levels.

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Cardiovascular Research Unit

The core research pursuit of the Cardiovascular Research Unit centres around the concept of regenerative medicine, with the goal of engineered regeneration of diseased structures through co-ordinated and site-directed signalling to facilitate gradual in-situ remodelling of surgically replaced hybrid biosynthetic devices. These offer patients an immediate dramatic improvement in quality of life through return to functionality of these diseased structures.

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MRC/UCT Cape Heart Centre

This combined research entity is the largest heart research group in South Africa and forms part of the Cape Heart Group, which links research between UCT and the other universities in the region. The Hatter Institute, which is part of the MRC/UCT Cape Heart Centre, is involved in the study of the molecular and cellular biology of ischaemic heart disease, as well as the molecular and cellular pathophysiology of cardiac hypertrophy and heart failure. The goal of the research programme is to contribute to the fundamental understanding of the mechanisms in the development of ischaemic heart disease, cardiac hypertrophy, and heart failure. The Cardiovascular Research Institute, to which is allied the Medtronics Institute, is studying biocompatible materials for vascular and valvular prostheses. Lipidology is concerned with research into lipid and lipoprotein disorders in patients in the region and novel treatment strategies for these disorders. Its research also includes new diagnostic assays for local problems in health care and lipid peroxidation.

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Centre for Infectious Disease Epidemiology and Research

The Centre for Infectious Disease Epidemiology and Research (CIDER) aims to be an African Centre of Excellence in infectious disease epidemiology and related research. The centre has a strong base that spans a number of disciplines and conducts public health research, integrating laboratory, clinical, epidemiological, social science, and health systems research into infectious diseases that have high priority in Southern Africa (in particular, HIV and tuberculosis) in order to improve the prevention and management of these diseases. The centre maintains strong links with health services at all levels in order to identify research priorities, and assists policy makers, programme managers, and services managers with the implementation of the results of research. The centre aims to be a centre of excellence in the surveillance and monitoring of infectious diseases and infectious disease programmes and services, and in the conduct of robust observational research, based on routine data sources. CIDER provides extensive postgraduate level teaching and supervision in epidemiology.

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MRC/NHLS/UCT Molecular Mycobacteriology Research Unit

The Molecular Mycobacteriology Research Unit (MMRU) was established in 2000 as an extramural research...
Research Groupings associated with this theme

**MMRU**

Unit of the MRC, hosted jointly by the National Health Laboratory Service and the University of the Witwatersrand. In 2011 the MMRU was transferred to the University of Cape Town, where it is now based in the Institute of Infectious Disease and Molecular Medicine. The mission of the MMRU is to carry out fundamental research on aspects of the physiology and metabolism of relevance to tuberculosis drug resistance and drug discovery. By adopting a research strategy that is based on investigating specific aspects of the metabolism and physiology of Mycobacterium tuberculosis, the MMRU has positioned itself at the front-end of TB drug discovery research.

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**Desmond Tutu HIV Centre**

The activities of the Desmond Tutu HIV Centre (DTHC) are underpinned by research and evaluation. It aims to impact on policy and practice, both nationally and internationally, through relevant research, peer-reviewed publications, and feedback to government, civil society, and the community at large. DTHC is driven by a passion for humanity and a vision of South Africa without AIDS. Over the years, it has become a source of advice for medical practitioners, support for people seeking testing or treatment, and leadership in preventative education. With an experienced and dedicated team of more than 165 doctors, nurses, researchers, and community-trained field workers, the Desmond Tutu HIV Centre offers a holistic approach to the HIV epidemic.

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**Institute of Infectious Disease and Molecular Medicine**

Concentrating our research efforts on infectious diseases, particularly HIV/AIDS and tuberculosis, and on non-communicable diseases prevalent in Africa, the Institute of Infectious Disease and Molecular Medicine aims to be a centre of research excellence in Africa, and a major training hub for biomedical, clinical, and public health researchers. The institute provides its members, affiliates, and visiting scholars from around the world with an environment that is highly interactive, allowing complex scientific problems framed in a public health context to be tackled in a multidisciplinary way. Collaborations, partnerships and networks contribute to our world-class scientific endeavours. Our strong scientific base spans many areas of modern, molecular-based enquiry, including molecular and cell biology, immunology, virology, microbiology, genetics and genomics, biochemistry, pharmacology, vaccinology, molecular epidemiology, and structural, high-throughput and computational biology. Our aim is to apply scientific discovery from the bench to the bedside and to the community through a dynamic interplay between basic, clinical, and public health research.

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**Drug Discovery and Development (H3-D) Centre**

The Drug Discovery and Development Centre (also known as H3-D) was founded in 2010. The centre aims to bridge the gap between basic and clinical studies, and to train a new generation of African scientists with the key skills required for drug discovery.

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and development, thereby integrating medicinal chemistry, biology and pharmacology, as well as drug metabolism and pharmacokinetics studies, as reflected in the processes of absorption, distribution, metabolism and excretion. H3-D also focuses on the beneficiation of clinically used drugs, including generic medicines. Drug beneficiation, among other things, involves the selection of the optimum form of a solid drug candidate for pharmaceutical development and (re)formulation.

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**MRC/UCT Receptor Biology Research Group**

The mission of the group is to study the structure and function of G protein-coupled receptors and to apply the research to understanding and treating diseases that have major effects on the social and economic welfare of South Africa. The group focuses on the gonadotropin-releasing hormone receptors and on the kisspeptin receptor, which are central regulators of the reproductive function, on the prostaglandin receptors and their role in cervical cancer, and on the CCR5 chemokine receptor and its role in Human Immunodeficiency Virus (HIV) entry and infection.

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**MRC/UCT Immunology of Infectious Diseases Research Unit**

Human infectious diseases are a high-priority area for South Africa and Africa, where they continue to be a leading cause of childhood and adult morbidity and mortality. Thus the MRC/UCT Immunology of Infectious Diseases Research Unit focuses on the understanding of host-protective immune responses and the development of effective vaccine strategies for the eradication of diseases that are identified as priority areas by the World Health Organisation: tuberculosis, leishmaniasis, helminthiases (bilarbrosis) and African trypanosomiasis (sleeping sickness). The unit’s mission is to be relevant as an excellent multidisciplinary and international team, embracing both basic and applied research, in order to improve capacity, teaching, and training in the immunology of infectious diseases.

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**MRC/UCT Oesophageal Cancer Research Group**

The MRC/UCT Oesophageal Cancer Research Group is an inter-disciplinary and inter-institution group (UCT, MRC and the University of Stellenbosch), established by the MRC in 1997. Squamous cell carcinoma of the oesophagus is one of the eight most common cancers worldwide. High-incidence areas include China, Japan, and certain hot spots in France, Iran and South America. More important is the fact that the incidence of squamous cell carcinoma of the oesophagus is very high in Southern and Eastern Africa, but virtually absent in West Africa. This group is investigating the environmental and genetic factors that predispose Africans to this disease.

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**UCT Leukaemia Unit**

The UCT Leukaemia Unit was established with the objective of fostering basic and clinical research in the area of haematological stem cell disorders and blood malignancies. Some of the current interest includes the marrow microenvironment in multiple myeloma, molecular genetics of acute or chronic leukaemias, and clinical studies in lympho-proliferative disorders. As a consequence, a laboratory with a comprehensive array of equipment is available where honours, master’s and doctoral students are running research projects. Based on these studies, a number of clinical and laboratory programmes have been developed. In this regard, the only university-based haematopoietic stem-cell transplantation programme in the country is located at Groote Schuur Hospital. Parallel studies focusing on haematopoietic stem-cell biology and immune reconstitution after transplantation are ongoing.

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Albertina and Walter Sisulu Institute of Ageing in Africa

The Albertina and Walter Sisulu Institute of Ageing in Africa is a cross-disciplinary group within the Department of Medicine in the Faculty of Health Sciences and incorporates the divisions of Geriatric Medicine, Geriatric Neuropsychology, Geriatric Neurosciences and Geriatric Psychiatry, and a Gerontology programme. The institute strives to be an academic and research centre of excellence that addresses critical issues of ageing in Africa, and serves as a catalyst for local, national, and regional expertise and a focal point for the development of research services and training. Its mission is achieved through inter-disciplinary and cross-national partnerships and research collaboration, human-resource development, and policy information in the national context and on the African continent. Areas in which research projects are currently conducted at the institute include physical, cognitive and social functioning, and quality of life; vascular risk factors and stroke; falls in older persons and quality of care; and dementia and risk factors for cognitive disorders.

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MRC/UCT Human Genetics Research Unit

The group’s current focus is on the genetics of colorectal cancer, inherited forms of blindness, and neuropsychiatric diseases. Recent breakthroughs include identifying the genetic basis of retinitis pigmentosa and developing therapeutics to stem loss of vision in individuals shown to carry the disease-causing mutation. A greater effort is being put into engaging with high-throughput technologies and the mapping of genes for common chronic disorders.

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MRC/UCT Medical Imaging Research Unit

The mandate of the Medical Imaging Research Unit (MIRU) is to conduct world-class research in medical imaging that specifically addresses the healthcare needs of Africa. Although located in the Western Cape, the MIRU sees itself as a national facility, with the responsibility of providing an imaging platform that is available to the wider research community in the country. Our research focuses on the role of medical imaging in addressing problems such as trauma, cancer, tuberculosis, HIV/AIDS, neuromuscular disorders, cardiovascular disease, and alcohol abuse, all of which pose serious threats to public health in South Africa. In addition to using established techniques to address local healthcare needs, we are developing novel imaging methods in areas such as magnetic resonance imaging, mammography and microscopy, which are appropriate for our national context but will also find application in the rest of the world. The unit has strong collaborative links with Western Cape hospitals, the local medical device industry, and international institutions.

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Women’s Health Research Unit

The Women’s Health Research Unit, established in 1996 in the School of Public Health and Family Medicine, is involved in research, teaching, technical health service support, and advocacy in the areas of women’s health, and gender and health. It is made up of a multidisciplinary team of researchers with expertise in public health, epidemiology, sociology, and anthropology. The unit works closely with the national, Western Cape provincial, and City of Cape Town Departments of Health, as well as with other academic institutions and NGOs, in sexual and reproductive and women’s health. Key research areas include HIV and reproductive health, gender and HIV, health systems research (reproductive health), female cancers, contraception, and termination of pregnancy.

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UCT/MRC Research Unit for Exercise Science and Sports Medicine

The UCT/MRC Research Unit for Exercise Science and Sports Medicine is part of the Department of Human Biology, within the Faculty of Health Sciences. The
primary functions of the unit are to research factors influencing physical performance and health, and to disseminate knowledge and skills through education. Specifically, the research aims to develop a novel understanding of integrated human function during exercise and to use this knowledge to promote health and well-being; to treat and prevent specific chronic diseases; to treat and prevent injuries and medical conditions associated with sport and exercise; and to optimise exercise performance.

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### Centre for Supramolecular Chemistry Research

Located in the Faculty of Science, this group was constituted in 1997 and focuses on the physical chemistry of supramolecular systems. Various host-guest compounds are synthesized, their structures analysed by means of powder and single crystal X-ray diffraction, as well as thermal and spectroscopic techniques, and the results related to their physical properties. Our research efforts concentrate on the beneficiation of drugs through investigation of their polymorphs, solvates, co-crystals, and cyclodextrin inclusion complexes; on the synthesis and characterisation of open framework transition metal structures and purely organic porous materials, and on the synthesis and characterisation of large supramolecular assemblies and the study of guest selectivity in organic host-guest systems.

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### Structural Biology Research Unit

The Structural Biology Research Unit co-ordinates and promotes the experimental determination of biological structure at the University of Cape Town. The Unit is a grant funded entity, operationally located in the Division of Medical Biochemistry, Department of Clinical Laboratory Sciences, that employs staff, provides a home for post-graduate students and post-doctoral fellows and conducts research. It has members who are UCT academics who wish to conduct structural research and who are prepared to apply for grants to fund research in the Unit. The Unit also has affiliates, either from South Africa or abroad, who participate in the activities of the Unit in a variety of ways – including but not limited to: providing advice and expertise, exchanging materials, providing resources and using the resources of the Unit.

The visualization of the structure of biological objects ranging from cells to macromolecules with microscopic or atomic detail is essential for understanding how living systems work. The knowledge of the structures can be exploited to produce medicines and vaccines, ecologically friendly industrial processes and agricultural products. The unit specializes in determining structures experimentally by electron microscopy and X-ray crystallography and makes extensive use of computer based modelling to extend the results. The unit has access to unique resources for the purification and preliminary characterization of proteins, cryo-electron microscopy and X-ray diffraction at a synchrotron beamline. It plays a pivotal role in South Africa’s BioEconomy strategy by providing the core expertise for establishment of the discipline of Structural Biology in the whole country and applying the technology to a wide range of problems of scientific, medical and industrial interest.

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### Gender, Health and Justice Research Unit

The Gender, Health and Justice Research Unit at the University of Cape Town’s Faculty of Health Sciences (Division of Forensic Medicine and Toxicology) conducts progressive research in the area of women’s rights. Faced with staggering levels of violence against women in South Africa, the unit is dedicated to improving access to health and justice services for survivors of gender-based violence. The unit uses inter-disciplinary methods from various academic fields, including law, the social sciences, and public health, to contribute to policies and laws, and to advocate for social justice. Among its current projects are monitoring legislation relating to sexual and domestic violence, as well as inter-disciplinary research relating to women in prisons, domestic and rape homicide, access to post-exposure prophylaxis after rape, “conflicting laws” and torture in post-conflict African states.

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Applied Proteomics and Chemical Biology

Professor Jonathan Blackburn holds the SARChI Chair in Applied Proteomics and Chemical Biology and is head of the ANDI Centre of Excellence in Proteomics and Genomics. He obtained his DPhil degree in Chemistry from the University of Oxford, and carried out postdoctoral research at the Medical Research Council (UK). Professor Blackburn serves on a number of national and international committees, including the National Health Research Committee, the Biotechnology committee of the International Union of Pure and Applied Chemistry, and the Nominations and Election Committee, Human Proteome Organisation. He sits on the editorial advisory boards of the *Journal of Proteome Research*, *Journal of Proteome Science and Computational Biology*, and *Expert Review of Proteomics*. He also sits on the Scientific Advisory Board of GenTel BioSciences (USA), and on the Research Advisory Panel of the Council for Scientific and Industrial Research Biosciences.

Brain Imaging

Associate Professor Ernesta Meintjes completed her undergraduate studies at the University of KwaZulu-Natal, Pietermaritzburg, and master’s and PhD degrees in Physics at Oregon State University, USA. Since July 2000, she has been employed as a research officer and lecturer in the Department of Human Biology and in 2007 she was awarded the South African Research Chair in Brain Imaging. Her current research focuses on both magnetic resonance imaging methods development and application. She has significant expertise in prospective motion correction and application of these methods to study brain development in children with fetal alcohol spectrum disorders and HIV infection, and in the study of cardiac disease.

Clinical Neurosciences Research

Associate Professor Marc Combrinck is a neurologist who trained in medicine and biochemistry at the University of Cape Town and Groote Schuur Hospital. He was a research fellow at the University of Oxford before returning to South Africa in 2004. His research interests lie in dementia, neuro-inflammation and mechanisms of neuro-degeneration. He continues this work in Cape Town, using clinically based observational studies of cognitive impairment in the elderly and in HIV-associated brain disorders. In March 2011, Associate Professor Combrinck was also appointed to the prestigious William Slater Chair of Geriatric Medicine, the first endowed chair in the sub-specialty of geriatric medicine in South Africa.

Drug Discovery

Professor Kelly Chibale obtained his PhD in Synthetic Organic Chemistry from the University of Cambridge in
the UK with Stuart Warren (1989–1992). This was followed by postdoctoral stints at the University of Liverpool in the UK as a British Ramsay Research Fellow with Nick Greeves (1992–94) and at the Scripps Research Institute in the USA as a Wellcome Trust International Prize Research Fellow with K.C. Nicolaou (1994–96). He was a Sandler Sabbatical Fellow at the University of California San Francisco in the USA (2002), a US Fulbright Senior Research Scholar at the University of Pennsylvania School of Medicine in the USA (2008) and a Visiting Professor at Pfizer in the UK (2008). Professor Chibale’s current research interests include discovery of potential drugs that fight malaria, tuberculosis and helminth (parasitic worm), as well as cardiovascular and fibrosis diseases.

Professor Frank Brombacher

Immunology of Infectious Diseases in Africa

Professor Frank Brombacher, a NRF A1-rated researcher, holds the SARChI Chair in Immunology of Infectious Diseases in Africa, and heads up an extramural MRC Research Unit in addition to his ICGEB Scientific Co-ordinator position for Immunology and Infectious Diseases. His group investigates immunological mechanisms, regulation and protective host effector functions in experimental murine infectious disease models that are relevant to Africans, such as tuberculosis, African trypanosomiasis, leishmaniasis and helminthic infections, including bilharzia – four of the top ten WHO-declared human threats. In addition, he and his group are interested in chronic diseases, including allergic asthma and colitis, that cause high morbidity and mortality in humans.

Infection and Immunity of Poverty-related Diseases

Keertan Dheda is Professor of Respiratory Medicine and Director of the Lung Infection and Immunity Unit within the Division of Pulmonology, Department of Medicine. He is the recipient of several prestigious awards, including the 2010 International Union Against Tuberculosis and Lung Disease Scientific Award, and holds several large local and multinational grants, including those sponsored by the EU. His main research interests are the study of the immunopathogenesis, epidemiology and diagnosis of tuberculosis, including drug-resistant TB. He is the co-author of more than 100 peer-reviewed publications, holds patents that are being commercialised, and serves on the editorial boards of several peer-reviewed international journals.

Professor Keertan Dheda

Vaccinology

Professor Anne-Lise Williamson is a virologist on the joint staff of the University of Cape Town and the National Health Laboratory Service (NHLS). As she is a full member of the IIDMM, her research activities are housed in this Institute. She is internationally recognised for both her HIV vaccine and Human Papillomavirus (HPV) expertise. She has headed the South Africa AIDS Vaccine Initiative-funded vaccine development team since 2000. This team of people has been responsible for the development of two vaccines currently in Phase 1 clinical trials in the USA and South Africa, and the ongoing potency assay for one of the vaccines is currently performed in the UCT Vaccine Research Group Good Laboratory Practice Facility. Professor Williamson is head of the World Health Organisation’s HPV Labnet lab for the Africa Region and joint head of the Molecular Epidemiology Laboratory (UCT/NICD/NHLS).
Poverty and Inequality

For more than thirty years, inter-disciplinary research at UCT has been geared towards reducing the twin burdens of poverty and inequality in Africa and creating the conditions for economic transformation.
“On the best side, South Africa has continued to surprise even the biggest sceptics with its ability to maintain relative stability and economic calm through stormy financial periods and a larger-than-life World Cup. Yet poverty and inequality, in coldly economic terms, continue to threaten every aspect of the social and economic well-being of the vast majority of South Africans. The reality is as stark as the Gini coefficient. Although so much is already being done, the rift between the top 20% and the bottom 80% of the population isn’t getting any smaller.” - Francis Wilson

The causes of both poverty and inequality lie deep within South African history, and can be traced through the long process of conquest as it fused with the country’s race-biased industrial revolution in the century after the mineral discoveries of the late nineteenth century. This history cannot, of course, be rewritten but it is important to understand and acknowledge it if the country is to find ways of overcoming this dimension of its heritage.

UCT is home to a long and eminent tradition of basic and applied inter-disciplinary research into the challenges posed by poverty and inequality in South Africa. For more than thirty years, this research has been linked to the goals of political, social and economic transformation. The Southern Africa Labour and Development Research Unit (SALDRU), established by Professor Francis Wilson in 1975, organised the landmark 1984 Carnegie Conference on Poverty and Development in Southern Africa and – in association with the African National Congress and its allies – the 1993 household living standards survey. The Development Policy Research Unit was founded in 1990 with the goals of providing evidence-based advice to then extra-state actors on public policy with respect to development and labour. The Centre for Social Science Research (CSSR) was established in 2001/02 to build on the growing strengths of economics in deepening capacity in systematic basic and applied research in the other social sciences. Research in the units that make up the CSSR has spanned diverse disciplines, including not only the social sciences but also collaborations with scholars in the humanities and law, and in the natural and medical sciences. In much the same way that the CSSR fosters cross-faculty collaborations, so too does SALDRU nurture its partnerships.

DataFirst was originally established, under Professor Francis Wilson’s leadership, as part of the CSSR, before later becoming a freestanding centre that has pioneered in Africa easy access to user-friendly and high-quality survey data. The Children’s Institute was also established in 2001, with the goal of contributing to policies, laws and interventions that promote equality and realise the rights and improve the conditions of all children in South Africa, through research, advocacy, education and technical support. Another of the key research groups working in this area is the Health Economics Research Unit (HEU), which was established in 1990 in the School of Public Health and Family Medicine. The HEU works to improve the performance of health systems through informing health policy and enhancing technical and managerial capacity in sub-Saharan Africa.

The following pages reflect key achievements of the last year within some of these research groups, in moving towards reducing the twin burdens of poverty and inequality in South Africa and the greater African continent.
The National Income Dynamics Study (NIDS) is SALDRU’s largest ongoing project, undertaken on behalf of the Presidency. The project, which commenced in 2008, aims to track income, consumption and expenditure of approximately the same 28 000 individuals and their households over time. Surveys, or waves, are conducted every second year. In mid-2012, Wave 2 data were released to the research community via DataFirst, which was subsequently downloaded more than 1 000 times by the end of the year. Downloads of the Wave 1 data are approaching the 2 000 mark. The release of the data was accompanied by presentations of preliminary results to the Inter-ministerial Cluster on Poverty Alleviation chaired by the Deputy President and to a full sitting of the National Planning Commission. In 2012 the fieldwork for Wave 3 was successfully completed; this massive process required a third visit to each of the 28 000 individuals that make up the NIDS sample, many of whom have relocated. The release of the NIDS Wave 3 data will take place in 2013.

After NIDS, the largest SALDRU project is J-PAL Africa, which works to improve the effectiveness of social programmes in sub-Saharan Africa. 2012 was a remarkably busy year in the J-PAL Africa office, with a highlight being a large national initiative that saw the piloting of a number of potential labour market policy interventions. In addition, a number of other pilot projects evaluating education and health interventions were trialled in 2012. After this period of careful pre-testing, J-PAL Africa will be looking to fund full-scale evaluations of a number of the interventions in 2013.

For SALDRU, producing NIDS panel data as well as its core participation in the Cape Area Panel Study, a longitudinal study of the lives of youths and young adults in metropolitan Cape Town, is a means to the end of enabling SALDRU researchers (and the researcher community in general) to investigate South Africa’s evolving Southern Africa Labour And Development Research Unit (SALDRU)

In the contemporary world, researchers are being called to provide evidence-based policy research in the context of rapidly changing societies. Those working on post-apartheid South Africa have faced this challenge for close to two decades and SALDRU’s 2012 work programme evidences recognition of the fact that this has prepared us to make a significant contribution to the international research enterprise.

This is a dream research agenda as it combines maximum social relevance with the possibility of frontier social science.
social dynamics. This is a dream research agenda as it combines maximum social relevance with the possibility of frontier social science. Quantitative analysis of social dynamics is SALDRU’s particular strength in both the South African milieu and the international one and 2012 reflected this well:

- SALDRU won a large, three-year NRF/DST grant under a “Grand Challenges” call to undertake research and training on South Africa’s unfolding human and social dynamics: Evidence from longitudinal data.
- SALDRU joined a 19-country consortium that won a European Union “NoPoor” competition to undertake a five-year research programme on effective poverty alleviation policies.
- A research proposal on the impact of fertility on education and employment outcomes was one of eight successful proposals at the end of a two-round international call for research on population and poverty by a group of funding agencies from the USA, the UK, the Netherlands and Norway.

Canada’s International Development Research Centre funded an eighteen-month project on the impact of social grants on youth labour supply.

All of these opportunities require the application of international best practice in evidence-based policymaking from SALDRU’s researchers and those who work with this group.

A major event in 2012 was the Carnegie3 national research initiative Strategies to Overcome Structural Poverty and Inequality in South Africa, which was led by Professor Francis Wilson, the founding director of SALDRU. In addition to the extensive conference programme, special sessions were run by NIDS and by J-PAL Africa on the use of evidence in policy-making. (see project insert).

Furthermore, in a programme that is highly complementary to the Carnegie3 process, SALDRU was tasked by the National Treasury to lead a three-year research initiative that focuses national research energies on issues of employment, income distribution and inclusive growth and creates a national dialogue in these areas. This research project was launched at the Carnegie3 conference, and the associated Econ3X3 online forum was launched in November (see project insert).

The Children’s Institute’s Child Gauge 2012 focused on inequality and SALDRU was privileged to partner with the Institute in this Gauge. Associate Professor Ingrid Woolard was one of the editors and there were a number of SALDRU contributors. During 2012, SALDRU also undertook research for the Organisation for Economic Co-operation and Development and the World Institute for Development Economics Research.

Apart from SALDRU’s role in national and international research initiatives, the unit was active in a number of capacity-building programmes in 2012. J-PAL Africa undertook an ambitious training agenda for researchers and senior policy makers in South Africa, Malawi, Kenya and Ghana. In addition, SALDRU’s UCT Training Programme in Social Science Research Using Survey Data ran for the 14th year in January, and trained 140 researchers from Southern Africa in basic survey analysis. This was replicated in Ghana in July. Subsequently, two courses were held in South African and one in Uganda in advanced panel data analysis, thereby extending the reach of the unit to the continent.
Professor Francis Wilson, the founding director of SALDRU, was appointed as UCT’s Acting Pro-Vice Chancellor, Poverty and Inequality, with his major task being to launch the three-year Carnegie3 national research initiative Strategies to Overcome Structural Poverty and Inequality in South Africa. More than 500 delegates attended the September 2012 launch conference, which was hosted by UCT and supported by the Carnegie Foundation and the National Treasury.

The Carnegie3 conference sought to focus attention on understanding the lived experiences of inequality and the causes and dimensions of persistent inequality, and considered policies and actions that are aimed at significantly reducing inequality and poverty in both the short and long term. The conference focused less on describing the problems of poverty and inequality, and more on practical strategies to overcome them. The emphasis was on practical strategies to mobilise the energies of people at all levels of society in creative and effective ways which address structural poverty and inequality and shifting power relations. It sought to provide a platform for serious and deep debate about difficult policy choices that must be made in tackling these issues of poverty, inequality and the underlying facts of massive unemployment.

Appropriately, for a conference that was jointly organised by UCT and the National Planning Commission, participants reflected the full spectrum of those involved in implementing, designing or evaluating the diverse set of policies that are needed to tackle the social ills of poverty and inequality. They included senior policy makers, NGOs, community groups, researchers, participants from government at national, provincial and local levels, and representatives of trade unions, faith-based organisations and the business sector.

A ‘Rough Guide’ draft report providing an overview of some key themes addressed in over 300 presentations from researchers representing 19 different institutions, with particular focus on identifying gaps and areas in need of further research and sharing effective models, is currently being circulated to authors and presenters. The final conference report will be published by the end of 2013.
REDI3x3 (Research Project on Employment, Income Distribution, and Inclusive Growth)

Launched in 2012, the Research Project on Employment, Income Distribution and Inclusive Growth (REDI3x3) is a multiyear collaborative research project that intends to address the triad of unemployment, inequality and poverty currently gripping South Africa.

The project is designed to generate an independent, rich and nuanced knowledge base and expert network that could, inter alia, contribute to co-ordinated, consistent and effective policies directed at these three critical problem areas. Managed by SALDRU and supported by funding from the National Treasury, the project comprises three focus areas (unemployment and employment, income distribution, and inclusive growth), each of which is led by an academic convenor. UCT’s Professors Murray Leibbrandt and Haroon Bhorat convene income distribution and inclusive growth respectively, while the unemployment focus area is led by Professor Frederick Fourie of the University of the Free State.

The project seeks to advance an integrated response to unemployment, inequality and poverty.

The research agenda therefore has a strong focus on generating cross-discourse engagements, drawing on insights from several methodologies, data types and sources, sub-disciplines and disciplines, including labour economics, macroeconomics, development economics, poverty studies, sociology, political science, and law.

The project aims to inspire and develop a community of researchers from an inclusive network of South African universities and research entities. Through this inclusive approach it has started to involve South Africa’s leading researchers on labour markets, inequality, poverty, development, growth and social policy (including several DST/NRF Research Chairs), support postgraduate work in the focus areas, and build the capacity of students and researchers from historically black universities.

Another explicit aim is to improve public understanding of, and public discourse on, these complex problems. Critical debate will be stimulated through an online forum (www.econ3x3.org), workshops, seminars, conferences, publications and books, and effective media liaison.
A wide range of socially relevant research is undertaken by two divisions in the School of Public Health and Family Medicine, both of which have a particular focus on health-system work: the Health Economics Unit (a university-accredited research unit), which is home to the DST/NRF South African Research Chair in Health and Wealth, and the recently established Health Policy and Systems Division.

Tackling the complex challenges of health-system development demands an inter-disciplinary knowledge base, and research that is applied (addressing real-world policy and practice issues) and disseminated in ways that inform and support decision-making. Research focuses on supporting current efforts to transform the health system, both at the national policy level (particularly in terms of healthcare financing reform), and through a focus on policy implementation at the district and service delivery level.

A more recent area of work, which falls directly under the DST/NRF Chair in Health and Wealth, is exploring the social determinants of health within the South African context.

There is a strong emphasis on equity in the research being undertaken, particularly on identifying ways of promoting health-system equity. Another area that is contributed to on an ongoing basis is the evaluation of cost-effectiveness of alternative diagnostic and treatment interventions for diseases of major public health concern, including TB, HIV, malaria and cervical cancer. A more recent area of work, which falls directly under the DST/NRF Chair in Health and Wealth, is exploring the social determinants of health within the South African context.

Finally, the Health Policy and Systems Division houses the International Religious Health Assets Programme, which seeks to develop systematic evidence about religious health assets and their role within health systems, as well as being actively engaged in deliberately learning through doing, in several projects, about the challenges and opportunities of field-building for this area of research.
Strategies for Health Insurance for Equity in Less Developed Countries (SHIELD)

The SHIELD project, funded by the European Commission and the Canadian International Development Research Centre, aimed to identify the major equity challenges in the health systems of three African countries (Ghana, Tanzania and South Africa) through an understanding of financing incidence (which socio-economic groups pay for which aspect of health care) and benefit incidence (who benefits from health care and to what extent).

It also modelled the equity and sustainability implications of alternative health financing options in each country and evaluated the political feasibility of these options from a stakeholder-analysis perspective. This research has provided a unique evidence base for health-system reform in African (and other low- and middle-income) countries. It has confirmed that paying for health care out of one’s earnings is not indicative of a progressive society, and that health schemes which require contributions from individuals who are not formally employed could have dire consequences. Instead, in lower-income countries, consideration should be given to charging taxes as a healthcare-funding mechanism. Results from the study also highlighted that the benefits from using health services are not distributed across socio-economic groups in line with their relative share of need for care (or burden of ill-health) and that the access factors influencing this benefit incidence constitute the greatest challenge facing many health systems in Africa.

The modelling of alternative financing structures has informed reform policies in the study countries. A large number of publications have arisen from this work, including a special issue of Health Policy and Planning and an overview paper in The Lancet. Four SHIELD researchers (two from Ghana, one from South Africa and one from Tanzania) graduated with PhDs based on aspects of the project, three of whom were supervised at UCT.

Collaborating partners have included UCT’s Health Economics Unit and the Centre for Health Policy, University of the Witwatersrand, in South Africa; Navrongo Health Research Centre and Health Research Unit, Ghana Health Service in Ghana; Ifakara Health Institute in Tanzania; London School of Hygiene and Tropical Medicine; Koninklijk Instituut voor de Tropen in the Netherlands; Karolinska Medical Management Centre in Sweden; and Antwerp Institute for Tropical Medicine in Belgium.

Researching Equity in Access to Health Care (REACH)

Over a five-year period (2007–2012), the REACH project explored access barriers to health care.

Focusing on three healthcare interventions (maternal health deliveries, tuberculosis care and anti-retroviral therapy for HIV), the project mapped inequities in service utilisation and access nationally, conducted in-depth studies in four health ‘sub-districts’ (rural and urban), and identified relevant responses in the policy and practice environment. Funded by a Teasdale-Corti Team Grant, which was administered by Canada’s International Development Research Centre, the project was a collaboration between UCT’s Health Economics Unit, the Centre for Health Policy (University of Witwatersrand) and McMaster University in Canada. The research team comprised a multidisciplinary team of economists, anthropologists, clinicians, and health-systems and policy researchers within each stage of the research programme.

A mixed-methods programme of research that specifically focused on developing a multidimensional understanding of access inequities in South Africa’s public health system was implemented. Triangulating findings across methods, interventions and sites, this approach afforded numerous insights into access inequity in South Africa. An understanding of the access dynamics underlying inequitable access fed into, and was shaped by, the active engagement of user partners across the course of the project. Additionally, report-back meetings, seminars and workshops allowed the research team to sensitise a number of stakeholders (researchers, academics, public-sector managers, front-line health workers and civil society groups) to the range of access constraints that need to be addressed, providing insights into practical strategies for doing this, and creating opportunities for taking the research into action.
Research Projects

Universal Coverage in Tanzania and South Africa: Monitoring and Evaluating Progress (UNITAS)

UNITAS is a five-year research partnership project funded by the European Commission. Launched in 2011, it is a collaborative project with partners from UCT’s Health Economics Unit, the Centre for Health Policy, University of the Witwatersrand, and the Africa Centre, University of KwaZulu-Natal (in South Africa), Ifakara Health Institute (in Tanzania), the London School of Hygiene and Tropical Medicine, and the Institute of Tropical Medicine Antwerp (in Belgium).

The goal of universal health coverage is receiving increasing international attention. South Africa is introducing a system of universal healthcare entitlements to be funded from general tax and additional dedicated tax revenue. Tanzania is integrating existing health-insurance schemes for formal and informal-sector workers under the management of a single insurer. In both countries, financing reforms are being supported by wide-ranging efforts to improve the delivery and management of health services. Combined, these reforms intend to reduce existing health-system inequalities and improve population, health service and healthcare-cost coverage.

Translating such health financing, service delivery and management reforms into intended changes ‘on the ground’ requires a well-functioning monitoring and evaluation system which provides data that allow policies to be improved over time, and consequently strengthen their potential to achieve universal health coverage. While many questions about the most appropriate design of universal coverage reforms in different contexts remain, even less is known about how to implement reform policies effectively. There is an urgent need to gain detailed insights into reform implementation processes to improve the likelihood of successful health-system reform. The UNITAS project aims to support the implementation of reforms intended to achieve universal coverage in South Africa and Tanzania by monitoring and evaluating the policy processes.

District Innovation and Action for Health Systems Development (DIALHS)

Initiated in 2010 within the Mitchell’s Plain sub-district in Cape Town, this collaborative project applies iterative cycles of learning, reflection and action, with the aim of better understanding how to act to support strengthened functioning within the district and primary healthcare system.

The focus of work to date has centred on issues of governance and governing, including understanding the complexity of the sub-district, as well as the organisational and personal capacities needed to support primary health care. Identifying the particular importance of the tangible and intangible software elements of organisational capacity, the work so far has focused on the soft skills needed by sub-district and primary healthcare managers, and mechanisms to support these managers in their work, the role of formal and informal (tacit) knowledge in routine healthcare decision-making processes, the identity-transition process undergone by primary healthcare nurses when becoming facility managers, and approaches to implementing meaningful community participation in health and health care. While the project has included some formal data collection elements (largely through in-depth interviews and facility observations), the key approach to learning has been through participation. In distilling lessons, partners have drawn on reflective practice and theories of change approaches and have sought to work with colleagues in the system to learn lessons together.
Social Determinants of Health

In 2005, the World Health Organisation launched the Commission on Social Determinants of Health (SDH). This was intended to explore ways of tackling increasing health inequalities both within and across countries, through actions around the social determinants of health.

Broadly, the SDH include the social, political, economic, environmental and cultural factors that affect health status. In order to address social determinants, there is a need to compile scientific evidence on the SDH both within and across countries. In South Africa, as in many other African countries, such evidence is sparse. The Health Economics Unit is currently compiling existing global and domestic evidence on social determinants of health (broadly defined) both at disease-specific level and for health in general. Specific disease conditions that are currently being explored include malnutrition in children, obesity, diabetes, hypertension and mental health. Based on this synthesised evidence and the broad WHO framework for SDH, the HEU is developing a conceptual framework for more fully understanding the causal pathways and mechanisms through which SDH operate within the South African context. The ultimate goal is to inform domestic policy actions that can address key social determinants (e.g. through macro-economic and social policies) and improve population health status.

Economics of Tuberculosis

Over the years, the HEU has undertaken various economic evaluations of interventions to address key public-health challenges.

At present, a major focus is on TB interventions. The XTEND study is evaluating the cost-effectiveness of the new TB diagnostic technology Xpert MTB/RIF in the context of the national roll-out of this technology in South Africa. This study will determine the cost-effectiveness of Xpert MTB/RIF from a patient and programme perspective, and will use mathematical modelling to predict the likely population-level impact on TB transmission. A sub-study, called XPHACTOR, will identify an evidence-based algorithm, which is feasible to implement within HIV clinics, to guide the utilisation of TB diagnostic investigations. The results will complement the XTEND study, and provide evidence to guide the rational use of Xpert MTB/RIF in South Africa and other settings where HIV and TB are both prevalent. Another study under way explores the cost-effectiveness of adding the MVA85A vaccine to the BCG vaccine in children from the perspective of the South African government. The recently published results of the Phase IIb clinical trial conducted in Worcester, South Africa, showed the efficacy of the MVA85A vaccine in preventing TB in infants to be 17.3%, making the vaccine essentially ineffective. This has a noticeable effect on the outcomes of the cost-effectiveness analysis. However, a Markov model that has been developed for this vaccine could also be used to determine the cost-effectiveness of other new TB vaccines being tested in infants.
The Development Policy Research Unit (DPRU) specialises in socio-economic research with a focus on labour markets, poverty and inequality. The DPRU’s mandate is to undertake academically sound, high-quality policy relevant research; to maintain and develop effective networks with government, civil society and the research community in Southern Africa; to engage in training and teaching activities; and to participate directly in the process of formulating, implementing and evaluating policy. The DPRU further aims to train a new generation of research economists within the unit. During 2012 the DPRU continued its engagement with labour-market issues, and its partnership with the Africa Growth Initiative (AGI) at the Brookings Institution has also been highly successful. The AGI aims to raise the African voice in global policy debates on Africa and the partnership has resulted in the publication of two labour-market policy papers. The Labour Market Intelligence Partnership, was formally launched in September 2012 by the Minister of Higher Education and Training, and focuses on creating a credible labour-market intelligence framework to ensure better information-gathering, analysis and overall systems synergy.

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The Health Economics Unit (HEU) was established in early 1990 in the School of Public Health and Family Medicine and was accredited as a formal research entity in the university in 2007. The HEU works to improve the performance of health systems through informing health policy and enhancing technical and managerial capacity in sub-Saharan Africa. Its foundation is academic excellence in health economics and management. The core objectives of the HEU are to conduct high-quality research in health economics, health policy, and systems; to develop capacity in health economics, health policy, and systems research in Africa through postgraduate training and related capacity development initiatives; and to translate research findings into policy and practice.

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The Southern Africa Labour and Development Research Unit (SALDRU) conducts research directed at improving the well-being of South Africa’s poor. It was established in 1975 and played a central role in documenting the human costs of apartheid through conferences and the Second Carnegie Enquiry into Poverty and Development in South Africa (1983–1986). From 1992 to 1994 SALDRU co-ordinated South Africa’s first non-racial national living standards sample survey and, in the post-apartheid period, it has continued to gather data and conduct research directed at informing and assessing anti-poverty policy. SALDRU hosts the J-PAL Africa, the regional office for Africa of J-PAL. SALDRU’s largest contemporary project is the running of South Africa’s first national longitudinal survey of well-being, the National Income Dynamics Study, on behalf of the Presidency. Every year SALDRU offers extensive training in the analysis of survey data to a broad array of South Africa’s academics, graduate students and researchers from NGOs and government.

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The Centre for Social Science Research (CSSR) is an interdisciplinary research centre dedicated to conducting and building capacity for systematic, evidence-based, policy-relevant, replicable social science research in South Africa and across Africa. CSSR projects are usually team-oriented, bringing together multiple local and international researchers, and offering postgraduate students significant opportunities for hands-on training. Substantively, the CSSR conducts research in the broad areas of globalisation, industrialisation, democratisation, development, poverty, and public health. The four units that comprise the CSSR conduct research on a range of social dynamics, using survey data (especially the Cape Area Panel Survey and the Cape Area Survey) and related qualitative data, a range of issues around democratisation in South and Southern Africa, using public-opinion data but also creating new systematic databases on elections, legislatures and local government, the social impact of HIV/AIDS, including issues of parenting, disclosure, sexual behaviour and public welfare, and on globalisation, industrialisation, innovation, and the dynamics of global value chains on developing-country industrial sectors.

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Poverty and Inequality

Economic Growth, Poverty and Inequality: Exploring the Interactions for South Africa

Haroon Bhorat is Professor of Economics and Director of the Development Policy Research Unit and holds the DST/NRF South African Research Chair in Economic Growth, Poverty and Inequality. His research interests cover labour economics, poverty and income distribution. He has co-authored two books on labour-market and poverty issues in South Africa, and has published more than 150 academic journal articles, book chapters and working papers. Professor Bhorat has undertaken extensive work for several South African government departments, most notably the South African Department of Labour, the Presidency and the National Treasury. He consults regularly with international organisations such as the International Labour Organisation, the World Bank, and the United Nations Development Programme.

Health and Wealth in South Africa

Professor Diane McIntyre is a professor in the School of Public Health and Family Medicine and was the founding Director of the Health Economics Unit in the Faculty of Health Sciences. Her current focus is on conceptual and empirical research centred around how to achieve universal healthcare coverage in low- and middle-income countries.

Poverty and Inequality Research

There is widespread recognition of the importance of ensuring that South Africa’s growth processes embrace the poor and those in the bottom half of the income distribution. The appointment of Professor Murray Leibbrandt, Director of the Southern African Labour and Development Research Unit (SALDRU), to this Chair facilitates a sustained programme of research to measure and analyse South Africa’s unfolding poverty and inequality dynamics. For the last thirty years, SALDRU has been conducting large social surveys to generate the data needed to inform such analysis of poverty and inequality.
Our World At Risk

Research at UCT is cutting across disciplines to tackle some of the continent’s toughest climate change challenges.

UCT Expedition:
MSc students David McGibbon (front) and Sukey Thomas (back), with Dr Åke Fagereng (centre).
Photo by Dr Johann Diener.
There is growing urgency across the globe to address the effects of climate change. Academic research at the University of Cape Town is rising to the challenge by spearheading cutting-edge and proactive programmes and projects on regional and local issues where climate change is of concern.

Climate change has become a critical global concern affecting all countries and continents. Developing nations are particularly at risk as rising temperatures, floods and droughts have more devastating effects in areas afflicted by poor infrastructure, inadequate housing, poverty and a lack of resources. Because of the complexity of the problem, the University of Cape Town has been working to stimulate cross-disciplinary research and teaching to address a range of dilemmas raised by climate change.

Principal amongst these initiatives is the university’s flagship African Climate and Development Initiative (ACDI), launched in 2011 with the aim of advancing inter-disciplinary research and graduate training on climate change from an African development perspective. ACDI harnesses the research being undertaken across the university under a unified umbrella and takes a holistic approach towards all research projects.

The past year represents the first full year of ACDI being in operation, after the appointment of Professor Mark New, in mid-2011 as Pro-Vice-Chancellor and director of the initiative. The aims of ACDI in 2011/2012 were to establish the ACDI master’s programme, to enhance activities and exchanges within the university’s many departments, to pilot deeper research enquiries, and to develop research partnerships with external stakeholders.

ACDI accepted its first cohort of nine students on the master’s in Climate Change and Sustainable Development; all of whom will graduate in June 2013. This MSc programme breaks new ground at UCT, offering an integrated approach to climate-change topics, with contributions to core and elective courses from a number of departments representing all UCT faculties.

An ACDI highlight in 2012 was the initiation of research exploring climate and development issues in the Berg River area of the Western Cape, supported by the Carnegie Corporation. This project is unique in bringing together UCT researchers from seven departments and a range of actors in the Berg River municipal area – from regional and local government, commercial agriculture and industry, to nature conservation. In addition, serving as a laboratory to explore the success, challenges and opportunities that inter- and transdisciplinary research presents to the university, the project has facilitated the “bottom-up” development of several collaborative research projects, where the research questions and methods are co-produced collectively between researchers and practitioners.

Undoubtedly, climate change is both a global and a very personal phenomenon. It affects just about every area of our lives. This interconnectedness is what is driving UCT’s inter-disciplinary approach to climate-change studies. From the economics of poverty and inequality to energy security, palaeosciences and marine and bird research, there is a wide range of research at UCT that, impacts upon and feeds into the work of ACDI.

ACDI research projects undertaken by students

- Climate risks and constraints to adaptation for sustainable livelihoods of the rural poor
- The co-benefits of environmental job-creation projects in Cape Town
- The University of Cape Town’s food system and its relation to the institutional carbon footprint
- Socio-economic implications of the implementation of coastal development setback lines
- Urban agriculture in Cape Town and the City of Cape Town Urban Agriculture Policy 2007
- Measuring, reporting and verifying mitigation actions at the municipal level: City of Cape Town
- Energy efficiency and environmental performance of the South African cement industry since 1980
- Mechanisms encouraging transport modal shifts from private to public transport to reduce transport emissions in the City of Cape Town
- Public perception of climate change in Lavender Hill, Cape Town
The Energy Crisis

Energy, and in particular renewable energy and alternative energy sources, continues to be one of the hottest topics of conversation in the popular media as well as in government and informed circles. Research is currently focusing on how emissions can be reduced while at the same time poverty is addressed.

The accumulation of greenhouse gases (GHGs) in the atmosphere is a long-term problem, but immediate action needs to be taken. The impacts caused by climate change potentially threaten any development and especially affect poorer members of society. Climate change may be an environmental issue but it deeply affects our society and economy – in particular the energy sector.

Changing how we use energy and finding new technologies and systems to produce low- and zero-carbon energy require rigorous evidence, based on research.

In South Africa and globally, most emissions come from the use and supply of energy, in particular the burning of fossil fuels. Changing how we use energy and finding new technologies and systems to produce low- and zero-carbon energy require rigorous evidence, based on research. This involves quantitative analysis, including modelling, policy analysis, stock-taking through inventories and carbon accounting, analysis of climate-friendly technologies, and understanding how to change behaviour – with a view to living well while using less energy. UCT's Energy Research Centre (ERC) has worked on climate-change mitigation – reducing GHG emissions – since the 1990s. The ERC's Energy, Environment and Climate Group, working with others at UCT and beyond, is engaged in a number of projects that focus on energy modelling, poverty, efficiency and renewables.
Mitigation Action Plans and Scenarios

UCT is actively involved in climate-change mitigation research, which focuses on concrete actions aimed at reducing or limiting damage caused by climate change. Mitigation action plans and scenarios (MAPS) is a collaborative research project between developing countries like Colombia, Chile, Brazil, Peru, Argentina and, more recently, India. Particular research streams include poverty, economy-wide and sectoral modelling, and possible mitigation actions in the energy, transport and agriculture sectors. The MAPS programme is being undertaken by the ERC and the organisation SouthSouthNorth.

The collaboration aims to link climate-compatible economies with similar economic-development and poverty-alleviation programmes. MAPS builds on the experience of South Africa’s long-term mitigation scenarios, and will crucially include a participative process with stakeholders from all sectors. In this sense, MAPS is not simply another research study – the information will be produced in partnership with the best indigenous and international research. Through strategic collaboration, MAPS offers an opportunity to establish synergies and share lessons with participating developing countries as well as the broader climate-change and development community.

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The ERC’s Professor Harald Winkler is one of the directors of MAPS, with Professor Marta Torres (Oregon State University, USA) co-ordinating research, and MAPS includes a long list of researchers involved in a wide range of research activities and products.

In addition to continuing engagement with in-country researchers and facilitators in Peru, Chile, Colombia and Brazil in 2012, a number of research papers were completed and a knowledge platform was established.

Reducing Poverty and Emissions

This project investigates how developing countries can reduce emissions and poverty at the same time. ERC researchers Dr Britta Rennkamp, Anya Boyd, Holle Wlokas and Tara Caetano and doctoral student Loveline Che are approaching this big question in two research projects. In the first, funded through the Climate Change Capacity Development Network, the ERC developed a South African Mitigation Action Impact Matrix in 2012, based on the country’s low-carbon development goals.

The matrix helped to establish how the different electricity-generating technology options such as wind, solar and nuclear power impact on the country’s development goals as stated in its recent development and energy plans: emissions reductions, poverty and inequality reduction, GDP growth, job creation and increasing renewable energy in the overall energy mix. The innovative research design combined a quantitative modelling exercise with qualitative case studies and a participative rating with experts. Results showed that solar and wind energy technologies contribute better to the development goals than nuclear technologies.

At the same time, large parts of the population live below the national poverty lines.

The ERC’s research on poverty and climate-change mitigation is ongoing. In a new project funded through the Volkswagen Foundation, the question asked is how low-carbon development interventions such as carbon taxes, renewable energy programmes and green housing programmes impact on poverty and income distribution in three developing countries: South Africa, Mexico and Thailand.

Each of the three countries has a semi-industrialised economy and a substantial portion of their emissions derives from industrial processes, coal burning and oil refining. At the same time, large parts of the population live below the national poverty lines. In this multi-disciplinary research project, the UCT team collaborates with five research institutions and structures the research in a comparative design with Mexico and Thailand.
Marine ecosystems are extremely vulnerable and sensitive to climate change. UCT’s Marine Research Institute is conducting various programmes and research projects across the African continent that focus on the effects of human activity on marine ecosystems, fish populations and health as well as other related topics.

The University of Cape Town has gained an international reputation for its cutting-edge marine research. The location of the Marine Research Institute (Ma-Re) at the tip of the African continent and its proximity to three major oceans has contributed to its importance.

There are two South African Research Chairs with close ties to Ma-Re: Marine Ecology and Fisheries, headed by Associate Professor Astrid Jarre, and the Chair in Ocean Climate Modelling, which is hosted by the Oceanography Department and is currently vacant.

Under the leadership of Honorary Professor Larry Hutchings and Associate Professor Astrid Jarre and in collaboration with the Department of Environmental Affairs, St Helena Bay has been the focus of research into ocean change. St Helena Bay is a very productive ocean region and a nursery ground for many juvenile fish. The results from this research have highlighted variability and changes in the Benguela region, and the importance of human activity on observed ecosystem changes. This project is funded by the SARCChI Chair in Marine Ecology and Fisheries, the Department of Environmental Affairs, and NansClim.
One of the outcomes of UCT’s long-standing association with the Council for Scientific and Industrial Research (CSIR) was the awarding of the ACCESS Centre of Excellence in 2010. This is hosted by the CSIR but is a joint initiative with UCT and several other partner institutions. In 2012 UCT received R4.65 million from ACCESS across seven themes, of which R3 million was earmarked for bursaries. Many of the ACCESS students funded by ACCESS are affiliated with Ma-Re.

**St Helena Bay is a very productive ocean region and a nursery ground for many juvenile fish.**

Also working in this area is the Nansen-Tutu Centre for Marine Environmental Research, which was established in 2010 with the founding partners including Ma-Re and the Department of Oceanography, ACCESS, the Nansen Environmental and Remote Sensing Centre (NERSC), the Institute of Marine Research Centre for Development Co-operation in Fisheries, the University of Bergen (Norway), and Princeton University.

The centre’s aim is to contribute to developing and implementing operational oceanography and data-assimilation methods around Southern Africa, including the South Atlantic and Indian Oceans, and the Southern Ocean. Its main focus areas are ocean state, marine environmental and ecosystem modelling (including climate and global teleconnections), research and capacity building.

**One of the outcomes of UCT’s long-standing association with the Council for Scientific and Industrial Research (CSIR) was the awarding of the ACCESS Centre of Excellence in 2010.**

In 2012 the Nansen Tutu Centre funded two African MSc Students (Joseph Amollo and Francisco Francisco) and two postdoctoral research fellows (Dr Bjorn Backeberg and Issufo Halo). The Nansen Tutu Centre also contributed to the MESOBIO project, which is a multinational collaboration on marine research in the Mozambique Channel.

The centre contributes to various successful programmes and projects, such as the African Coelacanth Ecosystem Programme, and personnel also teach in the Applied Marine Science and Ocean Climate Dynamics master’s degrees and the Oceanography Honours course.

**Exploring Deep Waters**

Ma-Re BASICS is the focal research activity of Ma-Re. The four-year initiative began in mid-2010 and is funded from a number of sources, the main one being the Vice-Chancellor’s strategic initiative fund for the project *Marine multi-scale data and models: the key to predicting climate variability in Africa and its biological and social consequences.* It is structured as a network of research across multiple disciplines, departments and faculties at UCT. BASICS provides the umbrella framework to link diverse projects on marine social and ecological systems. Some of these are listed in this section to give an indication of the breadth of research under way.

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The initial aim of Ma-Re BASICS was to provide students and researchers with a common identity, a common goal and a supportive, stimulating and informative research environment. During 2011 and 2012 a number of events were organised to stimulate and encourage communication, awareness and collaboration among staff and students undertaking diverse individual projects. Ma-Re held a series of focused discussions, such as the “themed lunch” on a marine law theme, led by Professors Jan Glazewski and Loretta Feris of the Institute of Marine and Environmental Law. The discussions during this first themed lunch resulted in further discussion and a collated response to the recent Green Paper on the *National Environmental Management of the Ocean.*

*St Helena Bay is a very productive ocean region and a nursery ground for many juvenile fish.*
The Air We Breathe

One of BASICS’s projects looked at bromoform – a chemical compound found in the air above the sea surface produced by marine plants. Most bromoform is produced naturally and readily crosses the sea-air boundary into the marine-boundary layer. Once in the atmosphere, bromoform is broken down by light energy into bromine radicals, which destroy ozone in the lower and upper troposphere.

Monitoring Marine Species

Over the past two decades, several marine species have changed their distributions in waters off the South African coast. One of the species that has moved its population centres is the commercially important rock lobster (*Jasus lalandii*), which has decreased in abundance on the West Coast and increased on the South Coast, east of Cape Hangklip. The reasons for the shift are not fully understood, but are probably linked to changes in environmental conditions.

Brett Kuyper and colleagues developed a simple, cost-effective method to detect and quantify bromoform in environmental air samples. They then measured bromoform concentrations at the Cape Point Global Atmospheric Watch station. These concentrations were found to be 5–7 times greater than in most other studies, although they fell within the range reported for similar marine environments.

The high concentrations are probably caused by the extensive kelp beds that occur in close proximity to the measuring station, although a possible anthropogenic influence from the nearby urban areas of Cape Town could not be excluded. This project is funded by ICESMA and Ma-Re.

From the mid to late 1990s there were fewer Bank Cormorants (which eat rock lobsters) on the West Coast and more on the South-West coast, probably in response to the movement of their prey. Rock lobsters eat sea urchins, so increased numbers of rock lobsters on the South Coast have also caused sea urchins to virtually disappear. In turn, sea urchins provided shelter from predators for juvenile abalone, and when the sea urchins disappeared many more juvenile abalone were eaten, impacting the adult populations at a time when they were being affected by uncontrolled illegal fishing. The results of this research are part of the effort under Ma-Re BASICS to develop environmental indicators to act as early warning signals for long-term ecosystem-scale changes. This project is funded through the SARChI Research Chair in Marine Ecology and Fisheries, and BASICS.
Many Fish in the Sea

Postdoctoral Research Fellow Dr Hilkka Ndjaula used long-term historical records of lengths and weights of fish to develop an index that can be used to assess changes in the health of fish populations. An average fish of any species will weigh a standard amount for a given length, but will weigh less when it is in poor condition and more when it is in good condition.

Fish will typically be in good condition when food is plentiful, as might occur when fish population sizes are small or when food sources have increased. Dr Ndjaula used enormous historical data sets to identify periods of good and bad fish condition for three species of fish: sardine (Sardinops sagax), anchovy (Engraulis encrasicolus) and redeye round herring (Etruneus whiteheadi). She adopted a new statistical method to analyse the historical length and weight data, in collaboration with Dr Ken Gerow from the University of Wyoming, USA, and found a consistent decrease in the index for all three species over the past decade.

These results indicate common environmental conditions experienced by the fish on a system-wide basis. The index is being used in a knowledge-based system developed by a current PhD student, an example of cross-pollination across projects within BASICS. This project is funded by SARChI Research Chair in Marine Ecology and Fisheries, and BASICS.

Marine Collaboration

A joint initiative between several laboratories in South Africa and France, that emerged from collaboration between UCT, Marine and Coastal Management and the French Institut de Recherche pour le Développement (IRD), has resulted in the International Centre for Education, Marine and Atmospheric Sciences over Africa (ICEMASA) collaboration.

ICEMASA focuses on Marine Sciences (marine ecosystems, resources management, physical oceanography, ocean-atmosphere exchanges, and biogeochemistry) over the Southern African coasts and the Southern Ocean. Its approach is richly multidisciplinary and is designed to attract collaborators from the Department of Environmental Affairs (Oceans and Coasts), the Department of Agriculture, Forestry and Fisheries (Fisheries Branch), UCT (Ma-Re and the Departments of Oceanography and Biological Sciences), Laboratoire de Physique des Océans, Centre de Recherche Halieutique Méditerranéenne et Tropicale – Ecosystèmes Marins Exploités, Laboratoire des sciences de l’environnement marin, the IRD, the Institut National des Sciences de l’Univers, and Université de Bretagne Occidentale (UBO, France).

ICEMASA works closely with the African Centre for Climate and Earth Systems Science (ACCESS), a DST/NRF Centre of Excellence that is hosted at the Council for Scientific and Industrial Research. ACCESS offers various educational programmes that include workshops and advanced seminars, research projects and computer modelling.

Under ICEMASA, the IRD provides funding for postdoctoral research fellows and postgraduate students as well as for foreign students. Linked to the ICEMASA initiative, Ma-Re and the IRD received funding from the PEERS programme for the joint execution of a research and training project entitled South-African/French Co-Masters in Marine Sciences (SAFCOMS). The purpose of this project is to provide bursary funds to students in marine science master’s programmes at UCT and UBO for 2012/13.

Under the banner of ICEMASA and hosted by Ma-Re, five scientists from the IRD presented a postgraduate course on end-to-end marine ecosystem modelling at UCT. The course was attended by 25 participants from all over the world, including Seychelles, France, Kenya, Senegal, Peru and Holland, as well as South Africa.
How are **Birds Affected?**

The impact of climate change on bird populations in South Africa is a key research field for UCT researchers. Birds are particularly sensitive to changes in their habitat, with a rise in temperature of only a few degrees contributing to the extinction of some species.

Although the conservation of rare species is to some degree reactive, studies of the conservation issues related to global change, especially climate change, are more proactive in nature. We know that the world’s climate is changing: we also know that many species, birds included, are already responding to these changes. The key challenge is predicting how these nascent biological changes will manifest themselves in the future in terms of changing biological communities, and what the larger ramifications of these changes might be.

We know that the world’s climate is changing: we also know that many species, birds included, are already responding to these changes.

To date, much climate-change research has remained the domain of modellers, and there has also been significant documentation of biological changes, especially for specific species. However, what is lacking is a good understanding of the mechanisms that lead to such changes. The FitzPatrick Institute is contributing to filling this niche and building the bridge between modelling and empiricism.
Climate Change and Fynbos Birds

South Africa’s most dramatic global biodiversity hotspot is the Cape Floral Kingdom or fynbos biome. Its remarkable biodiversity is one of its strategic advantages for tourism, rural economic development and human well-being. Fortunately much of the mountain fynbos is protected for water catchment, and the threat posed by invasive plants is well understood. However, it is crucial to assess the vulnerability of the biome and its avifauna to climate change.

The project to assess the vulnerability and adaptation of fynbos endemic birds to climate change explores how the six passerine species endemic to mountain fynbos are impacted by climate change and changing fire regimes. Fynbos birds are increasingly threatened by the unravelling of plant-pollinator mutualisms, invasion by woody plants and too-frequent fires.

The key questions pertain to the vulnerability of fynbos-endemic birds to climate and land use change, how the endemic birds disperse across ecosystems and how conservation planning and management can help birds adapt to global change. The research team includes ornithologists, pollination ecologists, population and stress ecologists, behavioural ecologists, a veterinarian, a small network of volunteer observers and amateur bird-ringers.

Catching 3000 Birds

Postdoctoral research fellow Dr Alan Lee initiated a biome-wide fynbos-endemic bird survey at the start of 2012. Summer and winter surveys were conducted at 900 points from the Cederberg to the eastern Baviaanskloof. This data has been used to calculate density estimates for the endemic birds, allowing the first robust estimates of their global populations. Cape Sugarbirds (*Promerops cafer*), Orange-breasted Sunbirds (*Anthobaphes violacea*) and Victorin’s Warblers (*Cryptillas victorini*) appear to be vulnerable to changes in vegetation structure expected to occur if predictions of a warmer, drier and more fire-prone environment come about.

In addition to a broad overview of the biophysical limits on the ranges of endemic birds in the biome, the project has various study sites. Given the potential importance of habitat fragmentation, birds were mist-netted and ringed during 2012 at sites of varying distances apart in the Kouga, Outeniqua and Kammanassie mountains. More than 3000 birds have been captured with no evidence of movement between sites. At a fine scale, researchers are assessing the extent to which urbanisation creates opportunities and poses novel threats for fynbos birds. For example, birds might be able to seek refuge in urban gardens during fires, hot dry winds or rainstorms, but at the same time be exposed to commensal predators and pathogens. The research will increasingly cast light on conservation planning, policy and land management. As attention is paid to the security of biodiversity in the fynbos, this project will help guide landowners to make more robust conservation-planning decisions based on fine-scale understanding of the implications of climate-driven change in this very special biodiversity hotspot.

A ringed Cape Sugarbird
Hot Birds

The “hot birds” project, initiated in 2009, seeks to predict how climate change will affect birds living in hot, arid environments such as the Kalahari Desert. During 2012, a team of researchers led by Professor Phil Hockey and Professor Andrew McKechnie (University of Pretoria) examined the role of body size in determining susceptibility to heat stress, the links between physiology and behaviour, and how temperature affects the fitness of breeding birds. The team also expanded the project to investigate the heat tolerance and evaporative cooling capacity of Kalahari birds.

A White-browed Sparrow-weaver panting to dissipate heat

Using data for 35 Kalahari species, PhD student Ben Smit showed that activity levels and body mass played a major role in heat dissipation and found data providing exciting insights into how species cope with very high temperatures, shedding new light on how populations inhabiting climatically distinct regions may vary in their biology. In related research, Postdoctoral Research Fellow Rowan Martin used heat-transfer models to predict how birds of different sizes use thermal landscapes in the Kalahari.

And as part of the project’s Southern Hemisphere scope, Grace Russell, a BSc Honours student at the University of Western Australia, examined behaviour among bird species in the Upper Gascoyne region of Western Australia to establish whether the same relationships between heat-dissipation behaviour, body mass and ecological variables occur in Australian species.

Postdoctoral Research Fellow Susie Cunningham completed her study of the links between temperature and breeding success in Common Fiscals (Lanius collars) at Tswalu Kalahari Reserve. As temperatures increase, breeding adults spend more time in shaded sites, reducing their foraging efficiency and thus their provisioning rates to nestlings. High maximum daily temperatures also compromise nestling mass gain.

During 2012, PhD student Tanja van de Ven initiated a study of how temperature affects fitness, and the threshold temperatures above which fitness costs begin to increase in the Southern Yellow-billed Hornbill (Tockus leucomelas). Hornbills are vulnerable to high maximum daily temperatures because the female seals herself into the nest cavity as a protective mechanism against predators. She spends most of the chick-rearing period inside the cavity, and this places high demands on the male as he is solely responsible for food provisioning.

In 2012, researchers collaborated with the South African Weather Service to assess how patterns of hot weather events have changed over the last five decades in the north-western regions of South Africa. Results showed temperatures increasing, with more heat waves as well, paving the way for the use of the technique as a conservation planning tool.

And, lastly, MSc student Maxine Whitfield investigated evaporative cooling and body-temperature regulation in a variety of species. While resting and inactive, all species appear able to avoid hyperthermia even at air temperatures higher than those that currently occur in the Kalahari.
Karoo Birds on a Line

The open, arid Karoo is home to six bustard species and South Africa’s national bird, the Blue Crane (*Anthropoides paradiseus*). Unfortunately, bustards and cranes are relatively cumbersome in flight, and are unable to react rapidly when they encounter unexpected aerial obstructions. Historically, they have had the freedom of open skies, but the proliferation of power lines and the future installation of wind turbines pose a real threat to these birds. FitzPatrick Institute students have been investigating the implications of power-line collisions in the Karoo, particularly for the endemic Ludwig’s Bustards (*Neotis ludwigii*).

Avian Malaria in the Western Cape

We are familiar with malaria as a human disease that is almost unavoidable in sub-Saharan Africa, and indeed across several other regions of the globe. But human malaria has many counterparts in the animal kingdom, one of which is avian malaria. Unlike the human form, which is caused by parasites of the genus *Plasmodium*, avian malaria is caused by three genera: *Plasmodium*, *Haemoproteus* and *Leucocytozoon*.

Jess Shaw recently graduated with a PhD for her research into the impact of power-line collisions on large Karoo birds. By regularly surveying hundreds of kilometres of high-voltage power lines in her Mazda Wildlife Fund vehicle, she was able to count bird carcases, and noted that many were not found because they were overlooked, or were removed by scavengers. Shaw also regularly looked for dead birds along low-voltage power lines, finding that these are nearly as lethal for Ludwig’s Bustards as the larger power lines. Considering that the low-voltage line network is nearly four times the size of the high-voltage grid, this is of great concern. She estimates that power lines kill tens of thousands of Ludwig’s Bustards annually.

The proliferation of power lines and the future installation of wind turbines pose a real threat to these birds.

But, surprisingly, she also found little population decrease compared with 20 years ago, suggesting that Ludwig’s Bustards may be more productive breeders than previously thought.

Marking power lines with devices to make them more visible is the standard international mitigation for collisions, but evidence that it works for the Ludwig’s Bustards and Blue Cranes is lacking. In the autumn of 2011, together with staff from the Endangered Wildlife Trust and Eskom, the researchers put up a large-scale line-marking experiment over 70 km of high-voltage power lines from a helicopter in the eastern Karoo.

This will test whether the marking devices reduce bird-collision mortality, particularly for Ludwig’s Bustards and Blue Cranes.

Avian malaria is capable of devastating impacts on its hosts, with the best-known case study of what can occur when an alien infectious disease is introduced into a region having taken place in Hawaii. Following the introduction of a mosquito vector, several forms of avian malaria contributed to the extinction of several honeycreepers, and had serious consequences for many other endemic Hawaiian birds. There is evidence that rising temperatures in Africa and elsewhere may facilitate the expansion of the range for avian malaria.

Avian malaria prevalence varies among bird species, with weavers, wagtails and canaries having higher infection rates than other bird families.

The Western Cape is blessed that it remains free of human malaria. However, the same cannot be said for avian malaria, which causes isolated fatalities in chickens, penguins and ostriches, with resultant socio-economic impacts. Many wild African birds can act as natural carriers of the disease without succumbing to its effects. In spite of this, not much is known about the ecology of avian malaria, especially in an African context. Former PhD student Sharon Okanga and her colleagues investigated the incidence of avian malaria in Western Cape passerine birds. She assessed which bird species were more susceptible to infection and looked for signs of preference in the malaria parasites. Blood samples were taken from 1 000 birds at 26 wetlands in the Western Cape. Avian malaria prevalence varies among bird species, with weavers, wagtails and canaries having higher infection rates than other bird families. Research continues into various areas of avian malaria.
The Threat to Penguins

Research by the FitzPatrick Institute, in collaboration with the Department of Environmental Affairs, SANParks and the Centre National de la Recherche Scientifique, revealed that relatively small no-fishing zones can be of great benefit to breeding African Penguins (Spheniscus demersus), which rely on highly mobile pelagic fish prey.

African Penguins were upgraded to Endangered in February 2010, following a 60% decrease of their global population between 2001 and 2009, leaving only 26000 pairs in the wild. The dramatic drop in their numbers is attributed mainly to a lack of food, after the distribution of anchovies and sardines shifted 500km eastwards. Purse-seine fisheries exploiting the remaining pelagic fish stocks off the West Coast increase this food shortage.

During 2009, Marine and Coastal Management, the South African government agency responsible for fisheries management, closed an area of 20 km in radius to purse-seine fishing around the world’s largest African Penguin colony at St Croix Island in Algoa Bay, Eastern Cape.

After the fishing ban, penguins on St Croix spent less time foraging for food and needed to spend less energy each day looking for food. This showed the immediate benefits of no-fishing zones for breeding penguins, which seem to respond extremely rapidly to concomitant changes in pelagic fish distribution. Appropriately designed Marine Protected Areas therefore benefit threatened top predators, even those relying on mobile prey over a small area.
South African researchers are fortunate in having easy access to a treasure trove of fossil and archaeological collections and the natural environments from which they came, providing local researchers with a special advantage. UCT researchers in particular have been able to use the South African environment as a natural laboratory in which to explore questions about isotope systematics – how stable isotopes are distributed through ecosystems. This type of approach is not possible in more polluted or ecologically degraded parts of the world.

The Ten-Year Plan for Science and Technology of the Department of Science and Technology (DST) identifies palaeontology (together with earth systems and environmental sciences) as being among South Africa’s Science Missions, in which it advocates the Palaeontological research aims to understand how and why humans evolved as they did as well as why certain climatic events occurred in some parts of the world and not in others.

The declaration by UNESCO of the Cradle of Humankind, the Mapungubwe National Park and Ukhahlamba Drakensberg as World Heritage Sites recognises South Africa’s exceptionally rich archaeological heritage. Cutting-edge isotope research is leading the way in understanding more of this wonderful legacy.
exploitation of “South Africa’s ‘living laboratories’” of local resources and geographic advantage.

The South African Strategy for Palaeosciences, approved in 2012, furthermore recognises the importance of and the need for archaeological and palaeontological research. The appointment in 2012 of the DST/NRF South African Research Chair in Stable Isotopes in Archaeology and Palaeoenvironmental Studies was UCT’s response to this national imperative to prioritise and revitalise research in the palaeosciences.

Stable isotopes are a key tool in the earth and life sciences. They are also essential in the palaeosciences that underlie and enhance our understanding of our human past, especially palaeoecology (including palaeodiets), palaeoenvironments and palaeoclimates. These fields form the foundations for the interpretation of the hominid fossil record and associated archaeology from the earliest stages of human evolution up until the last few hundred years.

Collaborations in palaeoscience research are nurtured with several research units and departments at UCT, as well as other institutions around the country. The Department of Archaeology at UCT pioneered aspects of stable isotope research and its applications to human palaeosciences.

In other related research, palaeobiologist Professor Anusuya Chinsamy-Turan from the Zoology Department (now Biological Sciences) is an internationally recognised expert on the microscopic structure of the bones of extinct and extant vertebrates. Among recent highlights in her work has been the discovery of information recorded in the bones of duck-billed dinosaurs that lived in the Arctic about 70 million years ago, providing fascinating insights into the lives of these ancient creatures. This project was carried out with collaborators from Temple University (USA) and the Museum of Nature and Science (USA).

Stable Isotopes in Archaeology and Palaeoenvironmental Research

Understanding our past a little bit better is the focus of the South African Research Chair in Stable Isotopes in Archaeology and Palaeoenvironmental research. In these studies, stable-isotope techniques are the primary tool. Stable isotopes of light elements are a key tool in many areas of the earth and life sciences and are naturally occurring, non-radioactive atoms that allow for the study of detailed chemical reactions in certain processes – specifically the metabolisms of people and animals.

Isotopic analyses of archaeological and other remains can help us understand how and why humans evolved as they did, as well as why certain climatic events occurred in some parts of the world and not in others. Climate changes during our current geological era are well documented in some parts of the world (mainly in the northern hemisphere) but poorly known in the south, including South Africa. This work will link with other programmes at UCT on climate and environment, notably the African Climate and Development Initiative.

Isotopes also provide a powerful means of studying human behaviour. Stable light isotopes reflect primarily the types of foods consumed in life, while heavy isotopes can be used to track movement across different geological zones. A major focus of the research programme for this Chair is to study pre-colonial times which lack documentary records. Southern Africa is one of the areas of the globe that has been continuously inhabited for the longest time. For the majority of that time, it was occupied entirely by hunter-gatherers. Research in this area will expand on ways in which humans were able to live as hunter-gatherers.

The focus of the Chair is therefore strongly inter-disciplinary, with connections to both the humanities and the sciences. The intention is to build collaborative links across disciplines and departments at UCT and beyond.
Cold Dinosaurs

Dinosaurs are well known from all parts of the world, and from many different latitudes. However, the discovery of dinosaurs from areas that were well within the Arctic and Antarctic during the Mesozoic is fascinating. These so-called polar dinosaurs pose a biological enigma: how did they cope with the hostile polar winters? Did they migrate? Did they overwinter? And if they did stay, how did they survive? These questions have long plagued paleobiologists, and various theories have been put forward to explain these findings.

A recent study by a team of dinosaur palaeontologists from UCT, Temple University (USA), and the Museum of Nature and Science (USA) has uncovered information recorded in the bones of duck-billed dinosaurs that lived in the Arctic about 70 million years ago which suggests that they did not migrate, but rather endured the long, dark, polar night.

One of the collaborators in this study, Dr Anthony Fiorillo, and UCT palaeobiologist Professor Anusuya Chinsamy-Turan reasoned that perhaps clues pertaining to how these dinosaurs lived at such high latitudes might be recorded in the microscopic structure of their bones. This collaboration grew to include UCT postdoctoral researcher Dr Daniel Thomas and Temple University’s Allison Tumarkin-Deratzian.

These researchers found that the bones of the polar dinosaurs had an unusual texture, similar to tree rings – the bones showed periodic changes in texture which suggest a fast and slower rate of bone deposition, which probably correspond to a summer and winter bone pattern and are likely to be related to the availability of food.

The research is particularly exciting because the data from the bone histology independently corroborates what researchers are seeing in the field. The results highlight the importance of both biological and geological evidence for interpreting the life habits of extinct organisms.

Studying Dwarf Elephants

Matthew Scarborough of the Palaeobiology Research Group in UCT’s Department of Biological Sciences is a PhD student investigating the rather unusual evolution of fossil dwarf elephants and mammoths on Mediterranean islands (particularly Sicily, Malta and Sardinia) over the last one million years. Scarborough’s research is aimed at gaining a better understanding of how elephants and mammoths adapted to different kinds of island environments.

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The research enables collaboration at an international level; he has spent time in Rome, Palermo and Basel studying the anatomy of the feet and limbs of Sicilian dwarf elephants. For the most part, his recent research has focused on explaining several unusual anatomical features in the feet of dwarf elephants, using a comparative approach to investigate to what extent dwarf elephant locomotion was adapted to the very hilly environment of Sicily. During the course of conducting fieldwork, he visited caves and a quarry in north-western Sicily where these dwarf elephants were found. Scarborough is attempting to date the age of the fossils from Alcamo Quarry using a radiometric dating technique (Uranium-Thorium dating), and is also planning to investigate the palaeogeography of Sicily.

A rather unexpected recent finding has been the documentation of dwarf elephant bones which fall outside the size ranges currently accepted for the two dwarf elephant species which inhabited Sicily. Research on the possible existence of a third species of dwarf elephant on Sicily and Malta is still ongoing.
DST/NRF Centre of Excellence at the Percy FitzPatrick Institute of African Ornithology, “Birds as Keys to Biodiversity Conservation”

The Centre of Excellence (CoE) at the Percy FitzPatrick Institute undertakes scientific studies involving birds that contribute to the theory and practice affecting the maintenance of biological diversity and the sustained use of biological resources. The centre continued to achieve its targeted number and quality of scientific publications, with 87 papers published in peer-reviewed journals in 2012, including 28 in journals with ISI science impact factor ratings of 3.5 or higher. Seven contributions to semi-technical books and 40 semi-popular articles were also published.

During 2012, the centre supported 13 postdoctoral fellows, 19 PhD and 40 MSc students, and one BSc Honours student, of whom 18% were black and 50% were women. Sixteen postgraduate students graduated during 2012 (three PhD, one MSc thesis and 12 MSc in Conservation Biology).


CoE members also presented seminars and illustrated talks at numerous universities, bird clubs, and membership-based societies. A broad range of close collaborative working relationships with scientific peers and a variety of conservation NGOs and governmental organisations exists both nationally and internationally. The CoE continues to build much-needed African capacity in the broad arena of biodiversity conservation. It also continues to be active in advising conservation organisations, government departments and industry on a variety of research projects. During 2012, CoE members served on 18 journal editorial boards, reviewed at least 158 papers for 64 peer-reviewed journals, and participated on 47 advisory boards.

CoE research projects have recently generated 29 full-time jobs and 93 part-time jobs, mostly filled by women. These include 19 full-time and 49 part-time jobs in previously disadvantaged communities in South Africa, 10 full-time and 40 part-time jobs in Zambia, and four part-time jobs in Angola.

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Remembering Professor Phil Hockey

Professor Philip Hockey, the Director of the Percy FitzPatrick Institute of African Ornithology, passed away in January 2013 after a long battle with cancer. Professor Hockey was instrumental in elevating the centre to one of the top three in the world and he was recognised as an expert in his field. During his career, he graduated 18 PhD and 33 MSc students, supervised eight Postdoctoral Research Fellows and some 30 honours projects. In addition to more than 120 scientific papers, Phil published over 150 semi-popular articles and 12 books and book chapters. He co-authored the best-selling regional field guide Sasol Birds of Southern Africa, and was editor-in-chief, along with Richard Dean and Peter Ryan, of the seventh edition of Roberts Birds of Southern Africa.
Marine Research Institute

The Marine Research (Ma-Re) Institute, one of UCT’s signature themes, serves as an umbrella body to stimulate and co-ordinate marine research across all faculties and departments involved in research into the salty waters around Southern Africa. It also serves as a window between the outside world and UCT for marine research and marine contracts. It hosts the Marine Remote Sensing Unit and the Research Dive Unit.

The Ma-Re Institute has two SARChI Chairs associated with it; the Chair in Marine Ecology & Fisheries, and the Chair in Modelling of the Coupled Ocean-Land-Atmosphere (phenomena related to climate). It has been instrumental in getting the Applied Centre for Climate and Earth System Science (ACCESS) and the Nansen-Tutu Centre for Marine Environmental Research off the ground. Both the Marine Ecology & Fisheries Chair and the Ma-Re flagship research project BASICS (Benguela and Agulhas Systems supporting Interdisciplinary Climate-change Science) are interdisciplinary programmes that aim to tackle aspects of climate-change research and an ecosystem approach to fisheries.

Ma-Re co-ordinates and convenes a taught master’s degree in Applied Marine Science (by coursework and dissertation), runs a weekly seminar series, and has initiated bilateral research and teaching exchange agreements with Norwegian, French, British, and other European Union institutions, as well as American ones. It has also played an important role in promoting marine research in the South African Global Change Grand Challenge and in the marine component of the India-Brazil-South Africa (IBSA-Ocean) trilateral agreement on science and technology.

Ma-Re is active in outreach to the public through interactive sessions at schools, the Two Oceans Aquarium and Science Centres. Ma-Re also participates in the national Science Festival (Scifest), and in developing curriculum-relevant educational resources concerning the role of the oceans in climate change.

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African Climate and Development Initiative

The African Climate and Development Initiative (ACDI) co-ordinates exciting inter-disciplinary research and training on the twin issues of climate change and sustainable development. ACDI brings together natural scientists, engineers, social scientists, lawyers, economists, and urban planners, among others, from UCT and beyond, to provide an African perspective, grounded in strong science, addressing issues relating to climate variability and global change affecting the African continent. It actively creates opportunities for African researchers and young scholars to contribute their own perspectives to these issues.

Through the establishment of strong partnerships throughout Africa, ACDI contributes towards developing African leaders of the future who have an intimate understanding of the physical and human needs of Africa, and who will contribute to address this all-important issue facing mankind.

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Energy Research Centre

The Energy Research Centre (ERC) conducts high-quality, targeted and relevant research, as well as offering postgraduate opportunities at master’s and doctoral levels. The four main research areas are energy efficiency, energy, environment and climate change, energy poverty and development, and energy systems analysis and planning. ERC staff members have qualifications in engineering, natural and environmental sciences, urban and regional planning, economics, law, politics, sociology, and anthropology.

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Environmental Evaluation Unit

The Environmental Evaluation Unit (EEU) is an independent, self-funded research, consulting and training unit based at UCT. Founded in 1985, the EEU has established itself as a leader in the fields of integrated environmental and coastal management and sustainable development, responding to local, regional and global environmental challenges using an inter-disciplinary and participatory approach. During this time, the EEU has undertaken work throughout South Africa and Southern Africa, has participated in global research and policy initiatives, and has provided expertise to leading private and public corporations, research institutions, planning and development organisations, state departments, local authorities, and communities. The EEU has implemented a wide diversity of projects that have contributed to academic debates and informed policy while having practical impacts on the ground. The EEU works in five main thematic areas: integrated environmental planning, management and assessment; integrated coastal and small-scale fisheries management; biodiversity use, trade, livelihoods and social justice; sustainable business and cross-sector collaboration; and public participation.

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Nansen-Tutu Centre for Marine Environmental Research

The Nansen-Tutu Centre for Marine Environmental Research, under the patronage of Nobel Laureate Archbishop Emeritus Desmond Tutu, was set up in 2010 to assist in the worldwide need to develop the capacity to understand, model and predict the state of the ocean and its ecosystems, just as the meteorological services do for weather and climate. The founding partners of the Nansen-Tutu Centre in Norway and South Africa have the necessary complementary expertise and knowledge to address these challenges in the three oceans around Southern Africa. A central theme for the centre is to undertake research into the science underpinning operational oceanography, particularly in numerical ocean modelling, as well as continuing to develop skilled African postgraduate marine scientists. The centre actively contributes to the OceanSAfrica initiative, with partners from the Department of Environmental Affairs’ Ocean and Coasts Branch, the South African Weather Service, the Council for Scientific and Industrial Research, and the South African Earth Observing Network.

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Plant Conservation Unit

The Plant Conservation Unit (PCU), established in 1993 and located in the Science Faculty, undertakes research and teaching directed at improving the conservation status of the vegetation of Southern Africa, with a particular focus on the winter rainfall region. Staff and students within the PCU investigate palaeoecological, historical, and current impacts on the vegetation of the region and work closely with land users to conserve and prevent further transformation of the region’s biodiversity.

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Animal Demography Unit

The mission of the Animal Demography Unit (ADU) is to contribute to the understanding of bird populations, especially bird-population dynamics, and thus contribute to the conservation of avian biodiversity. The ADU achieves these goals through a variety of projects in which para-ornithologists throughout Southern Africa can participate. These projects range from identifying bird species, through undertaking census surveys, to making detailed observations on breeding productivity.

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Our World at Risk

Professor Bruce Hewitson heads the Climate Systems Analysis Group focusing on climate modelling, variability, change, and regional projections. He is extensively engaged with capacity-building in Africa and with the communication of regional climate information supporting responses to climate change. He plays numerous roles internationally, including that of co-ordinating lead author in the Intergovernmental Panel on Climate Change (IPCC), and currently co-chairs both the IPCC Task Group on Scenarios for Climate and Impact Assessment and the World Climate Research Programme (WCRP) working group on regional climates. He is a lead co-ordinator in the WCRP global Coordinated Regional Climate Downscaling Experiment programme to develop regional climate projections.

Professor David Jacobs holds a PhD in Zoology from the University of Hawaii, where he completed a thesis titled “Character release in the endangered Hawaiian hoary bat, Lasiurus cinereus semotus”. He has been at the University of Cape Town since 1994, where his main research interests are focused on all aspects of evolutionary biology. He has conducted research all around the world, including Australia, Costa Rica, Belize, Israel, Canada, Namibia, and Zambia. He has supervised more than 20 postgraduate degrees and many of his students have won prestigious awards such as the Purcell Memorial Award for the best PhD thesis and the SA Association for the Advancement of Science – S2A3 Bronze Medal for the best master’s degree thesis.

Professor Judith Sealy is Professor of Archaeology and the former head of the Department of Archaeology at UCT. She also heads UCT’s Stable Light Isotope Laboratory, a major facility housing analytical equipment. Professor Sealy obtained her PhD from UCT in 1989 for her thesis entitled “Reconstruction of Later Stone Age diets in the south-western Cape, South Africa: evaluation and application of five isotopic and trace element techniques”. Her main research interests include the development and application of stable-isotope techniques for dietary reconstruction, hunter-gatherer archaeology across the period from the emergence of modern humans to the recent past, and the beginnings of food production in Africa. She has published more than 75 peer-reviewed journal articles and book chapters, including articles in Nature and Science.

The focus of this SARChI Chair (previously held by Professor George Philander) is multi-disciplinary and it is well poised to build research capacity in ocean-atmosphere studies, particularly with regard to satellite remote sensing of the oceans, numerical modelling, data assimilation, and forecasting of the coupled ocean-atmosphere ecosystem. The Chair will enable us to better understand and model the properties of the oceans around Southern Africa and its impact on climate change not only regionally but globally as well.
South Africa has established itself as a global hub in multi-wavelength astronomy through the construction of world-class astronomical facilities such as the Southern African Large Telescope (SALT) and the Karoo Array Telescopes (KAT-7 and MeerKAT), culminating in the African site selection of the mid-frequency component (dishes and aperture arrays) of the Square Kilometer Array (SKA) in 2012.
The site decision by the international SKA consortium was welcomed by UCT as a red-letter day in the development of science in South Africa. Astronomers at UCT and across the country celebrated the outcome of the site bid and congratulated Dr Bernie Fanaroff, head of the SKA South Africa project, on this achievement.

This is one of the biggest scientific research ventures ever undertaken and it confirms that developing nations can also be part of solving the big questions of our day. It will bring scientists from all over the world to South Africa (and to UCT in particular) and thus greatly enhance not only South Africa’s but also UCT’s international research collaboration.

Work on the South African SKA precursor array entered a new and exciting phase in 2012 with the commissioning of the seven-dish radio interferometer KAT-7. Across the various science teams involved with the MeerKAT SKA precursor array, the staff and postdoctoral research fellows of UCT’s Astronomy Department in particular are actively participating in the commissioning phase of KAT-7.

The department is also leading the early science enabled by the KAT-7 array, exploring the unique capabilities that a combination of the world’s largest optical telescope – the 10 metre Southern African Large Telescope (SALT) – and the SKA precursor offer in studying the universe.

Observations taken in 2012 with KAT-7 of the accreting neutron star binary Circinus X-1, and the nearby galaxy NGC3109, show the excellent potential of KAT-7 for long-term monitoring of actively varying binary stars in the Milky Way (Circinus X-1) and studying the extended emission from nearby galaxies respectively. Both observations have been accepted for publication in prestigious astronomy journals.

In 2012, the Department of Astronomy also welcomed Professor Thomas Jarrett from the California Institute of Technology, as the incoming DST/NRF SARChI Chair in Astrophysics and Space Science. Professor Jarrett works on the study of extragalactic large-scale structures, the Zone of Avoidance, interacting galaxies, star formation processes and galaxy evolution.

The research of Professor Jarrett dovetails with that of the DST/NRF SKA Chair in Extragalactic Multi-wavelength Astronomy, a position held by Professor Claude Carignan, who specialises in the study of stellar and gas motions in galaxies through radio and optical observations of nearby galaxies.

The number of postgraduate students in the Department of Astronomy reached new heights in 2012: 15 PhD and 19 MSc students were registered for their postgraduate research degrees in astronomy. These postgraduate students are predominantly from South Africa (22), with additional representation from amongst the SKA African partner countries – Madagascar (four), Mauritius (two) – and a range of other countries, including Uganda, Egypt, Ethiopia, France, India and the USA.

Through support from the DST/NRF South African Research Chairs Initiative, the National Astrophysics and Space Science Programme (NASSP), the Youth in Science and Engineering capacity development programme of the SKA South Africa project, UCT’s Astronomy Department – often jointly with the South African Astronomical Observatory – is preparing the next generation of African astronomers to take on leading roles in the scientific exploration of the universe with SALT and the SKA.

The highest number of postgraduate research students in astronomy at UCT to date graduated in 2012. Of the eight students who graduated, four will continue their careers in astrophysics abroad: one student was selected as a Rhodes Scholar to pursue a DPhil at the University of Oxford, and three have gone to the Netherlands (to embark on PhD studies at the universities of Groningen and Nijmegen) and will be jointly supervised by UCT faculty.

On average, approximately 80% of UCT’s astronomy graduates continue to postgraduate studies and about one-third go overseas after completing their UCT degree (MSc or PhD) to continue their academic careers. It is particularly heartening to see that many of them return to South Africa to take up postdoctoral research fellowships or even permanent academic positions.

Apart from the essential international experience, these young researchers bring back new research collaborations and networks to the South African astronomical community. It clearly demonstrates the success of the capacity-development programmes in astronomy that the astronomical community in South Africa embarked on in 2003 (NASSP) and 2005 (SKA South Africa).
The LADUMA survey (Looking At the Distant Universe with the MeerKAT Array), co-led by Dr Sarah Blyth, aims to make the deepest observations of neutral hydrogen in emission before the SKA comes online. These observations will measure the evolution of the gas content in galaxies over half the age of the universe in order to probe galaxy evolution over cosmic time.

The MIGHTEE survey (MeerKAT International GigaHertz Tiered Exploration), co-led by Dr Kurt van der Heyden, is a deep radio continuum survey, which will investigate the relation of star formation to the growth of supermassive black holes as well as study galaxy evolution by detecting galaxy clusters as a function of look-back time in the universe.

The ThunderKAT survey (The Hunt for Dynamic and Explosive Radio Transients with MeerKAT), co-led by Associate Professor Patrick Woudt and Professor Rob Fender (SKA visiting professor), will study a wide range of transient phenomena in radio sources, through pointed observations of, for example, exploding stars and relativistic jets from compact stellar remnants, as well as blind searches for new kinds of transient sources.

A fourth MeerKAT large survey, MHONGOOSE (MeerKAT HI Observations of Nearby Galactic Objects: Observing Southern Emitters), led by UCT honorary Professor Erwin de Blok, will observe neutral hydrogen in nearby galaxies to investigate dark matter, properties of different galaxies, and the cosmic web.

The MeerKAT construction is ongoing and the full array of 64 radio telescopes is expected to be operational from 2016 onwards. KAT-7, a seven-dish radio interferometer built on the MeerKAT site and a precursor to the MeerKAT, is already fully operational and has started the engineering and scientific commissioning in 2012 of a wide range of observing modes.

The MeerKAT legacy surveys have been closely involved in the commissioning of the KAT-7 telescope, both to test newly developed software relevant to the surveys and to explore niche research areas enabled by KAT-7. Staff, postdoctoral research fellows and postgraduate students at UCT working on ThunderKAT and MHONGOOSE have made a number of observations during science commissioning of KAT-7 and first scientific results are being published in the international astronomical literature.
From 5 to 26 February 2012, the University of Cape Town and the South African Astronomical Observatory (SAAO) jointly organised and hosted the 34th International School for Young Astronomers (ISYA), the first one held on the African continent, under the auspices of the International Astronomical Union (IAU).

This research school was aimed at MSc and PhD students from sub-Saharan Africa and attracted 32 young astronomers from a wide range of African countries (South Africa, Namibia, Ethiopia, Kenya, Nigeria, Tanzania, Uganda and Zambia). The theme for 2012 was “Observational astronomy in the optical and infrared”.

Professor Anton le Roex, the Dean of the Faculty of Science, welcomed the participants to the University of Cape Town on the first day of the school, followed by welcomes by the Director of the SAAO (Professor Patricia Whitelock) and the IAU (represented by Professor Michèle Gerbaldi).

Following a week of lectures on the UCT campus, the participants continued the school at the SAAO, both in Cape Town and at the Sutherland station, where they spent one week on the various telescopes, training in aspects of observational astronomy. The observational projects were the backbone of the school, and were highly valued by the participants.

Observations by one of the lecturers (Professor Michel Dennefeld) and the IYSA students of a supernova candidate PSN J23255963-8154333 confirmed the nature of this object using the SAAO 1.9 metre telescope and spectrograph. This result was published during the school as an IAU Telegram (CBET 3028) and included the 13 IYSA students as co-authors.
Professor Renée Kraan-Korteweg, Chair of Astronomy and Head of the Department of Astronomy at UCT, was elected Vice-President of the Executive Committee of the International Astronomical Union (IAU) at the 2012 General Assembly of the IAU in Beijing.

She becomes the third member of the Astronomy Department to have been elected to this position. This prestigious post was previously also filled by Honorary Professor Michael Feast (1979–1985) and Emeritus Distinguished Professor Brian Warner (2003–2009).

Professor Kraan-Korteweg is a world-renowned expert in the mapping of large-scale structures hidden by the plane of our Milky Way, in relation to the dynamics and cosmic flow fields in the nearby universe. She is the principal investigator of various international collaborations and uses a multi-wavelength (combined optical, infrared, radio astronomy) approach in her research.

Her more recent efforts have focused on mapping the extent and mass of the Great Attractor, a gravity anomaly in intergalactic space that reveals the existence of a localised concentration of mass equivalent to tens of thousands of galaxies, each of which is the size of the Milky Way. A research highlight was the discovery of another major attractor hidden within the most obscured part of the Perseus Pisces Supercluster, the northern counterpart of the Great Attractor. In a project led by her, this structure is investigated in detail using new radio observations with the Westerbork Synthesis Radio Telescope in the Netherlands. The survey was designed in such a way that it will serve as a preparation for SKA Pathfinder HI surveys.
Multi-wavelength Astronomy at UCT

Professor Claude Carignan currently holds the South African Square Kilometre Array (SKA) Research Chair in Multi-wavelength Astronomy in the Department of Astronomy. Recruited from the University of Montreal (Canada) in 2011, he is also an Emeritus Professor at the Laboratoire d’Astrophysique Expérimentale of the Département de physique of the Université de Montréal, and Associate Professor in the Laboratoire de Physique et Chimie de l’Environnement and in the Observatoire d’Astrophysique de l’Université de Ouagadougou, both in Burkina Faso. He has also been very involved in the development of astronomy in Burkina Faso and in the setting up of the African Astronomical Society (AfAS) in that country.

Professor Carignan is an expert on galaxy dynamics and dark matter and specialises in the study of the mass distribution in galaxies, using both radio synthesis and optical Fabry-Perot interferometric techniques. His primary contribution to research in Astrophysics has been the study of the mass distribution in late-type spiral and dwarf galaxies, carried out in the last twenty-five years. His research in this area has demonstrated that the contribution of dark matter to the total mass of dwarf galaxies (~90%) is much more important than in massive spirals (~50%). Moreover, contrary to the situation in spirals where dark matter contributes mainly in the outer parts, dark matter in dwarfs contributes at all radii. This is demonstrated for the galaxy DDO 154, now a prototype of its class. Most of this work was done using radio HI kinematical data.

Astrophysics and Space Science

Professor Thomas Jarrett has held the DST/NRF South African Research Chair in Astrophysics and Space Science in the Department of Astronomy since mid-2012. Professor Jarrett is an internationally renowned researcher who was based for more than 20 years in the United States as a mission scientist at the Jet Propulsion Laboratory of the California Institute of Technology, specialising in star-formation and extragalactic studies using space-borne instrumentation.

Leading or co-leading over 125 peer-reviewed articles in high-impact journals, his research efforts have focused on key elements of extragalactic science. Travelling to locations spanning the globe, he employs in his fieldwork ground-based, airborne and space-based observatories and remote-sensing instrumentation to gather data for analysis of the physical processes that govern the cosmos. His expertise with infrared astronomy spans the entire window: from the near-infrared (1 to 3 microns) that is used to study the stellar mass of galaxies, to the mid-infrared (4 to 50 microns) that is sensitive to star-formation and interstellar medium processes, and the far-infrared (50 to 500 microns) which traces the coldest and most massive gas and dust content of galaxies. His most recent article that highlights this research, entitled A Cosmic Perspective, Multi-wavelength Astrophysics, will be published in the Spring issue of the South African Quest magazine.

In anticipation of the SKA Era, Professor Jarrett’s research has also exploited the unique capabilities of the radio window to study continuum (3, 6 and 20 cm) and 21 cm hydrogen line emission by galaxies. Combining information from a plethora of multi-wavelength instrumentation, he will explore the interconnection between the gas reservoir, as traced by HI (atomic hydrogen) observations, and the tracers of past-to-present galaxy evolution as measured using ultraviolet, visual, infrared and sub-millimetre observations. In conjunction with these themes, Professor Jarrett is a founding or key member of a number of large-science teams, including Spitzer (the fourth and final of the NASA Great Observatories programmes) and WISE (NASA’s Wide-field Infrared Survey Explorer), and is an active science-team member of a number of studies, including the SKA-Pathfinder studies and MeerKAT key-science projects.

Professor Jarrett currently supervises three postdoctoral research fellows, one PhD student and two MSc students. He is currently actively involved in the development of a long-term strategy plan for astronomy in South Africa.
Cosmology at UCT Tackling the Mysteries Of The Universe

We live in a unique time in the history of science. Cosmological observations are able to pinpoint with great precision details of the universe on the largest scales, while particle physics experiments probe the nature of matter on the very smallest scales with equally astounding precision. Research in cosmology lives at exactly the dual point – developing the theory from a fundamental mathematical framework and testing it in a plethora of experiments and observations requiring sophisticated statistical knowledge. This is at the heart of the research undertaken by the different cosmology-related research groups at the University of Cape Town, which is striving to gain an understanding of our universe that to previous generations would have seemed perhaps unknowable.

The significant results of the Planck satellite, released in early 2013 by the European Space Agency, revealed the most precise map of the ancient universe ever made. Scientists believe these results are matched only by the groundbreaking discovery of the first fundamental scalar particle at CERN during 2012. The map has already led to new theories of the age, composition and future of the universe. The coming decades thus promise a great synergy between particle physics and cosmology as the international community at large grapples with some of the greatest unsolved problems of our time. These questions cannot be tackled by one discipline alone, and the move to interdisciplinarity is a global phenomenon. At UCT it has swept together key research groups who work together towards answering only the biggest questions about space and time. The synergies amongst these groups are generating a vibrant and interactive research culture.

At the heart of this research is the UCT-accredited Astrophysics, Cosmology and Gravity Centre (ACGC). The ACGC has 20 academic members from the faculty, and includes a DST/NRF SKA Chair held by Professor Claude Cargnan and a DST/NRF SARChI Chair held by Professor Thomas Jarrett. The Centre is also particularly strong in its development of young scientists, with more than 20 postdoctoral research fellows and over 30 graduate students at any given time.
Within the ACGC, the Cosmology and Gravity Group, hosted in the Department of Mathematics and Applied Mathematics, focuses on both observational aspects of cosmology and theoretical cosmology. The Cosmology and Gravity Group is renowned for challenging the standard paradigm and proposing tests to the standard concordance model of cosmology. This is particularly pronounced in studies of the Dark Universe.

All of the substance making up planets, stars and oceans is fractional compared to the vast amount of the universe that is dark, quite literally – not observed through the electromagnetic field.

Everything we see and experience on all scales of human experience makes up less than 5% of the total matter in the universe. All of the substance making up planets, stars and oceans is fractional compared to the vast amount of the universe that is dark, quite literally – not observed through the electromagnetic field. The remaining 95% is split between Dark Matter (DM – 23%) and Dark Energy (DE – 72%).

DM clusters and DE clusters can be inferred from their effects on galaxy rotation curves as well as on gravitational lensing. DE drives the universe to expand ever faster with time – the observation of which earned scientists in the field the Nobel Prize for Physics in 2011. Remarkably, there is no convincing explanation of either the driving force behind DE or indeed the coincidental timing. DE seems to dominate our universe coincidentally around the era of humanity’s existence, when we are here to observe it as such.

Explaining these observations and indeed challenging the status quo is all in a day’s work for UCT’s cosmologists. Alternative explanations to this concordance model are studied using a multipronged approach to test if our application of Einstein’s General Relativity Theory is applicable on the scales considered by testing key assumptions underlying all of present day cosmology. UCT’s Dr Chris Clarkson, Emeritus Professor George Ellis, Professor Charles Hellaby, Professor Peter Dunsby and Dr Amanda Weltman all study different approaches to this challenge.

Collaborations between members of the Cosmology and Gravity Group (Professor Ellis) and the recently established Laboratory for Quantum Gravity and Strings (QGaSlab) (Dr Jeff Munugan) have resulted in a publication on the trace-free Einstein equations as a viable alternative to general relativity, selected by the journal Classical and Quantum Gravity as one of the ‘Highlights of the 2011–2012 collection’. In addition, Professor Ellis contributed another highlight to this collection with his 2012 work ‘Inhomogeneity effects in cosmology’. The group is renowned not just for challenging the standard paradigms of modern cosmology but also for offering viable alternatives. In particular, the Chameleon particle, a compelling and testable DE candidate that can be observed not only through its effects on the largest scales but also in purpose-built laboratory experiments, was pioneered by UCT’s Dr Weltman. Research in this area has driven a new industry in DE testing with significant investment internationally. A flurry of experiments has ensued in the USA and Europe to test this theory, with Dr Weltman playing a key role in the GammeV and GammeV CHASE experiments at Fermilab, a US Department of Energy national laboratory specialising in high-energy particle physics.
What if the world you take for granted around you, the air you breathe, the buildings, the trees, the universe, the very space and time you occupy were not real? Not “not real” as in a dream but “not real” as in not fundamental, not a permanent stage on which the cosmology of the universe unfolds. What if everything we perceive emerged from the billions and billions of quantum interactions that ultimately and collectively resulted in the classical world we see around us. Before one ridicules the idea as the philosophical ramblings of idle academics, it is worth noting that precisely this picture leads to the emergent macroscopic behaviour of water from its underlying microscopic, molecular constituents and more and more evidence points to a very similar picture of human intelligence as an emergent phenomenon arising from the billions and billions of interactions in the intricate synaptic circuitry of the human brain.

These questions of the fundamentality of space, time, geometry and topology are exactly the kind of mind-bending mental gymnastics that occupy researchers in the newly formed Laboratory for Quantum Gravity and Strings (QGaSLAB). Located in UCT’s Department of Mathematics and Applied Mathematics, QGaSLAB forms the third node of the Astrophysics, Cosmology and Gravity Centre. The laboratory is currently headed by Dr Jeff Murugan with affiliate members Dr Amanda Weltman (joint with CGG) and Dr William Horowitz (joint with UCT’s Department of Physics). They are joined by Dr Jonathan Shock, recently recruited from the Max Planck Institute for Gravitational Physics in Munich, Germany.

In addition to faculty members, QGaSLAB includes current postdoctoral research fellows Dr Per Sundin (Claude Leon Fellow, formerly of Humboldt University) and Dr Michael Abbott (formerly of the Tata Institute for Fundamental Research), Dr Sugumi Kanno (joining from Tufts University in late 2013 and joint with ACGC), as well as two PhD students, three MSc students and two honours students. The group is one of only two string theory groups in South Africa and is already well recognised internationally. It is currently, together with the University of the Witwatersrand and CERN, one of the only non-EU members of the EU COST network grant “The String Theory Universe”.

Research in the group is focused on four major themes: integrability, the emergence of spacetime, strongly coupled Quantum Field Theory and string theoretic physics.
Astrophysics, Cosmology and Gravity Centre

The Astrophysics, Cosmology and Gravity Centre (ACGC) is a research centre incorporating members of the UCT Department of Astronomy and the Cosmology and Gravity Group from the UCT Department of Mathematics and Applied Mathematics. The ACGC aims to create a research environment at UCT in which South African-led cutting-edge science projects will be discussed, developed and taken to fruition. Maximising the opportunities for interaction between theorists and multi-wavelength observers is essential for stimulating new approaches to research. The centre also aims to become an attractive location for postgraduate students and postdoctoral research fellows, as well as international visitors.

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Centre for Theoretical and Mathematical Physics

The Centre for Theoretical and Mathematical Physics (CTMP) is an interdepartmental research unit devoted to the promotion of interdisciplinary research in these areas. CTMP is part of the National Institute of Theoretical Physics. CTMP has twelve local members from the departments of Astronomy, Mathematics and Applied Mathematics, and Physics. It also has five international members who visit the centre on a regular basis. Postgraduate students doing theses on related research fields are admitted to CTMP for the duration of their studies. An international advisory board of seven internationally acclaimed scientists was appointed in 2006.

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UCT-CERN Research Centre

The UCT-CERN Research Centre was established in 2003 out of a confluence of certain research programmes within the Department of Physics. As implied by the name of the centre, there is extensive collaboration with CERN, the European Centre for Particle Physics, which is one of the most prestigious research laboratories in the world. In particular, the UCT-CERN Research Centre has close collaboration with the next-generation ultra-relativistic heavy-ion experiment at CERN's Large Hadronic Collider (LHC), named ALICE (A Large Ion Collider Experiment).

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Every Drop Counts

The supply of fresh water, arguably the planet’s most valuable resource, is both finite and diminishing, and water researchers at UCT are working hard to protect it.
As a rapidly urbanising country, South Africa faces multiple water challenges, including shortages, the growing burden of wastewater produced by the emergent and urbanising population, and the expanding and varying trajectory of the resource-based industrial sector, associated environmental issues, and fragmented and complex institutional structures.

Amongst the results of increased pollution are elevated salinity levels and nutrient enrichment (higher concentrations of nitrogen and phosphorus in water). The deteriorating quality of South Africa’s surface and groundwater resources is particularly challenging as these supply systems underpin social and economic development in the country and impact directly on ecosystems. Water security is therefore of particular concern and climate change, water scarcity and water quality have the potential to worsen systemic water shortages over the medium to long term. Addressing these issues require ongoing inter-institutional and interdisciplinary research and the continuous improvement of the governance of water to ensure a successful transition towards water sensitivity, thereby building towards the nation’s social, environmental and economic well-being.

Water research at UCT is a multidisciplinary endeavour, drawing in some of the highest-ranked academics across departments and faculties, many of whom have inspired postgraduate students to join them in working towards local water-management solutions. However, water research at the university is not limited to senior academics. Rather, the valuable mentoring that these leading researchers provide is creating rising research stars, with postgraduate students consistently achieving accolades for their contributions. This can be attributed to the sharing of a fundamental vision to optimally manage the survival of this precious resource.
Recognising that water is a national resource under considerable stress, UCT is committed to ensuring that it is optimally managed in all sectors and at all levels within the country.

Demonstrating this commitment, the university will, through the Crystallization and Precipitation Research Unit (CPU), establish a new laboratory with the capacity to provide a comprehensive service to water researchers. The H2O (aq) laboratory is expected to open in the Department of Chemical Engineering, possibly in 2013, and will feature a combination of new and existing research practices. The nature of the water research undertaken by the CPU already focuses on novel techniques for water treatment.

H2O (aq) will offer specialist water and brine analysis, as well as research. The intention is to be able to offer a service to researchers who are investigating various water-related questions; in other words, it is not a standard water-analysis laboratory. For example, the laboratory will accommodate a researcher looking at how different river contaminants affect the aquatic life, a researcher investigating the effect of trace metals on water-treatment processes, and yet another studying the effect of water composition on concrete corrosion of bridges. Over the last decade, water analysis has become increasingly technical and, as such, requires the use of state-of-the-art equipment and fewer wet-chemistry techniques (although wet chemistry does still have a place). H2O (aq) will use Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS) for metal analysis, High-Performance Liquid Chromatography (HPLC) and spectrophotometry for anion analysis, and total organic carbon for bacterial tests, but the basic tools, such as pH testing and conductivity, will also be utilised. It is expected that such analyses will lead to multidisciplinary research projects and also to collaborations across faculties and between the projects through the common theme of water.
Drinking Acid Mine Water

The philosophy of Professor Alison Lewis, Director of the Crystallization and Precipitation Research Unit, is that researchers need to consider both water and its contaminants as resources, and to design processes that recover both.

With this in mind, she and her team have devised a means of treating acid mine water so that it is ‘good enough to drink’, and are taking one step closer to achieving the goal of water security, one of the most significant challenges facing the country. In her technique, known as Eutectic Freeze Crystallization (EFC), the contaminated waste stream is frozen to a point where both ice and salt are formed – ice is the form in which water is recovered. For this reason, it is important that the ice formed is pure to ensure that good-quality water is obtained. The process, which is both environmentally friendly and cost-effective, also allows for usable salts to be extracted from the toxic acid mine water. It can, furthermore, be used in a broad range of industrial sectors that produce wastewater.

Master’s student Michael Kapembwa won an award for the Outotec “Sustainability in Mineral Industry” best paper presentation at the Southern Africa Institute of Mining and Metallurgy-SAIMM MinProc 2012 workshop for his paper *Ice growth mechanisms in electrolyte aqueous solutions*. Michael was born in Luanshya, a small mining town in Zambia, and completed his primary and secondary education in Livingstone. In 2009 he graduated with a bachelor’s degree in Metallurgy and Mineral Processing from the University of Zambia. After working at different mines in mineral processing and hydrometallurgy and in a full-time job with Non-Ferrous Africa Mining Cooperation as a Metallurgist (Foreman), he decided to join the Crystallization and Precipitation Research Unit to further his studies in chemical engineering with a focus on wastewater and mining brine treatment.
Paying for Storm Water?

Professor Neil Armitage of the Department of Civil Engineering and director of the interdisciplinary Urban Water Management Group, is accustomed to pooling the perspectives and resources of academics from various departments to find integrated, sustainable solutions to water-management problems, particularly as they affect Southern African communities. Professor Armitage is also the only African representative on the joint committee on urban drainage of the International Association of Hydraulic Engineering and Research and the International Water Association.

In a recently completed project, Professor Armitage and PhD student Lloyd Fisher-Jeffes examined the possibility of charging for storm water in South Africa. While this may seem incomprehensible and possibly even nonsensical, it should perhaps be viewed in the context of the social, economic and environmental impacts of poor water quality on South Africa’s urban aquatic systems, which are increasingly being highlighted by the media. Improving the water quality in these systems will require catchment-wide strategies, including the monitoring and management of point and non-point source pollution collected in storm water. Significant costs may be incurred; however, international experience suggests that these are outweighed by the benefits.

Municipalities across South Africa charge their citizens for potable water and sewerage. Storm-water management, however, is generally funded through municipal rates. Competition with other pressing needs frequently results in the storm-water departments being significantly under-funded – at times only receiving a tenth of what is required for water-quantity management. Internationally, an increasing number of cities have introduced a direct charge for storm-water management in order to secure the funding required to manage storm water and its associated water pollution, and to serve as a disincentive to polluting practices on the part of landowners. The study has found that, in order to ensure adequate funding for storm-water management in South Africa, municipalities will need to consider charging for storm-water management based either on an Equivalent Residential Unit or a Residential Equivalent Factor, combined with an appropriate discount scheme for on-site storm-water management. This project was supported by the Water Research Commission.
Urban Water Management

Urban water management – and the impacts that rapid population growth, industrialisation and climate change are having on it – is gaining increasing attention worldwide.

In South Africa, cities are under pressure to respond not only to the challenges of water availability and quality, but also to economic transformation and social division. New solutions for improving the sustainability of cities need to be found, including the development of tools to guide decision-makers. Several benchmarking initiatives have been implemented in the South African water sector – mostly in terms of performance measurement of specific water services for regulatory purposes – but none provide an integrated analysis to enable a deeper understanding of sustainability.

The research undertaken by Dr Kirsty Carden and Professor Neil Armitage focused on using a systems approach to create an understanding of, and measurement of the potential for, sustainability in a South African urban water context. The research resulted in the development and evaluation of a composite index, the Sustainability Index for Integrated Urban Water Management (SIUWM). The first step involved compiling a vision of sustainability for the South African water sector, and expanding it into a sustainability framework to help identify suitable indicators for the assessment process, as well as those which link with existing measurement initiatives. Key performance indicator results from the Department of Water Affairs’ Regulatory Performance Management System and the Blue Drop/Green Drop schemes were used as partial input to the SIUWM, and scores were computed for the nine member cities of the South African Cities Network. The SIUWM links the results from the regulatory systems with a broader sustainability assessment process to provide a more detailed analysis which can be used to establish goals and inform strategic processes to leverage support for improved water services. In this way, the connections that link the different aspects of urban water management can be used to generate a greater awareness of the underlying issues by key decision makers and thus guide appropriate action.
Research Project

Social Norms and Moderation of Water Consumption in Cape Town

A study by master’s student Grant Smith and Associate Professor Martine Visser of the Environmental Policy Research Unit involved testing a strategy of managing water consumption by delivering comparative norms-based reports on water use to households in the city of Cape Town.

In doing this, they assessed, by means of a randomised control trial, the various behavioural elements usually involved in such a strategy. The aim of the study was to influence consumer behaviour by using behavioural interventions rather than using price mechanisms. The results are encouraging in that they strongly suggest that behavioural elements may be leveraged in order to reduce household water consumption at the municipal level. Although the savings were roughly 1% of total water consumption, they were significant. Across a municipality, such savings would certainly be meaningful in relatively water-scarce months. Of the treatments considered, it was the method that utilised a simple comparative social-norms strategy which yielded the most consistent water saving. This is the first study that illustrates the impact of social norms on demand for water for a developing country.

Research Groupings

Crystallization and Precipitation Research Unit

Industrial crystallisation research began in the Department of Chemical Engineering in 2000 and the Crystallization and Precipitation Research Unit was formally accredited by UCT in 2006. Although crystallisation and precipitation are some of the oldest unit operations known, understanding of these processes is still very limited. In this context, the main aim of the unit is to advance existing fundamental knowledge in the fields of crystallisation and precipitation, especially related to mineral processing and extractive metallurgy.

Although crystallisation and precipitation are some of the oldest unit operations known, understanding of these processes is still very limited. The main aim of the unit is to advance existing fundamental knowledge in these fields.

Particular interests of the research group are modelling and simulation approaches to industrial research, such as the particle-rate process approach for modelling of industrial crystallisation processes, aqueous chemistry modelling and computational fluid dynamics modelling. All these modelling techniques are aimed at deepening the understanding of these chemically complex, multiphase processes. The ultimate objective of furthering this scientific understanding is to optimise and control industrial crystallisation and precipitation processes, including treatment of effluent streams. Another interest of the research unit is the development of Eutectic Freeze Crystallisation for the treatment of hypersaline mining brines. The unit is also involved in the development and presentation of various continuing professional education courses that satisfy the demand for skills in this area, from both an industrial and an academic standpoint.

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International Award for Professor George Ekama

Working in close collaboration with faculty members and postgraduate students, NRF A-rated Professor George Ekama has been recognised internationally for his research that has provided innovative solutions to enhancing and improving wastewater treatment and, in so doing, has helped South Africa find answers to its water-shortage problems. He lives by a simple research credo: "Locally inspired, globally relevant".

Professor George Ekama was part of an international team which received a Global Grand Honour Award in the Applied Research category at the 2012 Project Innovation Awards for their project “Making use of seawater as an alternative resource”. His team members were representatives from Hong Kong University of Science and Technology, Hong Kong Airport Authority, Hong Kong Drainage Services Department, and Delft University of Technology. The Project Innovation Awards Programme was established by the International Water Association (IWA) in 2006 to recognise excellence and innovation in water-engineering projects throughout the world. The awards programme supports IWA’s goal to “connect water professionals worldwide to lead the development of effective and sustainable approaches to water management”.

Water, food, energy and sanitation are basic humanity needs. Nevertheless, water scarcity, water pollution, global warming, and food shortages are affecting many parts of the world. Although the planet has plenty of water, 97% is in the ocean, which is too salty for human consumption. The aim of the research is to make use of seawater as an alternative resource of water, energy and fertiliser through an integrated Triple Water Supply (TWS) System, the SANI (sulfate reduction, autotrophic denitrification and nitrification integrated) Process and the Urine Phosphorous Recovery (UPR) System. The TWS System integrates freshwater supply, seawater supply for toilet flushing, seawater-based cooling and grey-water reuse as an integrated water-supply and sanitation system. This has been applied in the Hong Kong International Airport, saving 52% of its freshwater demand and 30,000 MWh of electricity annually.

Making use of sulfate originating from seawater, the SANI Process introduces a sulfur cycle into the carbon and nitrogen cycles for sewage treatment. Sulfur acts as the electron carrier for passing the electron from organic carbon to oxygen through heterotrophic sulfate reduction, autotrophic denitrification and autotrophic nitrification. As all the three biochemical reactions produce minimal sludge, the SANI process effectively minimises sludge handling and disposal, which can save 50% of cost and one-third of energy consumption. Making use of the magnesium ion in seawater, the new UPR technology recovers phosphorus from urine in the form of magnesium ammonium phosphate, a valuable phosphorus and nitrogen containing fertiliser, by mixing hydrolysed urine with seawater. While the TWS, SANI and UPR systems can be applied individually, the integrated system would provide the greatest financial and environmental benefits, especially for islands and coastal cities of developing countries.

Professor Ekama has published over 150 research papers together with his research group have been co-authors of four of the IWA Scientific and Technical Reports on activated sludge modelling, community analysis and secondary settling tanks. He has been a visiting professor at Virginia Tech, the University of Padua and the UNESCO-IHE Institute for Water Education in the Netherlands. He is one of only a few environmental engineering professors listed on Thomson Reuters (ISI) Highly Cited Research website.
Sustainable Cities

The crucial part played by cities in the future of the planet garners ever more attention in the press and from non-governmental organisations and specialist urban-research organisations. Applied urban research at UCT is helping to ensure that the city of the future works for everyone.
Urban issues are increasingly receiving attention in social media websites and blogs, including UrbanAfrica.net, a website managed by the ‘State of Cities in Africa’ programme hosted by UCT’s African Centre for Cities (ACC). Urban affairs is one strand of UCT’s suite of strategic research initiatives, this one firmly located in the ACC Signature Theme; careful scrutiny of city governance and urban livelihoods complements another strategic research thrust, the Safety and Violence Initiative. Urban affairs also resonate well with UCT’s drive to research the urbanisation of poverty.

During 2012, the African Centre for Cities continued to spearhead applied urban research at UCT, and to be a forum for public and scholarly conversations about pressing urban issues. These include matters of public service delivery, climate change and urban resilience, informality, food security, safety, public housing, public art and public spaces, flooding risk, public health, and governance. Urban transportation is the focus of UCT’s Centre for Transport Studies, and there exist multiple close linkages between the research of these two units.

The daunting range of livelihood and policy challenges in all cities of the global South creates an opportunity to reconsider conventional ways of intervening in urban affairs, as well as an opportunity to think differently about cities as places, and how to generate the appropriate knowledge to make them more liveable, sustainable and equal.

During 2012, ACC personnel and affiliates travelled extensively to speak at conferences and meet colleagues in Boston, Dakar, Gothenburg, Johannesburg, Lagos, London, Manchester, Nairobi, New York, Paris, Stockholm and Tokyo. A large delegation participated in the World Urban Forum in Naples, a professional ‘shop window’ for urban authorities and practitioners. Conferences hosted in Cape Town included one on ‘Migration, Urbanization and Food Security in Cities of the Global South’, with delegates coming from across Africa as well as from Canada, the Caribbean and India.

The ACC is passionately vested in all aspects of this work, notably through its published research, and CityLabs and Knowledge Transfer Programmes. As part of its advisory services, in 2012 the ACC Director, Professor Edgar Pieterse, was appointed convenor of the Urban Section of the National Planning Commission, an initiative of government chaired by the Minister in The Presidency. ACC staff, together with other researchers in the Faculty of Engineering & the Built Environment, work across faculties in a highly interdisciplinary research programme. This is illustrated in the strong collaborative links with Environmental Sciences, Planning, Sociology, the African Climate and Development Initiative, the Energy Research Centre, and the Association of African Planning Schools, and is given impetus by maintaining strong academic and research links with major urban research groups and funders in the UK, Europe, and the USA, while new ties are braiding into Africa, Latin America and India.
Questions of sanitation, poverty alleviation, congestion, disease, pollution, physical degradation and unemployment are fundamentally interdisciplinary; part of the reason for the failure to combat these problems is that they have been addressed as distinctive rather than as systemic issues. There has also been profound neglect of the processes of governance and civic leverage in rapidly changing urban formations. Equally, there has been too little attention given to the counter challenges of innovation, fulfilment, affirmation, dignity and hope in the slums that now characterise most of the world’s fastest-growing cities in Africa, India, China and Latin America.

The Cities research agenda at UCT aims to keep abreast of these key urban fault lines and prospects by bringing regulators, legislators, scholars, practitioners, citizens and activists into regular contact via conferences, seminars, CityLabs, Think Tanks, and jointly produced research. Informal personal networks make crucial points of contact and knowledge sharing.

One instance of formally co-produced knowledge in our own backyard is the immensely innovative and successful programme of hosting selected City of Cape Town officials in the ACC for two months, and placing PhD students in the City for seven months a year. The students are working with the City on climate-change policy, the ‘Green’ economy, and land-economy models. Now in its second year, the mutual learning and exchange has exceeded expectations. Support from the
City and from Mistra Urban Futures, an international centre for sustainable urban development, has been vital. A bursary from Bigen Africa for a master’s student to conduct research on sustainable settlements in resource-rich parts of South Africa complements the Department of Chemical Engineering’s new Master of Philosophy course specialising in sustainable mineral resource development.

Conscientising diverse publics and constituencies about critical urban conditions and inequalities is a key challenge. Likewise, publicising the results of research and inspiring students and citizens with new visions for our cities are crucial facets of any university research programme. The ACC at UCT also supports scholarship in conventional ways by publishing books, chapters and academic papers. Recent publications have covered topics such as urban governance, alcohol in the city, urban ecology, property law, and urban climate change. A research monograph about cultural entrepreneurship as an agent of urban change in West Africa is anticipated from Dr Jenny Mbaye, recipient of the prestigious Ray Pahl Fellowship allocated to the ACC in 2012.

The ACC also strives to communicate and provoke in unconventional ways, supported in part by a Rockefeller Innovation Award. The Cityscapes magazine and the African Cities Reader both aim to publish visually striking and innovative pieces that present cities and the lives of their residents in unfamiliar and provocative registers. In this spirit, too, ACC participated in UCT’s ‘Curate Africa’ event in 2012. With support from the Goethe Institute, the ACC was also involved in tracking and reflecting on three public art projects in Johannesburg. In the context of Cape Town having been designated World Design Capital 2014, the ACC partnered with the Social Justice Coalition in convening the 5th annual Irene Grootboom Memorial Dialogues, held at two sites in Khayelitsha, as well as in Woodstock, in the Cape Town CBD, and on the UCT campus. Leading activists, designers, community leaders, academics and Cape Town residents debated how design might be used as an instrument for advancing social justice and reducing urban inequality.

Cities are here to stay. More than that, in the global South metropolitan areas medium-sized cities are home to an increasing number of people, and are the sites where some of the best social and environmental interventions can be made for sustaining economies, ecologies and societies. The diverse research on cities at UCT aims to co-ordinate and catalyse a fair slice of the inquiry, and to contribute significantly to policy that improves the prospects of cities and all their citizens.

There has been too little attention given to the counter challenges of innovation, fulfilment, affirmation, dignity and hope in the slums that now characterise most of the world’s fastest-growing cities in Africa, India, China and Latin America.
Challenging perspectives on **African Cities**

The concern of Professor Vanessa Watson, as a city-planning theorist, has for some time been to unsettle assumptions about current and future African cities, rooted almost entirely in Eurocentric beliefs about the nature and process of ‘good’ city planning.

Planning, as an activity of the state (but increasingly also of communities and business), often appears to involve a purely technical set of decisions around the correct location of land-uses, movement routes and so on. Yet, as planning theorists argue, planning is also deeply political, involving usually contested decisions about the allocation of public resources across urban space and legal constraints which can fundamentally affect the lives of urban dwellers. Understanding the socio-technical interface generated by planning processes, how this is shaped by power and politics, and how it can be steered to promote goals such as social justice and sustainability has therefore been a focus of planning theory worldwide.

However, in both colonial and post-colonial times, African cities have been on the receiving end of planning theories and policies generated in the ‘global North’ and universalised to the rest of the globe based on assumptions that urban society and space everywhere is little different from that in Europe or the United States and, if it is, then the task of planning is to shift cities in this direction. Vision of ‘the good city’ usually cite Amsterdam, Stockholm or Portland, taking for granted strong and resourced governments, organised civil society, manageable growth and little informality. Professor Watson’s research has challenged the underlying assumptions of this body of theory and has emphasised the importance of building planning theory from an understanding of context. Given that in years to come an increasing majority of the world’s urban population will live in global South cities, and that in Africa the urban population is likely to increase threefold by 2050, she has stressed the urgent need for planning theory with a global South perspective, which takes as its starting point a very different set of assumptions and research methodologies from those currently informing planning thought. Much of her own research has been involved in exploring (with her PhD students) what these different starting points might be (both philosophical and practical) and how planning can re-conceptualise the urban socio-technical interface in global South and African contexts.
But re-theorising planning is unlikely to have sufficient impact on the impending urban crisis in Africa: other initiatives are necessary. Given the paucity of urban and policy research on the continent, Professor Watson formed part of the cross-faculty team that collaborated to establish the African Centre for Cities in 2007. The Centre has flourished and in 2013 will take the significant step of co-ordinating a meeting of the 16 most prominent urban-research centres on the continent, together with major donors, to collaboratively shape an urban research agenda for Africa.

A longer-term strategy has been to shift the nature of planning education at universities on the continent, given that many curricula are still strongly shaped by post-World War British planning ideas. Hence planning professionals are being produced who have little understanding of the real challenges of African urbanisation and are equipped only with planning ideas from a very different time and place. The ACC-hosted Association of African Planning Schools (AAPS) has grown significantly, and this network of 50 urban planning schools is now a recognised influence on planning education and practice in Africa, and has generated significant educational research amongst its members.

One reason why it is hard to shift planning curricula is that national planning laws in many African countries were inherited from British (and French) colonial administrations and persist to the present day. This binds planning schools to producing planners trained to operate these outdated legal systems, but the planning laws themselves are also unable to recognise or respond to the current drivers of African urban change. It has therefore been necessary to initiate a research project aimed at revealing the weaknesses of this legislation across the continent and developing both processes and outcomes to bring about planning-law reform.
Planning Education and the Association of African Planning Schools (AAPS)

AAPS is a peer-to-peer network of African university programmes that educate and train urban and regional planners. Its 50 members are drawn from 19 countries, located in all regions of Africa (Botswana, Egypt, Ethiopia, Ghana, Kenya, Lesotho, Malawi, Morocco, Mozambique, Namibia, Nigeria, Rwanda, South Africa, Sudan, Tanzania, Togo, Uganda, Zambia and Zimbabwe). As a knowledge network, AAPS aims to facilitate exchange on curriculum development and research areas between members, primarily through digital communication and social networking tools. With generous funding from the Rockefeller Foundation since 2007, and with the enthusiastic help of researcher James Duminy and his colleague Dr Nancy Odendaal, AAPS has held workshops on key research themes and methods related to planning issues in African cities, has facilitated co-publishing, has developed educational ‘toolkits’ for new planning courses, and has recently developed a master’s curriculum for the University of Lusaka’s new planning programme. Particularly significant is the memorandum of understanding signed with Slum Dwellers International in 2010, committing planning schools to work with informal communities to expose their students to ‘experiential’ learning processes. Six studios have now been run on various parts of the continent, in which planning students work collaboratively with slum-dweller organisations on ‘real-life’ urban upgrade projects. Nothing changes the mind-set of students more profoundly than these direct engagements, which also equip them with the sensitivities needed to promote inclusive urban planning practices.

Building a Platform for Urban Legal Reform in Africa

Since 2010, and working through AAPS and the ACC, researchers have been building a policy argument for changing and improving urban laws in Africa and supporting a network of academics and practitioners contributing to these debates. The initiative is being led by Adjunct Associate Professor Stephen Berrisford, a land-law and planning expert with experience of planning-law reform in Africa. The starting point for this research and lobby initiative is the belief that legal frameworks that govern urban development – especially urban planning, land and housing and urban governance – are outdated and inappropriate. Research has focused on identifying why it is so difficult to change planning law in Africa, leading to exploration of the entrenched nature of these laws, how power is derived from them, and how particular social groups tend to benefit from them. A journal special issue in 2011 was a first attempt to capture the experiences and difficulties of urban-law reform efforts in Africa. The building of a platform to take forward urban-law reform in Africa has so far produced a major workshop of key political and international agency representatives, as well as a plenary dialogue at the 2012 World Urban Forum. Now, together with Cities Alliance, UN-Habitat, Urban LandMark and the World Bank, UCT researchers have initiated the process of compiling an Urban Legal Guide, a practical guide to support processes of urban legal reform in Sub-Saharan African countries.
Established as a collaborative research centre in 2008, the African Centre of Excellence for Studies in Public and Non-motorised Transport (ACET) is funded by the Volvo Research and Educational Foundations (VREF) under its Future Urban Transport programme.

It is part of an international network of ten VREF-funded centres all focusing on the development and implementation of future urban transport solutions. ACET comprises academics and postgraduate research students from three main partner universities: the Centre for Transport Studies at UCT, the Department of Transportation and Geotechnical Engineering at the University of Dar es Salaam, and the Institute for Development Studies at the University of Nairobi. This Centre of Excellence is the primary collaborative network for the university’s Centre for Transport Studies.

The ACET research programme is focused on the two main areas of public transport and paratransit, and non-motorised transport. Paratransit is defined as an alternative, flexible mode of passenger transportation that does not follow fixed routes or schedules (such as the minibus taxis that dominate the Cape Town public-transportation scene).

African cities have experienced a decline in scheduled public transport, and the emergence of weakly regulated and unscheduled paratransit. A major challenge facing authorities is the transformation of these services into integrated, regulated, safer and more efficient systems. Many previous attempts to do this have been developed without sufficiently grounded knowledge of ‘real world’ business, operating and regulatory conditions, and of governance capacities.

African cities, fairly ubiquitously, have inadequate infrastructure to support the non-motorised transport (NMT) modes upon which large impoverished populations depend. Poor levels of NMT accessibility and unsafe and uncomfortable travel conditions are the inevitable results. For many decades NMT has been ignored or underestimated, and treated as an add-on or afterthought. Both these research areas are situated in a context of responsible government agencies with low capacities, limited resources and poorly developed planning frameworks.

The spectrum of the ACET research programme includes projects focused on travel behaviour patterns, road safety, paratransit operations and regulation, public transport system assessment, non-motorised travel and infrastructure, intelligent transport systems, travel behaviour change, school travel planning, and city restructuring.

ACET’s objective is to produce and disseminate knowledge on the development and governance of public and non-motorised transport in African cities, and to serve as a hub of research and capacity-building. The Centre of Excellence aims to empower researchers in Africa to set their own research agendas and engage directly with the transport challenges they face. An overarching objective is to facilitate an increase in journal publication, and greater involvement of African researchers in international conferences and in other forms of scholar interaction.
Paratransit Operations and Regulation in Cape Town

Led by Associate Professor Roger Behrens and funded by the Volvo Research and Educational Foundations, this ongoing project explores appropriate policies with respect to urban public transport system reform.

Public transport systems in contemporary sub-Saharan African cities are heavily reliant upon paratransit services. These services are typically poorly regulated and operate as informal businesses. Common results of weak public sector regulation, and a fare strategy in which owners claim a fixed daily revenue target and drivers keep the balance as income, are destructive competition and poor quality of service. There is a strong case for improving the quality, reliability and coverage of public transport systems, and some city governments have attempted to do so by initiating reform projects that envisage the phased replacement of paratransit operations with formalised bus rapid transit systems. There are, however, path dependencies and institutional and financial constraints that limit the possible extent of reform. Paratransit operations also have some inherent advantages with respect to demand responsiveness and service innovation. Attempts to eradicate paratransit may therefore be neither pragmatic nor strategic. It is hypothesised that two future scenarios are likely: hybrid systems comprising both paratransit and formally planned modes, and systems improved by upgrades and strengthened regulation of existing paratransit services.

Using information obtained from international case studies (e.g. Hong Kong, Jakarta, Recife, Santiago and Quito), the project is exploring appropriate regulatory frameworks for hybrid public transport systems in which formal and informal services coexist in a complementary manner. Drawing from engagement with minibus-taxi operators in Cape Town, the project is also uncovering the sources of paratransit resistance to the bus rapid transit (BRT) system implementation, and is developing an understanding of the heterogeneous nature of paratransit operator aspirations and the associated path dependencies these impose. The project researchers contend that policies that recognise paratransit, and seek contextually appropriate complementarity with formalised planned services, will produce greater benefits than policies that ignore their continued existence.
City Restructuring

This project focuses on exploring the potential to reduce the amount of motorised travel in the three main partner cities (Cape Town, Dar es Salaam and Nairobi) and investigating the impact of reduced commute distance travelled by workers.

Cities of the global South have relatively low car-ownership rates (between 18 [Kenya] and 144 [South Africa] vehicles/1,000 persons) compared to cities of the global North (between 400 and 700 vehicles/1,000 persons). The growing economies of the cities of the global South will translate into increased incomes and increased car-ownership rates. In parallel to this, the populations of these cities are also growing.

It might be argued that coal and nuclear power can be used to power electric public transport vehicles, but these resources are also limited.

These forces are likely to encourage the development of space economies and transport infrastructure suited to the motorcar. In contrast to this trend is the prospect of declining global fuel resources and increasing costs. This will reduce the number of persons and households that can afford to use a car to meet their transport needs. This will have a significant impact on the economies of cities and the well-being of their populations, more especially on those cities that have been structured to suit private motorised transport, and even more so on those that are poorer. (It might be argued that coal and nuclear power can be used to power electric public transport vehicles, but these resources are also limited. Oil, coal and nuclear power resources are forecast to peak in 2006, 2020 and 2040 respectively, resulting in serious shortages, and therefore very high costs, by 2025, 2070 and 2100 respectively).

The aim of this research is to estimate the positive and negative effects that would result from restricted private and even public motorised travel and the effect of informality in cities of the global South on these estimates. Project activities in 2012 focused on the administration of surveys in Cape Town to assess the consequences to employers and employees of restricting motorised commuter travel.

The project is led by Associate Professor Romano Del Mistro and funded by the Volvo Research and Educational Foundations.
Non-Motorised Travel and Infrastructure in Cape Town

This project focuses on the safety of non-motorised transport users (e.g. cyclists and pedestrians), and their interaction with other road users and infrastructure measures. Traditionally, road-safety assessments are conducted retrospectively.

The results of these investigations aggregate the causes of crashes under human, vehicular and environmental factors. The interaction between these factors is poorly understood, and safety counter-measures continue to be derived from historic crash statistics, or cluster analysis of incidents. Crashes are, however, random events and can occur anywhere and at any time. Historical crash-location patterns may not be the best indicator of future risks.

This project explores the use of microsimulation techniques to evaluate the relative safety of infrastructure and the interaction of road users through surrogate and proximal safety techniques, and contrasts the results with published findings. It also reviews road-safety assessment methods currently in use (e.g. traffic-conflict analysis and risk-assessment indices) and uses elements of these in conjunction with simulation to provide a sound basis for road-safety assessment. Test cases and analysis have been undertaken using some hazardous locations in Cape Town. Project activities in 2012 focused on completing the modelling work and initiating the write-up of results.

This project explores the use of microsimulation techniques to evaluate the relative safety of infrastructure and the interaction of road users through surrogate and proximal safety techniques, and contrasts the results with published findings.

The project is led by Associate Professor Marianne Vanderschuren and funded by the Volvo Research and Educational Foundations.
Achieving well-governed and sustainable cities is becoming increasingly important to the future health of the planet. The African Centre for Cities partners closely with African universities and policy-making centres in order to provide an alternative perspective on dealing with critical urban issues. It provides an intellectual base and home for interdisciplinary, urban-related research at UCT, from which relations can be established with selected international think tanks, scholars, social movements, and funders.

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**Urban Policy**

Professor Edgar Pieterse holds a PhD from the London School of Economics, a master’s degree in Development Studies from the Institute of Social Studies (The Hague, the Netherlands) and BA-Honours from the University of the Western Cape. He is the holder of the SARChI Chair in Urban Policy and directs the African Centre for Cities at the University of Cape Town. His research is wide-ranging, covering themes such as African urbanism, cultural planning, regional development, governance, and macro development issues. He is a founder member of the Isandla Institute, serves on the boards of Magnet Theatre, the Sustainability Institute, and the Cape Town Partnership. He regularly provides advisory services to international development agencies such as UN-Habitat, African Development Bank, the Development Bank of South Africa, the Organisation for Economic Co-operation and Development, and the UN Environment Programme. Recently, Professor Pieterse was asked to serve on an international advisory committee for Cooper-Hewitt, the National Design Museum curating an international exhibition, Critical Mass: Design and Urbanization.
**BEING HUMAN**

As human populations increase dramatically across the planet, never has it been more critical to engage, connect, create and think in new ways that help us to explore, express and understand our humanity. Research in the humanities and social sciences at UCT is leading the way.
Relevance is key to UCT’s research-led culture. Whether information proves of practical use to society at large depends on its frame – which is why all UCT research is framed within a contemporary South African context that seeks to successfully contribute to development and transformation in the country. Its strategy remains the identification of those vital attributes necessary for sustaining a research practice that continues to be globally competitive.

Recent investment by the university has focused on a broader-based development of research capacity with an emphasis on the humanities and social sciences. This invigoration is particularly relevant in light of the 2011 Academy of Science of South Africa report The Consensus Study on the State of Humanities in South Africa, and the Charter for Humanities and Social Sciences, which pointed to a worrying decline in the humanities and social sciences across the country, a trend that UCT is bucking.

The emphasis on humanities and social sciences at UCT has seen measurable growth in the area of research and publications, despite relative stagnation in these areas nationally.

This trend looks likely to continue, particularly as all three DST/NRF South African Research Chairs awarded in 2007 in the humanities were renewed in 2012. A fourth Chair, held by Professor Carolyn Hamilton in Archive and Public Culture Research Initiative, has also performed strongly in its first five years and looks set to be renewed in 2013. This Chair works closely with other humanities-based research initiatives at the university: the Centre for Curating the Archive, the recently established Institute for Humanities in Africa (HUMA) and the Gordon Institute for the Performing and Creative Arts (GIPCA).

These units provide direct and valuable intellectual support to a vibrant, thriving university research culture, whether individually, in collaboration, or through external partnerships. One such partnership extends northward into Africa – the TomboUCTou Manuscripts Project – led by Associate Professor Shamil Jeppe of HUMA. Its initial focus was on the research and translation of the Timbuktu Manuscripts in Mali, but it has broadened to include writing cultures from other parts of Africa.

UCT’s contribution to the humanities endeavours to move beyond what is conventional. Just as the Michaelis School of Fine Art, the School of Drama and the College of Music create a rich and vibrant tapestry of work, so too the global revival of religion that impacts all forms and levels of individual and social life cannot be denied or ignored.

A study of religious discourse is crucial for understanding modern religions, their sources of inspiration and their underlying structures.

The Department of Religious Studies, headed by the DST/NRF South African Research Chair in Islam, African Publics and Religious Values, Professor Abdulkader Tayob, offers an open and dynamic approach to the study of religion that recognises the importance of creative and critical thinking in a changing and culturally diverse South Africa.

Some credit can be claimed by the university for the national revival of linguistics research with a programme spearheaded by Professor Rajend Mesthrie of the DST/NRF South African Research Chair in Migration, Language and Social Change.

The emphasis on humanities and social sciences has already seen UCT demonstrating measurable growth in the area of research and publication despite relative stagnation in these areas nationally.

UCT’s active linguistics unit collaborates closely with colleagues in the School of Education and the Centre for Higher Education Development, along with the linguistics department at the University of the Western Cape. Sociolinguistics – described as one of the fastest-growing strands of linguistics – focuses on language and communication in society and social interaction. It carefully analyses everyday encounters in order to understand larger structures and processes like globalisation, inequality, social creativity, and the formation and contestation of identities. Its aim is to bring together empirical analysis and social and linguistic theory, as well as socio-political engagement.

The university recognises the importance of the humanities to both intellectual endeavour and the shaping of society, and remains committed to this sometimes undervalued area of academics.
South Africa has a vast archival inheritance from the colonial and apartheid eras, which includes documents, images found in archival repositories and other collections, bones, natural specimens, art works, and maps. This inheritance, shaped in complex ways by the dominant concerns of the time, presents significant epistemological, conceptual, methodological, and ethical challenges for anyone delving into the treasure trove. And further complexity is added by post-apartheid policies and activities that now augment the collection and challenge the very perimeters and definition of archive itself.

Further complexity is added by post-apartheid policies and activities that now augment the collection and challenge the very perimeters and definition of archive itself.

Two aspects of archive have operated in especially stark ways in South Africa. The absence of a documentary archive was used to designate black South Africans as timelessly traditional and tribal, while the Truth and Reconciliation Commission bears the weight of managing the political history of the apartheid era. Critical interrogation of the notion of archive, and specific archives, is therefore a South African research priority.

At UCT, research in this area has been given renewed vigour under the Chair in Archive and Public Culture, which offers privileged insights into the normative understandings of the workings of archive, and an opportunity to interrogate afresh the definition of archive and develop new theoretical tools and conceptual vocabularies to be used in
approaching questions that challenge and extend older metropolitan ideas. Taking the initiative still further, it considers what the notion of archive enables and what it forecloses, and explores new methods for approaching archival and similar materials.

The initiative investigates to the fullest the circumstances of the making of the archival inheritance, its refashioning over time, and processes of inclusion and exclusion. This is accomplished by focusing on how archives shape public, political and academic discourses and practices, and were, themselves, shaped by public, political and academic discourses and practices.

This draws attention to the relationship between academic disciplines and their archives. Former UCT Vice-Chancellor Professor Njabulo Ndebele’s observation that “[t]here can be no transformation of the curriculum, or indeed of knowledge itself, without an interrogation of archive” informs the initiative’s exploration of these relationships in a variety of disciplines.

There can be no transformation of the curriculum, or indeed of knowledge itself, without an interrogation of archive.

Along with Professor Pippa Skotnes from UCT’s Michaelis School of Art, the DST/NRF Chair in Archive and Public Culture anchors a UCT-wide initiative, Archive and Curation (ARC): The Visual University and Its Columbarium. ARC engages with projects that investigate the university’s extended columbarium (the many research collections, both in formal university repositories and in informal bottom drawers of professors’ desks or hidden in departmental cupboards), encouraging self-reflection of the relationships between disciplines and their archives within the university.

The initiative is committed to inter- and transdisciplinary modes of work and social learning formats. Close attention is given to postgraduate pedagogy and the production of future academics, with postgraduate research structured around regular research development workshops and active support for sole-authored student publications.

The platform has achieved high recognition, nationally and internationally, as a trusted voice with the will and power to speak out in support of archival institutions and the public interest, as well as for its trailblazing work as a novel form of popular media-based activist intervention.
Institute for Humanities in Africa

Food for thought and room for lively, intellectual debate

A full and lively events programme in the Institute for Humanities in Africa (HUMA) – some 60 events in 2012 – was critical to realising the mission to create and champion a space for inter-disciplinary research and debate for graduate students and their peers. Events included two regular weekly seminars: a series structured by the dual research themes On Being Human and Circuits of Consumption, and a series of ‘book lunches’ intended to open discussion with authors of books published in the humanities.

Perhaps the liveliest ‘book lunch’ – in a room filled with people and strong views – was that of The Second Sexism by David Benatar, in which he maintains that men are the victims of new and pernicious modes of gender discrimination.

The year saw the launch of Continental Connections – seminars, lectures and workshops presented by invited visitors from Mali, Ghana, Uganda, and Nigeria. The first event dealt with discourse analysis: a combination of two lectures grappling with the genealogy of the concept of discourse, and a workshop focused on conducting discourse analysis.

A one-day symposium to mark the 50th anniversary of the publication of Rachel Carson’s Silent Spring proved an especially successful event, convened around the visit to HUMA of keynote speaker Professor Rob Nixon (University of Wisconsin, Madison). The symposium planted the seed for an inter-disciplinary master’s in Environmental Humanities – a first in South Africa.

Certain events are conventionally academic; others are intended for the wider public. Cape Town Commons is a HUMA public platform for debate on matters of citizenship in this city. The focus event for 2012 was the scandalous waste of public funds by the National Lotteries Board directly affecting the lifelines of a surprising number of Cape Town NGOs. The event was attended by hundreds from Cape Town and its wider environs.

Other notable events held in 2012 included a series of seminars held under Shamil Jeppie’s research programme on African Arabic writing cultures in which local western-style calligraphers and scholars of Arabic writing spoke about the theory that informs their practice. Renowned Moroccan calligrapher Hamdi Belaid also ran a calligraphy course at the Michaelis School of Fine Art.

Research highlights included Deborah Posel’s work on the politics of consumption in South Africa, which produced an analysis of the ANC Youth League under Julius Malema, and Ilana van Wyk’s twin research emphases on prosperity gospel churches and the South African lottery, which resulted in a series of publications and lectures.

Zethu Matebeni’s research, delving into questions of sexuality, and sexual and identity politics, culminated in a well-attended public debate in Langa township. A short film about the politics of gay and lesbian pride in South Africa was produced from this event. Matebeni concluded a four-year research project concerning HIV risk and the vulnerability of women in Southern Africa. A journal article published in Agenda addressed issues around pornography and feminism in South Africa, and Matebeni also published the book Black Lesbian Sexualities and Identity in South Africa, based on her PhD thesis.
The Tombouctou Manuscripts Project

Associate Professor Shamil Jeppie, who leads the Tombouctou Manuscripts Project, has made regular trips to the UNESCO world-heritage site of Timbuktu to work with an archive of handwritten texts in Arabic and African languages in the Arabic script, produced between the 13th and the 20th centuries.

A United Nations expert mission estimates that around 4,000 ancient manuscripts were destroyed by Islamic fundamentalists during their occupation of Timbuktu in early 2013. This is approximately one-tenth of the manuscripts that were stored in the city. Most documents were saved by the devotion of the library’s Malian custodians, who spirited them out of the occupied city in rice sacks, on donkey carts, and by motorcycle, boat and 4-wheel drive.

Lamu Endangered Archives

During 2012 Associate Professor Jeppie took his interests in Islamic culture eastward to Lamu in Kenya, one of the original Swahili settlements in East Africa.

Funded by the British Library Endangered Archives Programme, Associate Professor Jeppie, together with Norwegian colleague Anne Bang and Ethiopian student Hasan Kawo, ran a project to catalogue the manuscripts of a small library at the Riyadha madrasa in Lamu. The 19th century Riyadha Mosque is one of the oldest and most influential Islamic teaching institutions in the Swahili world. During this visit, digitisation of the entire manuscript collection of unique copies on Islamic education in East Africa for the past 120 years was completed, generating a total of 35,000 digital images of the full collection.
Giving Vibrant Voice to Great Literature

The Coetzee Collective is the leading international research group on the writings of J.M. Coetzee, the South African 2003 Nobel laureate in literature. Coetzee’s work has sparked an extraordinarily vibrant culture of research, teaching and conversation among postgraduate students in literature at UCT.

The research hub, originally founded in 2006 as an informal discussion group, is hosted by Associate Professor Carrol Clarkson of the Department of English Language and Literature. A series of seminars at the university is sponsored by the hub, often featuring overseas visitors, while links are fostered with acclaimed researchers and postgraduate students throughout the world.

UCT postgraduate students in the English Department are at the core of the burgeoning international and inter-disciplinary field of “Coetzee Studies” which, in addition to the study of South African and world literatures, includes scholarship in fields like animal ethics, translation, linguistics, film studies and jurisprudence.

Two postgraduate students – Joshua Maserow and Eckard Smuts – presented papers at an October 2012 conference on Coetzee at Justus-Liebig University in Giessen, Germany. The event presented an opportunity for the Coetzee Collective to broaden the scope of its network and strengthen ties with its international members. A positive outcome of the conference has been an ongoing correspondence between researchers from the two universities.

Maserow has since graduated with distinction while Smuts is about to submit his doctoral thesis. They are joined by Daniella Cadiz Bedini, who wrote her MA on Coetzee, and will graduate with distinction in June 2013.

Still more good news: Dr Hedley Twidle’s essay on Coetzee won the Bodley-Head Financial Times Essay Award – a major international honour in the field.

The 2012 highlight for the collective, which took place in December, was undoubtedly a visit to UCT by J.M. Coetzee himself. He read from his new novel, The Childhood of Jesus, not yet published at the time.

Coetzee’s latest work, in a departure from previous novels, is the story of a young child’s co-operative relationship with a man who is not his father and explores the myriad assumptions about the world normally invisible in ordinary adult life, and the limits and provisionality of any single explanation of a phenomenon.

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**Research Project**

Coetzee Collective, Rebecca Saunders (Illinois State)
The Concept of Foreignness in Waiting for the Barbarians
The merging in 2012 of four previously distinct academic departments in the Faculty of Humanities has created the School of African and Gender Studies, Anthropology and Linguistics (AXL) and it’s an exciting place to be. Instead of working in silos, staff and students are encouraged to locate synergies, explore innovative ways of working and share knowledge and resources. The partnership consolidates years of research by African academics and is already bearing fruit in the form of cross-functional collaboration.

It is clear that AXL is uniquely positioned to provide exploration and insight into issues of what it means to be ‘African’, the meaning of culture, feminist discourse in Africa, the construction of identity and race, and the role of language alongside the continent’s political and social development. The value of the school, according to its director, Associate Professor Jane Bennett, is its ability to examine familiar themes more critically, in new ways and from a quintessentially Afrocentric perspective.

The journey towards AXL has not been without controversy. In 2011, the merits of the proposed amalgamation were hotly debated, leading to months of discussions by students, staff members and faculty executive, under intense media scrutiny. At the heart of the debate was the perceived devaluation of African Studies at the institution and concern about the loss of departmental independence for the Centre for African Studies (CAS).

These anxieties have been set aside following significant gains achieved since the launch, key among them the appointment of Professor Lungisile Ntsebeza (SARChI Chair in Land Reform and Democracy) to the AC Jordan Chair in African Studies. This has brought Professor Ntsebeza’s renowned intellectual achievements and vision into the heart of the school.

Another gain in 2012 was the National Excellence for Teaching and Learning Award from the Higher Education Learning and Teaching Association of Southern Africa to

Associate Professor Jane Bennett, Director of AXL.
Dr Susan Levine (Social Anthropology), a recipient of UCT’s Distinguished Teacher Award in 2011.

Through the AGI and Gender Studies, AXL students and staff benefited from the visit of internationally acclaimed documentary film-maker and writer Yaba Badoe (Ghana) in August. Badoe spent a week at UCT giving seminars and screening her award-winning documentary *The Witches of Gambaga*, which explores the negative impact of cultural beliefs and superstition in parts of Africa. The visit was co-ordinated in collaboration with the faculty’s African Cinema Unit.

The Linguistics section hosted a successful residential seminar, titled *Language and Desire*, which was attended by AXL postgraduates, affiliates and faculty members.

The three SARChI Chairs held within AXL have, through a first-class array of seminars, digital production and research publications, continued to stimulate the school and wide range of affiliated researchers and writers.

AXL also published three issues of *Feminist Africa* and two editions of *Social Dynamics* in 2012. The *African Feminists: Talking the Walk* is another project that connects UCT academics and students with their counterparts in different African contexts. Initiated in 2011 by the African Gender Institute, the programme presents the work and ideas of African feminists in order to answer the question: What do African feminists look and sound like? Key events included seminar presentations, book launches, documentary screenings and panel discussions, including a visit from feminist activist Sara Longwe, who gave a talk on “Legal Voice: feminist activism from the body up” – an account of her legal struggles for equality in Zambia.

An important milestone for AXL has been the establishment of the Centre for African Languages Diversity, a research unit headed by Dr Matthias Brenzinger, created to stimulate the study and documentation of African languages to promote linguistic diversity on the continent. Through its scholarship programme and collaborations with international institutions, the unit will soon attract MA and PhD students from around Africa.

**A Champion for Integrated African Studies**

Professor Lungisile Ntsebeza has been appointed as the new AC Jordan Chair in the School of African and Gender Studies, Anthropology and Linguistics (AXL). This professorial chair in the field of African Studies was established at UCT in 1993 and is named after Archibald Campbell Mzolisa Jordan, who was a pioneer in the field of African Studies under apartheid.

According to Professor Ntsebeza, Africans, in particular South Africans, do not know enough about their own continent and have yet to prioritise a meaningful study of African issues. The AC Jordan Chair aims to address this challenge by championing the integration of African Studies into research, teaching and learning at undergraduate and postgraduate level across the institution.

Examples of this commitment to an African agenda can already be found in UCT’s Afropolitanism drive, and in the work of the School of African and Gender Studies, Anthropology and Linguistics and the recently established Centre for African Language Diversity, as well as in the teaching of isiXhosa in the Health Sciences.

African Studies is in a sense inherently cross- and multidisciplinary, providing an opportunity for individuals from different disciplines and professions to address selected topics, problems or themes related to Africa.
South Africa’s Chinese Diaspora and the Multilingual Transformation of Rural Towns

China’s economic ties with Africa have strengthened in the last decade as more Chinese migrants settle here – recent estimates are as high as 400 000 compared to 20 000 in 1990.

Most recent migrants are from mainland China and are engaged in the retail sector. Iconic of this development are the so-called “China shops” found in almost every South African town, shops that do not cater to a niche ethnic market, as is common in the global North, but to a local African clientele.

The project looks at the multilingual transformation of rural towns, with ethnographic fieldwork focusing on the Eastern Cape towns of Tsolo, Cala and McLear – off the beaten track and rarely discussed in migration literature, which focuses instead on urban, metropolitan contexts. These three towns are vibrant market towns servicing a population engaged in subsistence agriculture, small-scale farming and some professional and government employment.

Since the late 1990s, trading in these towns has been transformed by international migration, with traders coming from China, from India and Pakistan, and from other African countries like Ghana and Senegal.

The project endeavours to understand how global migrants, especially the “new” Chinese diaspora, negotiate the linguistic, social and economic challenges of trade and everyday life in these rural African towns. Local residents are primarily isiXhosa-speaking with varying levels of English, yet Chinese traders have developed strategies to facilitate economic transactions: signage drawing on local meanings and languages, basic isiXhosa-Afrikaans-English jargon, and employment of language mediators to interact with customers. Further fieldwork will take place in November 2013 and throughout 2014, focusing on issues of ownership and consumption, and changing communication practices.

The project is funded by the National Research Foundation and conducted jointly by Associate Professor Ana Deumert (AXL, Linguistics) and Mr Nkululeko Mabandla (AXL, CAS) who are also involved in the recently established European Consortium on Globalization at the Margins, initiated jointly by Professors Jan Blommaert (University of Tilburg) and Leonie Comps (University of Maastricht).
Texting Africa – Multilingual Digital Writing

Digital communication technologies, in particular popular and affordable texting, have opened new spaces for the informal use of written African languages.

Research has to date focused largely on the global North – Manuel Castells and his colleagues note in *Mobile Communication and Society*: “We know a good deal about Norway because of the quality of the Norwegian research in the field, while we know little about Nigeria because of the scant reliable evidence on this important country.”

The Texting Africa project contributes to closing the research gap by focusing on digital literacy practices in Côte d’Ivoire, Ghana, Nigeria and South Africa. Data include text message corpora and screen data for other digital applications like Facebook and Twitter, as well as survey, interview, observation and focus-group data.

The project began in 2010, but recent publications have focused on the role of creativity and linguistic play in digital writing. Good texters have an ability to manipulate language and create new words and expressions and, while much of this formal creativity happens in English or French, writers make skilful use of African language resources.

The data shows such practices to be widespread, and multilingual linguistic creativity to be a hallmark of the genre. For many African writers – educated in a school system which privileges former colonial languages – digital writing is a place where they write African languages on a regular basis, unsupervised, a space where African languages are cool and alive.

The project, led by Professor Ana Deumert (AXL, Linguistics), is funded by the National Research Foundation and South Africa Netherlands Research Programme on Alternatives in Development. The work benefited from research collaboration with Dr Kristin Vold Lexander, University of Oslo, and a specialist in texting in Senegal. Future collaboration is anticipated with the recently launched Centre for Multilingualism in Society Across the Lifespan (MultiLing, University of Oslo).
UCT is renowned for its performing arts curriculum spanning music, dance, film, drama and art. In the past year the work of students and faculty in the performing arts shone both locally and internationally.

Special mention must go to pianist Jane Yu, an alumna of the South African College of Music, who is delighting audiences around the world with her extraordinary musical abilities. After completing her honours degree at UCT, and following a highly successful performance at Carnegie Hall earlier this year, she has been chosen to pursue her master’s degree at the Manhattan School of Music.

UCT’s School of Dance students also returned triumphant from the International Theatre School (ITS) Festival in Amsterdam, having won the coveted ITS Guest Award for best international performance. A Journey from Past to Present interpreted four themed pieces that formed part of the South African story. The students did not try to emulate European dance styles but delivered an authentic and technically skilled performance. Judges were impressed with the novel way in which the performance merged traditional and international dance styles in a manner both unique and exciting.

To ensure that more South Africans have the opportunity to pursue careers on the stage, key advances have been made in finding funding for the arts at UCT. UCT’s Opera School has a proud legacy of discovering talent in disadvantaged communities rich in musical culture, yet its programmes remain some of UCT’s most expensive. To further the university’s broader transformation agenda of developing inclusive curricula and engaging African voices, the Opera School Endowment Fund was launched in 2012 to make pledging donations more accessible to both individuals and organisations.

A key role of arts at UCT is to explore, express and interpret what it is to be South African and African. Several important exhibitions took place in 2012, including the annual Michaelis School of Fine Art’s Graduation Exhibition, which showcased the extraordinary work of 52 students. Key among these was the exhibition by Associate Professor Johann van der Schijff at the Iziko South African National Gallery titled Community Punching Bags. In a collaboration with several Cape Town high schools, the punching bags, adorned with faces, demonstrated that issues often not spoken of, such as violence, discrimination, racism and xenophobia, can be addressed in a collaborative and creative way through interactive art.

The African Cinema Unit, under the directorship of Associate Professor Lesley Marx, hosted the first Alternative Africa Film Festival, Right-wing Vampires, Ritual and Rapture. Other activities from the unit included the launch of Professor Jyoti Mistry’s book We remember differently: Race, Memory, Imagination, and the presentation by South African film-maker Ross Devenish of his film and television work. Award-winning director Oliver Hermanus was also showcased, while students benefited from a screenwriting and screen production master class.
Archive and Public Culture

Professor Carolyn Hamilton holds the DST/NRF Chair in Archive and Public Culture, and leads the interdisciplinary research initiative in Archive and Public Culture based at the School of African and Gender Studies, Anthropology and Linguistics. Professor Hamilton was previously head of the Constitution of Public Intellectual Life Project and director of the Graduate School for the Humanities at the University of the Witwatersrand. She was also a member of the Board of the South African History Archive and founder member of the Gay and Lesbian Archive. Her archive work is rooted in an ongoing interest in the history of South Africa in the eras immediately before colonialism for which there are limited written archives. Other illuminating materials will need to be explored. Professor Hamilton was responsible, in partnership with the Nelson Mandela Foundation, for the establishment of the Archival Platform – an electronic civil-society-based intervention in the politics of archive.

Migration, Language and Social Change

Rajend Mesthrie is Professor of Linguistics in the School of African and Gender Studies, Anthropology and Linguistics, and holds the DST/NRF Chair in Migration, Language and Social Change. He is a past president of the Linguistics Society of Southern Africa (2001 to 2009) and head of the Linguistics Section at UCT (1998 to 2009). He was elected honorary life executive member of the Linguistics Society of Southern Africa in 2012. He is currently an executive member of the International Society for English Linguistics and an elected member of the SA Academy of Science. Professor Mesthrie has published widely in the field of sociolinguistics, with special reference to language contact and variation in South Africa. He is co-editor of the Cambridge University Press journal English Today, which produces scholarship dealing mostly with English in global and migratory contexts. He is a board member of another 12 journals in the fields of sociolinguistics, globalisation and English, South African sociolinguistics, sociology, and African studies, and holds an A rating from the NRF.

Islam, African Publics and Religious Values

Abdulkader Tayob is Professor of Islamic Studies, Head of the Department of Religious Studies and holds the DST/NRF Chair in Islam, African Publics and Religious Values. He obtained his doctoral degree in 1989 from Temple University in the United States. Professor Tayob is a recognised scholar in the study of modern Islam in general, and Islam in South Africa and Africa in particular. His current research spans religion education in South Africa, modern Islam, and biographies of religious engagement. By pursuing these interests, he examines the way religion is taught in public life. Building on the work of Islam in public life, he will examine the role of religion studies as part of life orientation and religious studies as a free-standing subject in South African schools. He will continue his cutting-edge research into how to approach the study of Islam in the modern world, with the main area of
Being Human

focus being the link between present and past, along with the categories used to best interpret the present. His third area of research is a focus on the personal dimension of religious revival. Taking a biographical approach, he questions what motivates people to join religious revival groups. These questions are posed to Muslim activists in South Africa, Egypt and Nigeria, and Muslims and Christians in East Africa.

Land Reform and Democracy in South Africa


African Cinema Unit

The African Cinema Unit is an initiative within the Centre for Film and Media Studies that is committed to promoting the study of African cinemas, taking account of the richness and diversity of the film cultures that have emerged from the countries that make up this vast and complex continent. Associate Professor Martin Botha’s book South African Cinema 1896–2010 (Intellect) was published in 2012, and represents the first broadly based text that encompasses the history of South African cinema in its entirety. Under the directorship of Associate Professor Lesley Marx, several events also showcased alternative African cinema (e.g. the first Alternative Africa film festival) and brought filmmakers to the university.

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Centre for Contemporary Islam

The Centre for Contemporary Islam (CCI) was established in 1996 to co-ordinate research conducted at UCT on Islam and Muslim societies, and the dissemination of findings to a broader public. The main projects of the CCI include Islam and Public Life in Africa; Sufism, Gender and Islam; and the Timbuktu Manuscripts Project. The CCI publishes the annual Journal for Islamic Studies. The centre is based in the Department of Religious Studies, and has the active participation of scholars from outside the department.

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Centre for Popular Memory

The Centre for Popular Memory (CPM) is an Africa-focused oral-history research, advocacy and archival centre linked to the Department of Historical Studies. Research prioritises multilingual approaches to the impact of post-traumatic legacies in Africa and specialises in multileveled technology outputs through academic journals, exhibitions and film, including scholarly content for portable media platforms.
Research Groupings associated with this theme

Through the African Oral History Archive project, the CPM has more than 3 000 oral history recordings in 12 languages, many with full transcripts and translations, preserved, migrated and gathered over 25 years.

The African Memory Project (AMP) aims to increase access to, and use of, oral and visual collections in Africa. To this end, it collaborates with international leaders in fields of oral history and memory studies to analyse Africa-centred research materials. Memories of Apartheid is a key project of AMP that seeks to engage civil society on various levels and includes a number of transnational and international research and educational partners. The project will develop a large-scale oral-history programme and conduct filmed oral-history interviews with people who lived through apartheid, across South Africa. It will also develop a centralised digital archival model for the gathering and dissemination of audiovisual archival material for educational use on an international scale.

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Centre for Rhetoric Studies

The centre was founded in 1995 and remains unique on the continent, where it has pioneered the emergence of rhetoric studies (as mentioned in Blackwell’s International Encyclopedia of Communication). It concerns itself with multidisciplinary research in public rhetoric, deliberative democracy and argumentative culture. The centre engages in three main activities: hosting research fellows, organising academic conferences and registering postgraduate students (master’s and PhD). It publishes its findings through the African Yearbook of Rhetoric (AfricaRhetoric Publishing). The Centre has a success rate of nearly 100 per cent in numerous competitively funded international research projects.

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Institute for Comparative Religion in Southern Africa

The Institute for Comparative Religion in Southern Africa (ICRSA) is dedicated to the postcolonial study of religion and religions in South Africa and the Southern African region. In addition to developing resources for the study of religions and reconfiguring the study of religion from a Southern African perspective, ICRSA has participated in international research projects on religious education and cultural heritage. ICRSA houses the peer-reviewed, accredited Journal for the Study of Religion.

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Isaac and Jessie Kaplan Centre for Jewish Studies and Research

The Isaac and Jessie Kaplan Centre for Jewish Studies and Research was established in 1980 under the terms of a gift to the University of Cape Town by the Kaplan Kushlick Foundation and is named in honour of the parents of Mendel and Robert Kaplan. The centre, the only one of its kind in South Africa, is autonomous and has its own governing body. It seeks to stimulate and promote the entire field of Jewish studies and research at the university with a special focus on the South African Jewish community. The centre is multidisciplinary in scope and encourages the participation of scholars in a range of fields including history, political science,
Lucy Lloyd Archive, Resource and Exhibition Centre

The Lucy Lloyd Archive, Resource and Exhibition Centre (LLAREC) is a research centre to promote the visual as a site of meaning and knowledge. Its focus is on collections and curatorship in which objects are allowed to become both sites of knowledge and mnemonics in which reference can be made to a wider meaning.

At the heart of the centre’s curatorial practice is the issue of representation; many of its projects interrogate the ways in which the historical, social and medical construction of identity are revealed through representation. Major projects have included the publication of the Bleek and Lloyd archive, the production of portfolios and artists’ books, and the installation of exhibitions at various venues. LLAREC incorporates the Katrine Harries Print Cabinet, and is now part of the Centre for Curating the Archive, which includes major photographic collections and a visual history archive, as well as the projects that curate them.

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Research Institute on Christianity and Society in Africa

The Research Institute on Christianity and Society in Africa (RICSIA) is engaged in research into religion in public health, globalisation, and public theology. Its primary activity has been the International Religious Health Assets Programme (IRHAP) – a multi-institutional, multisite, inter-religious, transdisciplinary collaborative research project co-ordinated at UCT.

Initiated in 2003 together with colleagues from Emory University, it includes academics and practitioners from other South African centres, and has a strong partnership with Methodist Le Bonheur Healthcare (a seven-hospital system in Memphis, USA), while working with other partners in Africa, Europe and the USA.

IRHAP maps and assesses religious health assets, policy processes, and capacity-building at the interface of religion and public health. Its more recent work is with the Hospice Palliative Care Association of South Africa, building community partnerships for the strengthening of health systems. It is conducting research on male peace and safety in the context of interpersonal violence (three sites in South Africa and the USA, in conjunction with the Medical Research Council and the UNISA-based Peace and Safety Lead Programme), and is taking more of an interest in health systems and primary health care. RICSA is also known for its published multiyear, multivolume project on the social history of Christianity in South Africa (UNISA Press, CD-ROM).

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The Green Economy

Greening the economy is a crucial process if countries want to improve human wellbeing and social equity while reducing environmental dangers and ecological shortages. UCT research across many disciplines is breaking new ground and helping to speed up the transition.
At UCT, a number of researchers across the university are engaged in various inter- and multidisciplinary research projects, with the aim of contributing substantially to a greener economy, and thereby improving the well-being of all South Africans. A number of these projects extend into Africa, broadening the reach and increasing the impact. The research being undertaken in the Faculties of Science and Engineering & the Built Environment has been particularly ground-breaking, and promises to make fundamental contributions to this area, and to inspire and train the next generation of scholars.

Clean technology and cleaner production have been research themes in UCT’s Department of Chemical Engineering since the time of the 1992 Earth Summit in Rio de Janeiro. Initially viewed as newcomers to academic research, such themes have steadily gained in importance as the magnitude of local and global environmental degradation became clearer. The 2011 ‘Green Economy’ report of the United Nations Environment Programme (UNEP) signalled a new globally concerted effort to address the Millennium Development Goal 7 (ensuring environmental sustainability). This concept of a green economy was readily taken up in South Africa, to realise its economic development potential. Green economy desks or programmes have since been established in national, provincial and many local governments.

But is more research needed? Is it not enough to simply deploy tried and tested wind turbines and photovoltaics so as to start greening South Africa’s electricity supply?

The large-scale use of renewable energy for electricity generation undoubtedly is a necessary condition for sustainable development. In this regard, the recent global green economy push is making significant gains on earlier programmes. But, according to UCT researchers, a programme only focused on green energy is unlikely to be sufficient, as it does not link strongly enough to development concerns, or address environmental problems related to the material rather than the energetic dimension of our consumption-based economy.

Globally, this material dimension of sustainable development has been receiving concerted new attention through the work of the International Resource Panel established by UNEP in 2011. UCT scholars have made contributions to its work on urban material flows and on metals.

National research capacity in these fields remains thin. The “resource efficiency” concern has been formally branded into the work of the National Cleaner Production Centre hosted by the Council for Scientific and Industrial Research, but scholarly work has remained isolated to no more than a handful of studies, an important one in 2012 having been a DST-commissioned study on the higher-education dimension of modernised waste management.

Most importantly, outside the realm of natural resource management, very little scholarly work in South Africa appears to be tackling the difficult linkages between environmental sustainability and social development: conditions such as extreme inequality, poor basic education and extreme violence are likely to hinder green-economy efforts as much as they obstruct the struggle of our generation for a better quality of life for all. It is in this difficult crossover area that UCT researchers have located some of their research projects.

But is more research needed? Is it not enough to simply deploy tried and tested wind turbines and photovoltaics so as to start greening South Africa’s electricity supply?

A major critique emerging in the sustainability sciences is that traditional academic work entrenches the division of knowledge into discipline silos and thus hinders complete solutions to development challenges in the real world. Piecemeal solutions leave behind legacies for future generations. As a response, inter- and transdisciplinary approaches to knowledge generation are increasingly being considered an essential component of sustainability research.

UCT has started to recognise this imperative formally with the formation of the African Climate and Development Initiative. In the work of the Department of Chemical Engineering, this process has been more organic, and internal collaboration spans a diverse network of university-accredited research groupings, Signature Themes, and DST/NRF SARChI Research Chairs.
Towards a Technology-specific Innovation System for Harnessing Waste-based Bioenergy

This project aims to unlock the energy and greenhouse-gas mitigation potential of waste biomass in South Africa, drawing on UCT’s 20-year experience of researching clean technologies, waste minimisation and industrial ecology, and on supporting existing expertise of the University of Venda to realise key objectives.

The energy potential of waste biomass in Africa and South Africa has repeatedly been estimated to be sizeable. Theoretically, the project aims to better understand, and then help activate, the potential of a technology-specific innovation system to convert the identified potentials into sustainability gains, through processes of societal learning.

Much of the required technology exists in Asia and in Europe, but innovation is still required to make these technologies work in the South African context. Researchers at UCT are inspired by the recent spontaneous, bottom-up emergence of a technology-specific innovation system for biogas in Germany and are beginning to investigate the similar emergence of such an innovation system in South Africa.

The project is based at the University of Cape Town, in the Faculty of Engineering & the Built Environment, contributing to its “social innovation” ambitions, but tying into UCT’s African Climate and Development Initiative. Since a key feature of biogas technology is its cross-cutting nature covering matters of sanitation, solid-waste management, energy supply and nutrient cycling, there are collaborations and interactions with colleagues in the Department of Civil Engineering, the Energy Research Centre and the African Centre for Cities. However, as the potential waste biomass is occurring in both urban and rural areas, as are South Africa’s sustainable development challenges, the project is run in partnership with colleagues at the University of Venda who already have developed some expertise in biogas technology in rural settings.

Key features of the project work plan include describing the present state of the biogas innovation system and in so doing to identify mechanisms that induce or block adoption of the technology. The project also aims to stimulate the direction of the biogas innovation system by the planning, construction and operation of four demonstration facilities, designed to give effect to key functions of the university in a technology-specific innovation system. These demonstration facilities are harnessed in a targeted work plan to initiate learning of technologies and to track the uses to which this learning is put.

The project is funded by the National Research Foundation’s Global Change, Society and Sustainability Research Programme, 2012–2014.
The number of people relying on the traditional use of biomass is projected to rise from 2.7 billion today to 2.8 billion by 2030. Using World Health Organization estimates, linked to our projections on biomass use, it is estimated that the household air pollution from the use of biomass in inefficient stoves would lead to over 1.5 million premature deaths per year, over 4000 per day in 2030, greater than estimates for premature deaths from malaria, tuberculosis or HIV/AIDS. (World Energy Outlook, 2010).

Roadside catering is widespread in African towns and cities – and it mostly makes use of open fires. Fuel wood is either harvested or obtained from commercial or construction and demolition activities. With a significant amount of construction timber treated with insecticides, notably with chromated copper arsenate (CCA), it may well be that food preparation and consumption is undertaken in the presence of toxic heavy metals. This concern was investigated in several informal dwellings or townships in Cape Town and surrounding areas. The primary objectives of this project were:

- to determine whether or not CCA-treated wood was being used, particularly for food preparation, and what food it was being used to prepare;
- regardless of whether this concern could be confirmed, to do the investigation in such a way as to harness student social-engagement enthusiasm to impact on the well-established health burden of wood and smoke exposure.

If the result was found to be positive, the further objectives were:

- to determine the specific exposure to CCA from handling the wood, handling the ash, and breathing in the air from the combusted wood;
- to determine whether caterers exposed to CCA displayed elevated levels of these substances.

Since this was quite a diverse project, the consortium of involved parties was extensive. While it was driven by the Environmental and Process Systems Engineering Research Group, a strong partnership was formed with Engineers without Borders, with collaboration from UCT’s Centre for Occupational and Environmental Health, the Centre for Transport Studies and the Environmental Policy Research Unit and, later, indispensable ties with the Energy Research Centre.

The following milestones have since been achieved: the collection and analysis of wood samples which confirmed some use of treated timber (CCA); the collection and testing from human subjects has also been undertaken. These findings are the subject of three journal papers to appear in 2013. They have been communicated to both the City of Cape Town’s Air Quality Management Department and the South African Wood Preservation Association, with both bodies having initiated responses to address the problem. Lastly, Nyanga in Cape Town was selected as pilot site for testing the alternative technology (efficient wood stoves) that reduces exposure.
Located at the interface of leading genetic and information technologies, and the juncture of a wide range of developing social, political and ethical concerns, the so-called bio-economy has fundamentally changed the way in which biodiversity is used and commercialised. New applications for genetic resources in the biotechnology industry have led to novel and varied demands for biodiversity, in forms previously unimagined. Intended products include new drugs, climate-resilient crops, industrial processing, novel ingredients for the food, herbal and personal-care industries, and other advances that generate significant benefits for society, financial returns for the companies that market products, and a range of benefits for countries that provide the biological material. At the same time, livelihood opportunities have opened up for rural communities engaged in commercially harvesting and producing supplies with high value in global and local markets.

The past two decades have witnessed a surge of interest in the use of biodiversity, biological products, and biological processes in the mainstream economy, on a scale unprecedented in history, linking markets in virtually every corner of the globe.

The Chair’s strong focus on engagement with communities, indigenous knowledge holders, and policy-makers, embeds within it a practice of engaged scholarship and social responsiveness.

There is a growing focus on the opportunities of the bio-economy throughout the industrialised and developing world. Yet, despite the profound societal implications of these developments, our understanding of the environmental and social dimensions remains poorly developed. This has been made all the more challenging by the immense changes in global economic systems, the rate of scientific change, and the information revolution. Environmental degradation and global climate change overlay these transformations and their multifaceted consequences on the bio-economy are only just beginning to be recognised.

Environmental and Social Dimensions of THE BIO-ECONOMY
In 2012, UCT was awarded a DST/NRF South African Research Chair in the Environmental and Social Dimensions of the Bio-economy. The Chair is located in the Department of Environmental and Geographical Science, and provides an exciting opportunity to advance knowledge in this newly emerging arena by catalysing the advancement of research and understanding across and within disciplines, building a critical mass of intellectual capacity, enabling human capital development and in particular a new cohort of skilled postgraduate students, and informing policy and public debate in this rapidly evolving but underdeveloped field. Its strong focus on engagement with communities, indigenous knowledge holders, and policy-makers, embeds within it a practice of engaged scholarship and social responsiveness, with the objective of developing a pioneering, highly collaborative and globally relevant knowledge hub with international stature.

South Africa’s mix of developed and developing economies, well-developed scientific and industrial infrastructure, unique biodiversity and rich indigenous knowledge systems provides an exceptional foundation for the research, which focuses on four central themes.

The first theme centres on access and benefit sharing, bio-discovery and the bio-economy, aiming to strengthen the conceptual underpinnings of access and benefit-sharing through enhanced understanding of implications for commercial sectors involved in the global and national bio-economy, and their responses to environmental and equity considerations. The research incorporates global reviews of the key sectors (e.g. pharmaceuticals, herbal medicine, nutraceuticals, industrial biotechnology, agriculture, personal care and cosmetics, food and beverage) involved in the commercial use of biodiversity, providing analyses of the scientific and technological developments that underpin bio-discovery, and the market, industry and societal trends that drive demand for access to genetic resources and shape benefit-sharing, economic development and environmental sustainability.

The second theme links closely to the first, but with a stronger focus on the broader use of biodiversity by rural communities, and links to livelihoods and poverty alleviation. The objective of this component of the research is to deepen knowledge and understanding of approaches to biodiversity use and trade that alleviate poverty, reduce inequality and improve environmental sustainability. Building on existing research, this objective also has a strong creative component, revealing the stories of indigenous plants, the communities that use them, and the paths they travel as indigenous knowledge, identities and resources are transformed into drugs, cosmetics, food and flowers for the global consumer market. This integrates a variety of disciplines in a holistic way – anthropology, environmental science, botany, photography and the assemblage of an important archive.

The third theme focuses on the elucidation of governance approaches in Southern Africa that strengthen the rights of custodians of biodiversity and traditional knowledge holders, facilitate implementation of the Convention on Biological Diversity and the Nagoya Protocol, and stimulate environmentally sustainable and socially just approaches in the bio-economy. A second stream of research within this objective investigates the so-called innovation chasm between research results, commercialisation and socio-economic outcomes, well recognised as a constraint towards achieving significant outcomes of the bio-economy.

The research agenda of the Chair is strongly interdisciplinary by nature, aiming to build UCT-wide collaborations in addition to those at national and international levels.

The fourth theme is an evolving one: to deepen understanding of the environmental and social impacts of emerging technologies within the bio-economy such as genetic engineering, industrial biotechnology and biofuel production.

The research agenda of the Chair, which has been filled by Associate Professor Rachel Wynberg of the Environmental Evaluation Unit (also see page 43) is strongly interdisciplinary by nature, aiming to build UCT-wide collaborations in addition to those at national and international levels.

Indeed, UCT is ideally placed to host the Chair since a wide range of departments are engaged in aspects of the bio-economy, located in almost every faculty across campus. Activities include scientific research and development to generate particular applications; ecological studies to assess sustainable use; legal scholarship to investigate intellectual property rights, traditional knowledge and biosafety regimes; social science analysis to address the myriad of questions raised by this field of enquiry; and initiatives in the fine arts, reflecting the increasing confluence of arts and sciences to find innovative solutions to societal problems. Obvious synergies exist with existing Research Chairs in Drug Discovery (Chemistry), Bioprocessing (Chemical Engineering), Customary Law, and Intellectual Property Rights and Biotechnology (Private Law), as well as the African Climate and Development Initiative. It is intended that activities between these spheres will have a synergistic effect, catalysing new areas of research inquiry and stimulating transdisciplinary analyses that are often difficult to undertake discretely.
The Environmental Economics Policy Research Unit (EPRU) is the South African branch of the Environment for Development initiative. This is a capacity-building programme in environmental economics, which focuses on research, policy advice, and teaching in China, Central America, Ethiopia, Kenya, South Africa, and Tanzania. EPRU is a collaborative association of researchers specialising in environmental and natural resource issues.

The unit was established in 2007 to promote sustainable development and poverty reduction in Southern Africa. To achieve this, EPRU aims to enhance the effectiveness of environmental policy-making by adopting a threefold strategy of research, teaching and policy consultation.

During the last five years, EPRU’s policy-relevant experience in research pertaining to ecosystems management, biodiversity conservation, air quality and water quality has grown extensively. The centre also has previous research capacity and experience relevant to the socio-economics of agriculture, fisheries and conservation. Specifically, this strain of research has been concerned with farm workers’ wages, land use and rural poverty, and inequality among subsistence fishermen, as well as the role of community-based wildlife conservation in poverty mitigation. EPRU has successfully worked with a number of local and national stakeholders on medium-sized projects, such as the South African National Parks (wildlife sector), the Department of Water Affairs and Forestry (water sector), the Department of Environmental Affairs and Tourism (marine and coastal management), and the City of Cape Town (air-quality management and energy savings). In the next few years, EPRU plans to bid for larger research projects that will enhance collaboration among EPRU research fellows, with other researchers and, importantly, with key stakeholders.

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The Energy Research Centre (ERC) conducts high-quality, targeted and relevant research, as well as offering postgraduate opportunities at master's and doctoral levels. The main research areas are energy efficiency; energy, environment and climate change; energy poverty and development; and energy systems analysis and planning. The staff of the ERC have qualifications in engineering, natural and environmental sciences, urban and regional planning, economics, law, politics, sociology, and anthropology.

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The Centre for Occupational and Environmental Health Research aims to be a principal centre of occupational and environmental health research, teaching and training, occupational medical clinical services, policy advice, technical consultancy services and advocacy, and a source of supportive outreach activities in South Africa, parts of Africa, and internationally. It conducts multidisciplinary research, teaching and service provision that integrate laboratory, clinical, epidemiological, and policy skills in relation to occupational health problems that have high priority in Southern Africa. This is in order to facilitate identification and improved characterisation of these and other problems, and to better understand the determinants of these problems and their solutions.

The centre explores and develops means of maintaining the health of individuals and the environment, especially the work environment, and of preventing the development of health problems in those exposed to injurious environments at work or more generally. Public policy research is conducted into issues ranging from toxic or injurious exposures through to health surveillance, and the functioning of relevant health services. Inter-institutional research, teaching and service (including outreach) collaboration and capacity development are priorities of the centre, along with fostering local and global networks for occupational and environmental health promotion through collaboration with the United Nations and other agencies, notably the World Health Organisation (WHO). The centre is currently a WHO Collaborating Centre for Occupational Health.

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Environment Evaluation Unit

Please refer to page 110
Innovation

The Chemical ‘Chameleon’, Versatile Chitosan makes for an Array of Potential Applications

Dr Anwar Jardine’s research group in UCT’s Department of Chemistry has been investigating chitosan, derived from chitin, a natural polysaccharide that is the second most abundant organic source on earth. Chitin is partly responsible for the robust hard shell or exoskeleton of insects and crustaceans, with a structure that is similar to cellulose.

Chitin and chitosan have an array of potential applications, and numerous products have already reached the market for the treatment of a variety of diseases, including arthritis, inflammatory bowel disease, and general inflammatory damage.

The growth of the chitin and the chitosan market worldwide is propelled by the new manufacturing technologies and expansion in the application domain – these new, high-end products are worth considerably more than the low-cost polymers that previously dominated the industry, spurring on innovation.

The main source of the raw material is the shell of the Southern Spiny Lobster, Palinarus gilchristi, after removal of the tail for sale. It is estimated that in South Africa about 440 tons of this waste are available. This shell exoskeleton can be transformed into a backbone of another sort – a soluble, modified chitosan “backbone” molecule that can be used as a chemical catalyst support. The team added a platinum group metal catalyst to this novel chemical backbone, enabling efficient, heterogeneously catalysed synthesis of fine chemicals in “green” solvent systems, the subject of a further patent.

Currently, waste shells are either discarded while at sea, or landed and sold locally as flavouring agents at between R5 and R10 per kilogram. Although the yield of high-quality chitosan is only 3 to 5% based on wet-shell weight, the potential market value of up to R3000/kg chitosan is attractive and higher-value-added derivatives are even more enticing.

The modified backbone is currently being explored in a water purification application for the reduction of high
A British Council Africa Knowledge Transfer Partnership sponsored project is seeking to improve the poor groundwater quality on the arid West Coast, at Garies in the Kamiesberg municipality (Northern Province). If successful, this will have a significant impact on the local community, whose development is severely hampered by the scarcity of local potable water, with water needing to be trucked in at certain times. The first “laboratory phase” of the project is complete and the pilot in Garies will strive to translate the laboratory process into the field, ultimately improving the municipality’s “green” and “blue drop” water quality and management rating.

Another successful application has seen the use of this modified chitosan as a solid support for the chromatographic separation of fish oil. The fish oil is a by-product of the pelagic fishing and has a low commercial value owing to competing vegetable oils. This silver-based “argentation chromatography” allows saturated fatty acids to be separated from unsaturated fatty acids. Unsaturated fatty acids have great nutritional value (e.g. omega-3 and -6 fatty acids). Saturated fatty acids, on the other hand, have cosmetic value or serve better as feedstock for biodiesel.
There is an urgent need for innovation in science and technology – globally, but especially in South Africa, as the economic powerhouse in Africa. But this will only be sustainable if the country can also bridge the “innovation chasm” and transform innovation and research into commercially viable products and services and create new industries to drive economic growth.
Research at UCT contributes to cutting-edge developments in various technologies and scientific discoveries, from information and communications technology and biotechnology to mining beneficiation, that are crucial to the advancement of the South African economy.

With a fast-developing economy pursuing sustainable growth, the South African national research and development strategy has come to emphasise innovation – in particular, commercially viable innovation of relevance to economic growth and wealth creation. This requires a substantial investment in the development of new technologies and capacity that will enable the country to convert its undisputed research expertise into social and economic advantages.

As one of the country’s leading universities, UCT is deeply committed to this national research and development strategy and to pursuing sustainable development.

The Faculty of Engineering & the Built Environment at UCT is very active in this regard and is rated as one of the finest on the continent. It has the highest number of NRF-rated engineering academics in South Africa and has strong links with industry and government agencies, which provide significant funding for a variety of research projects.

The faculty is recognised as a world leader in key engineering technologies such as synthesis gas technology, fuel cell technology and hydrogen.

To strengthen this already strong research focus, UCT was awarded two new South African Research Chairs in Engineering in 2012, one in Reaction Engineering and the other in Industrial Computational Fluid Dynamics. These new Chairs, together with existing research programmes spanning UCT’s strategic initiatives and research groupings, will actively support the broad South African process industries: the bioprocess, chemical, energy, food, petrochemical and mineral-processing industries, which represent a substantial component of the nation’s gross domestic product. Whereas manufacturing is the largest contributor to national GDP, chemical manufacturing is the largest sub-sector and UCT is at the forefront of driving innovation in this area.

There is also a strong emphasis on sustainability research as well as on developing green technology, such as wind-turbine technology and solar energy, amongst others. Another interesting focus with a global component is on impacts and explosions. Two current major worldwide concerns are unexploded landmines and protection against terrorist activity. Highly publicised acts of terrorism such as 9/11 and, most recently, the Boston marathon bombing, have raised awareness of the increased need for protection, and UCT’s Blast Impact and Survivability Research Unit is leading a number of projects which seek to study the effect of explosive devices.

Bridging the innovation chasm is a national imperative and it demands a collaborative response from government, industry and universities.

Bridging the innovation chasm is a national imperative and it demands a collaborative response from government, industry and universities. Advances in engineering at UCT are made possible by significant investment from government via the DST/NRF SARChI Chairs, a Centre of Excellence as well as a national Centre of Competence, and the Department of Trade and Industry’s Technology and Human Resources for Industry Programme (THRIP), which provides critical industry partnerships.

Working with such partners, UCT plans to continue to rise to the challenge of transforming innovation and research into commercially viable products and services and creating new industries to drive economic growth on the continent.
Pushing the Boundaries of Manufacturing and Design: It’s Elemental, Dr Watson ...

Graphical representations of output from computational fluid dynamics analyses conducted using the Elemental software to investigate flows over wing profiles and stresses on an aircraft wing and fuselage.

Computational Fluid Dynamics (CFD) is an exciting new computer-based technology that provides insight into the dynamics of fluid flow, enabling the building of a model to represent a system or device, with accurate prediction of the detailed fluid dynamics offering unprecedented insight and allowing opportunities for virtual prototyping that would be otherwise too costly in the "real" world.

**The global commercial CFD software market currently generates over R5.6 billion annually**

UCT’s Department of Mechanical Engineering is home to an “all South African” CFD code dubbed “Elemental”. Pioneered by Professor Arnaud Malan in 1999, Elemental is already supporting next-generation aircraft design, and Airbus, one of the leading aircraft manufacturers, “found the Elemental code to be scientifically innovative while outperforming competing codes by a significant margin, particularly in terms of accuracy”. Elemental also plays a pivotal role in the European Union FP7 project “Future Fast Aeroelastic Simulation Technologies”.

The global commercial CFD software market currently generates over R5.6 billion annually and is one of the fastest-growing fields in engineering. It is becoming the de facto standard strategic design tool in sectors ranging from biomedical devices and power generation to aircraft design and the space industry.

The technology will spawn two UCT spin-out companies – Numerus Technologies (Pty) Ltd and Elemental IP Holdings (Pty) Ltd – during 2013, which will allow South Africa to enter lucrative software and modern technology markets, and which will be well positioned to ride Cape Town’s International Design Capital 2014 wave.

*Elemental* software forms the basis for the DST/NRF SARChI Research Chair in Industrial CFD, which was awarded to UCT in 2012. This will not only contribute to the commercialisation drive, but will support the UCT initiative to further world-class CFD research and technology development.
The Pressing Matter of Mine-water Clean-up

The treatment and disposal of water in the mining sector is a ticking time bomb increasingly threatening South African cities and surrounding communities while garnering the focus of both media and legislative bodies. The success of the research project Refining the BIOX and ASTER processes for Gold, led by Professor Susan Harrison and Dr Rob van Hille of UCT’s Centre for Bioprocess Engineering Research in the Department of Chemical Engineering, is therefore no small feat.

Getting the Mining – Cost – Environment Balance Right

South Africa’s mineral resources are being depleted, making it necessary to find ways to extract metals from increasingly lower-grade resources. This requires technologies with low energy and processing inputs that provide a balance between resource beneficiation, cost efficiency and environmental impact.

Heap bioleaching technologies can do this, in addition to having the potential to process waste rock displaced in the mining operation. The technology uses available iron and sulphide as an energy source, and provides leaching agents for metal extraction from low-grade ore that is crushed and stacked in large heaps, which are irrigated and aerated so that micro-organisms grow on the rock surface.

South Africa has played an important role in the development of technology for “hot heaps” operating under thermophilic conditions – relatively high temperatures that cause certain bacteria to grow. This UCT project focuses on understanding the micro-environments established within the heap that can be manipulated to intensify the leaching process. Through use of custom-designed equipment, this project has presented the first rigorous characterisation of microbial growth rates on whole ore under temperatures ranging from ambient to 65°C.

The project, now completed, was funded by BHP-Billiton and led by Professor Susan Harrison, who holds the NRF/DST SARChI Research Chair in Bioprocess Engineering Research. A team of researchers from the Centre for Bioprocess Engineering Research in the Department of Chemical Engineering have contributed to this cross-disciplinary study, along with Dr Rob van Hille, Associate Professor Jochen Petersen, Emmanuel Ngoma, Nathan van Wyk, Lucinda Bromfield, Frances Pocock and Lukhanya Mekuto, Cambridge University’s Dr Andy Sederman, UCT PhD graduate Marijke Fagan, and Imperial College London’s Professors Jan Cilliers and Peter Lee.

Five journal papers were published and a further six were prepared for publication in 2013.
Cooking up a storm: ADDING VALUE TO SOUTH AFRICA’S PROCESS INDUSTRIES

The Department of Chemical Engineering is recognised locally and internationally as the leading academic department of its kind in Africa. It has cemented a reputation for unique research programmes and projects that meet the challenges posed by a highly developed industrialised era.

UCT’s Department of Chemical Engineering helps to keep South Africa at the forefront of emerging technologies in various important economic sectors such as mining, water management, bioenergy and renewable energy, greenhouse gas emission reductions and pharmaceutical developments regarding insulin and antiretroviral medication.

Research in the department has grown significantly over the last ten years, with postgraduate numbers doubling from 92 in 2002 to 185 in 2012. The department hosts four university-accredited research groupings: the Crystallization and Precipitation Research Unit and the Centres for Bioprocess Engineering Research, Catalysis Research and Minerals Processing Research. There are also two DST/NRF SARChI Chairs (Bioprocess Engineering and Minerals Beneficiation), the DST/NRF Centre of Excellence in Catalysis, and the DST Competence Centre in Hydrogen and Fuel Cells, as well as one of the university’s Signature Research Themes in Minerals to Metals.

The DST/NRF Centre of Excellence in Catalysis (c*change) is a virtual research programme of national scope and significance, with multidisciplinary participants from ten higher-education institutions. Its core focus is the field of catalysis science – a critical industrial technology underpinning the South African economy. This includes the Fischer-Tropsch process, that converts coal and natural gas to liquid fuels, which currently provides 40% of South Africa’s liquid-fuels requirements. In
April 2012, c*change hosted the country’s first syngas convention, marking another important step in the path to cementing the country’s pre-eminence in this area.

The work of c*change also feeds into the National Hydrogen and Fuel Cells Technologies Flagship project, branded as Hydrogen South Africa (HySA), that is seeking to establish South Africa as one of the few nations that export high-value products into the growing international hydrogen and fuel-cells markets. Recognising the importance of the potential role of hydrogen in the economy, the South African government has established three competency centres nationwide under the HySA banner. HySA/Catalysis, based at UCT and co-hosted by Mintek, has been mandated to develop the competency, skilled workforce, and ultimately the manufacturing industry to support a hydrogen economy in South Africa. Current research focuses on alternative energy sources that are locally produced.

Platinum-group metals are key catalytic materials in hydrogen fuel cells and South Africa is strategically situated, possessing 75% of the world’s platinum reserves. The goal is for South Africa to supply 25% of the future global fuel-cell market with novel, locally developed and fabricated platinum-group metal catalysts by 2020, thereby diversifying the applications of the nation’s platinum-group metal resources and promoting socio-economic benefits through value addition to its key natural resources.

Another major research focus in the department that is attracting international attention is in bioprocess engineering. UCT has a long track record of research in bioprocess engineering dating from the late 1960s. The bioprocess engineering research grouping was formalised as an accredited unit, BERU, in 2001 and its accreditation was upgraded to the Centre for Bioprocess Engineering Research (CeBER) in 2008. CeBER’s vision is to be a cross-disciplinary research enterprise, developing the nation’s bioprocess engineers, providing new insights into bioprocesses and bioproducts and becoming global leaders in selected relevant research niches.

One of the main research areas in CeBER is bioleaching, a process where microbes are used as biocatalysts to convert metal compounds into their soluble forms. This leaching process is an alternative economical method for the recovery of metals such as copper, zinc and gold from low-grade mineral ores, with low investment and operation costs.

CeBER also strives to address environmental issues primarily related to water. Current projects consider acid rock drainage prevention through enhanced management of waste materials and remediation as well as emerging technologies for renewable energy generation and greenhouse gas emission reductions.

Also concerned with the elimination of waste is the Centre for Minerals Research, a multidisciplinary, inter-departmental research centre located within Chemical Engineering focusing on the processes of froth flotation, comminution and classification. Inefficiencies in these processes translate into both an enormous loss of revenue and an unnecessary waste of the world’s valuable and steadily declining mineral reserves.

All these activities play a crucial role in ensuring that UCT contributes towards keeping South African science healthy and competitive. More importantly, the emphasis on sustainability and capacity development throughout is also playing to the national imperative to bridge the innovation chasm in the country. It is this that will be the real engine for innovation at UCT in the years to come.
Keeping the Lights On

Rolling blackouts will continue to plague South Africa unless the country’s brightest sparks establish research solutions to stabilise and control the nation’s power systems.

UCT’s Department of Electrical Engineering is investigating ways to transmit more power in a reliable and efficient way with the use of High Voltage Direct Current (HVDC) transmission lines, parallel to High Voltage Alternating Current (HVAC) transmission lines. Using HVDC offers economic and technological advantages compared to using HVAC alone. The hybrid system brings new challenges of its own and focus has been on the interactions between HVAC and HVDC, and the effect of line length on the stability of the system.

A research team led by UCT’s Professor Komla Folly are now involved with the second phase of the project. Their research investigates a broader application of this concept to a new Smart Grid and deals with the potential outcomes of introducing more renewable energy sources and technologies to the grid, which would result in a more complex power system that would become increasingly difficult to control. Maintaining the security and stability of the system is critical to achieving a reliable power supply, along with sustainable development of the electric power industry and the nation’s economic growth.

In addition, researchers are mindful that HVDC transmission systems and renewable energy technologies that are available in Africa, but underutilised at present, have the potential to be developed for commercialisation and to create the type of “green jobs” crucial for moving towards a green economy.

Project collaboration included researchers at UCT, the University of KwaZulu-Natal and Cape Peninsula University of Technology, as well as at universities elsewhere in Africa, and in Asia, the USA and Canada. Eskom and Zeta Power Consulting provided industry collaboration. The project was funded by the Department of Trade and Industry’s Technology and Human Resources for Industry Programme. Over the course of the project, 15 MSc and two PhD students have graduated, of whom 98% are black and three are female. Several conference papers and journal articles have been published between 2010 and 2012.
Impacts are a part of daily life, ranging from minor bumps to devastating explosions. Associate Professor Genevieve Langdon, who leads the Blast Performance of Novel Lightweight Materials project in the Department of Mechanical Engineering, seeks to study the effect of explosive devices.

Her primary focus is on the response of lightweight materials and structures to blast loading. This includes materials such as fibre-reinforced polymeric composites, textile concrete, hybrid metal-composite structures, sandwich panels, and cellular materials such as honeycombs and foams.

Unlike traditional steel structures, lightweight materials absorb energy through a wide range of different failure mechanisms and often recover much of their original shape once the pressure is removed. This makes understanding the changing behaviour of lightweight materials particularly important and challenging.

She was also involved in the setting up of an apprenticeship programme that seeks to boost skills in the engineering sector.

Associate Professor Langdon completed a fellowship, funded by the 1851 Royal Commission, at the Blast Impact and Survivability Research Unit at UCT and worked at the University of Liverpool Impact Research Centre from 1999 to 2004. As part of her role at UCT, she was also involved in the setting up of an apprenticeship programme – UCT’s first – in the Department of Mechanical Engineering that seeks to boost skills in the engineering sector by offering internships to newly qualified interns in the industry. She is also a founding member of the new South African Young Academy of Science – a group that is designed to bridge the gap between the more senior and well-established Academy of Science of South Africa and the up-and-coming young scientists who may well be future leaders in their fields.
Associate Professor Hans Beushausen

Associate Professor Hans Beushausen of the Department of Civil Engineering received the UCT College of Fellows Young Researcher Award in 2012 for his research on concrete durability, performance assessment of concrete structures, and repair systems for concrete structures.

He is the founding member and unit leader of the Concrete Materials and Structural Integrity Research Unit at UCT, which focuses on concrete infrastructure performance and renewal. He has supervised or co-supervised more than 35 postgraduate students in the last five years, 21 of whom have graduated to date.

Within South Africa and other African countries, Associate Professor Beushausen is recognised as a leading researcher in his field. In addition, he has supervised or conducted about 200 consulting projects between 2010 and 2012. Among his clients were the South African National Roads Agency, Eskom, the Namibian Ports Authority, and the Namibian Water Authority.

In March 2012, he was awarded the Wason Medal for Materials Research, together with Professor Mark Alexander and Mike Otieno.

Sasol Advanced Fuels Laboratory

The Sasol Advanced Fuels Laboratory (SAFL) was established in 2002 to actualise Sasol’s future-oriented fuels research relating to combustion and emissions from automotive and aviation engines. A parallel goal was the development of human-resource capacity to meet Sasol’s and South Africa’s future technology needs. SAFL activities for the past year are reflected in five master’s degree graduations and seven conference/journal publications. In addition, the appointment of a senior chemistry research leader has expanded the discipline base at the SAFL from being predominantly mechanical engineering to include a chemistry/chemical engineering capability as well. Capital investment at the SAFL has been substantially augmented with the recent acquisition of a sophisticated single-cylinder test engine that is representative of next-generation automotive technology.

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Centre for Catalysis Research

The Centre for Catalysis Research concerns itself with both fundamental and applied research and development in the general field of heterogeneous catalysis – encompassing all of catalyst synthesis, physico-chemical characterisation and performance evaluation for industrially interesting chemical conversions. The principal fields of investigation include Fischer-Tropsch synthesis, zeolite/acid catalysis (especially as applied to hydrocracking and the transformation of phenols and derivatives) and catalysis by platinum-group metals and gold. In addition, the Centre for Catalysis Research is the host laboratory for the DST/NRF Centre of Excellence in Catalysis (c*change) and the DST Competence Centre in Hydrogen and Fuel Cell Catalysis.

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Blast Impact and Survivability Research Unit

The Department of Mechanical Engineering has been involved in impact dynamics for over 25 years. The Blast Impact and Survivability Research Unit (BISRU) has developed experimental facilities which include a blast chamber, a selection of drop testers, material characterisation systems, and a sled tester for impact biomechanics. This collection of equipment is unique in that no other university laboratory worldwide has this full suite of facilities in one area. The research activities are aimed at promoting the study and understanding of impact dynamics through projects at senior undergraduate level and master’s, doctoral and postdoctoral levels. The research objectives are to reduce the risk of injuries and to save lives through fundamental principles of science and engineering. BISRU currently has several international interactions through collaborative projects with universities in Australia, Argentina, Europe and the USA.

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Concrete Materials and Structural Integrity Research Unit

The Concrete Materials and Structural Integrity Research Unit at the University of Cape Town has been developing technologies and procedures for the design and assessment of concrete structures for more than 20 years. The unit has had a marked focus on infrastructure performance and renewal, largely in response to industry needs.

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Centre for Materials Engineering

The Centre for Materials Engineering strives to educate and train students in techniques and fundamentals in the broad field of Materials Engineering. It also seeks to serve a wide range of engineering activities, giving advice concerning material processing, properties and performance, while maintaining an international profile for its research. The research activities of the centre are aimed at addressing national needs in terms of both the provision of technological solutions and the development of skilled graduates.

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Centre for Minerals Research

The Centre for Minerals Research is a multidisciplinary, inter-departmental research centre based in the Department of Chemical Engineering. The focus of research is on the processes of comminution, classification, and froth flotation, arguably the most important unit operations in mineral beneficiation. The primary objective of the centre is to investigate the above research areas at both an industrial (applied) level and a laboratory (fundamental) level, so as to develop predictive models for describing the performance of industrial units and circuits. The centre enjoys excellent international collaborations with all the world’s leading mining companies.

Director: Professor CT O’Connor
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DST/NRF Centre of Excellence in Catalysis, c*change

The DST/NRF Centre of Excellence in Catalysis, c*change, is hosted by the Centre for Catalysis Research at the Department of Chemical Engineering. During 2012, the c*change team comprised 51 postgraduate students (82% of them South African students, of whom 45% and 76% were female and black, respectively), 12 postdoctoral researchers, and 25 academics from 16 research groupings in 10 participating South African higher-education institutions. A total of 21 projects were funded during the course of 2012, of which 13 were multi-institutional and/or inter-disciplinary ones. The centre was also awarded a DST/NRF SARChI Chair in catalysis.

Subsequent to its 2011 participation as a co-organiser of the European Federation of Catalysis Societies Summer School in the Netherlands, c*change has organised a similar three-day Autumn School during 2012. The Autumn School was followed by the c*change Syngas Convention.

Minerals Beneficiation

Professor Jean-Paul Franzidis obtained his PhD from the Open University in the United Kingdom. He joined the Department of Chemical Engineering at UCT in 1983. His research career has been in various aspects of mineral (including coal) beneficiation, especially flotation. In 1996 he moved to the University of Queensland, Australia, to lead the world’s largest collaborative mineral-processing research project, the AMIRA P9 project, which received numerous awards for both research and research methodology. His flotation research led to the development of a steady-state flotation circuit simulator, JKSimFloat, which has been applied to over 150 flotation operations worldwide. From 2003 to 2007 he was Chief Investigator of two large Australian Research Council Linkage grants. In 2007 he returned to UCT to direct the newly formed Minerals to Metals Signature Theme. He was awarded the SARChI Chair in Minerals Beneficiation in 2008.

Bioprocess Engineering

Professor Sue Harrison of the Department of Chemical Engineering holds the DST/NRF Research Chair in Bioprocess Engineering and is the director of the Centre for Bioprocess Engineering Research (CeBER). Her research interests include bioprocess engineering spanning bacterial, fungal, archael and algal bioproceses with application in biohydrometallurgy, acid mine drainage prevention, maximising resource productivity, wastewater bio refineries, bioenergy products, biocommodities from wastes, fine chemicals, nutraceuticals and expression of niche peptides and proteins. Professor Harrison has a strong interest in minimising the environmental burden associated with processes. Components of research involving clean products and processes and bioremediation processes are currently being focused explicitly around sustainable process engineering to complement a teaching interest in sustainable development in process industries.
Catalysis

The DST/NRF Centre of Excellence in Catalysis, c*change, has been awarded a SARChI Chair in Catalysis, which is expected to boost the scientific output of the centre. The Chair, which has not yet been filled, will focus on the field of preparation and characterisation of nano-materials and assist various activities throughout the centre, with the expectation that this will provide a mechanism of bringing the research of c*change to the level of world-class excellence.

Reaction Engineering

UCT was awarded a SARChI Chair in Reaction Engineering in 2012 and a recruitment process to fill this Chair is currently under way. Reaction engineering comprises all physico-chemical transformations, the design of equipment for their mediation and the integration of such units into complete industrial processes. This Chair is expected to establish competencies and human capacity development; and undertake novel research in South Africa.

Industrial Computational Fluid Dynamics

UCT was awarded a SARChI Chair in Industrial Computational Fluid Dynamics (CFD) in 2012. The recruitment of a candidate is under way and it is envisaged that the Chair will grow the CFD field to develop a CFD technology niche that will empower and serve engineers in industry to develop improved products. CFD is today a widely used strategic tool, with the current market size estimated at R5.6 billion annually. It is also one of the most scientifically rigorous and fastest-developing fields in engineering.
Law In Context

Research in Law at UCT is championing African solutions for African challenges.
Two of the most exciting loci of research in the Faculty of Law at the University of Cape Town are the Centre for Comparative Law in Africa and the Centre for Criminology. Each of them demonstrates that law, both substantively and in its application, is heavily influenced by the context in which it operates – and that the law and its application can be improved by closely investigating this context from different vantage points.

Comparative law at its best takes account of the cultural, sociological and political background of the systems that are being compared. When done in this way, comparative law has the power to provide new solutions to old problems. Too often comparative-law scholarship neglects these dimensions, and for too long has our specifically African setting been ignored in research aimed at the improvement of our law. The Centre for Comparative Law in Africa, led by Professor Salvatore Mancuso, states that its aim is to address “the need to devise contextually sound law and policy responses to pervasive developmental challenges facing our continent” and “to develop a discipline that lends itself to optimal application in the pluralistic legal frameworks within which life is lived in Africa”. This ambitious programme has already been put into action in several important ways as outlined below. (To learn more about the activities of the Centre for Comparative Law in Africa, visit its website at http://www.comparativelaw.uct.ac.za/).

All law inevitably shapes the community in which it operates and all research in law is therefore, in one way or another, societally relevant.

As in all spheres of law, the efficacy of the criminal justice system is inextricably bound to the conditions, and attitudes to crime and criminal law, in the society for which it was created. In the context of the high levels of crime and violence in our society, the research of the Centre of Criminology is vital. Led by Professor Clifford Shearing, holder of the DST/NRF SARChI Chair in Security and Justice, the centre records that “it has a long history of engaging contemporary issues within the twin domains of justice and security” and that “this engagement has enabled it, since its inception in 1977, to remain Africa-focused and globally engaged”.

The centre’s research covers a wide range of topics in policing and in penal systems, as well as in the exciting and novel area pertaining to the risks associated with lowered levels of environmental security. Some of this engaged research, which gives effect to the centre’s slogan, “imagine, innovate, integrate”, is outlined below (and to learn more about the work of the centre, visit its website, http://www.criminology.uct.ac.za/, and its two blogs [one on physical security and the other on environmental security]).

Highlighting the African focus and social relevance of these particular two endeavours in the Faculty of Law does not mean, of course, that the other research in the faculty is of a different kind. All law inevitably shapes the community in which it operates and all research in law is therefore, in one way or another, societally relevant. To give a flavour of the wide range of the important research in the faculty, this report profiles four of the faculty’s top researchers and highlights the doctoral theses and books produced by members of the staff of the faculty in the course of 2012.
The Centre for Comparative Law in Africa (CCLA) was established in 2011 to promote the study of comparative law and draw on the strengths of comparative methodology to research into the multifaceted field of law in Africa. The centre presents an opportunity to develop a discipline that lends itself to optimal application in the pluralistic legal frameworks within which life is lived in Africa. In its mission to contribute to the development of comparative law in Africa, the strategy of the CCLA is to establish the field at UCT, build capacity in it across the continent through academic programmes, apply comparative law expertise in consultancies and disseminate new knowledge in comparative law in Africa through conferences, publications and professional networks.

Its location within the Department of Commercial Law recognises the centrality of comparative law to ongoing efforts at economic integration on the African continent. The CCLA offers an LLM in Comparative Law and conducts research on a variety of themes that apply the comparative methodology. Its innovative LLM course, Chinese Law and Investments in Africa, launching as a bloc course in September 2013, has attracted many students. Currently the centre is involved in a collaborative research project on mineral law and policy in three southern African countries (Namibia, Botswana and Zambia) under the UCT PERC Africa Knowledge Project and is also hosting a project on Eritrean land law.

Mineral Law in Africa

The aim of the mineral law for Africa project is to create a systematic, academic commentary on mining and mineral laws in Africa, starting with a selection of Southern African countries which present comparative case studies in relation to South Africa. The choice of the research subject is located within the key goals of PERC, namely, to develop a collaborative research-based team, establish research collaboration with academic colleagues in other African universities and generate research findings that are relevant to Africa and which reflect its situational realities.
The project is also aligned to the broader mandate of the Centre for Comparative Law in Africa in the sense that by creating a multi-jurisdictional research team, it expands the Law Faculty’s research networks. Further, it seeks to be socially responsive by addressing a subject that affects the lives and livelihoods of much of the African working population. In addition, it builds academic capacity through its involvement of academic staff and postgraduate students in the collaborating institutions, namely UCT and the universities of Botswana, Namibia and Zambia.

Outputs from this research project will include articles presenting an overview of the research findings and a book on each jurisdiction studied, which will constitute Juta’s Library of Mining Law in Africa. This project is led by Professor Hanri Mostert of the Department of Private Law with the Chair in Comparative Law in Africa providing expertise on comparative methodology. Another projected outcome is the launch of a website for the uploading of the data from the research project. It is expected that this project will be followed by studies of other African regions.

Eritrean Land Law

The aim of the Eritrean land-law project is to enrich the scarce bibliographic resources on Eritrean law with a comprehensive analysis of its legal framework on land law. Previous research done on this subject will be expanded to create a comprehensive and updated legal material which will represent the reference in a sector – that of land – which is extremely important for the Eritrean livelihood. The project aims to produce a book which will give comparative insights into land tenure in Eritrea (including customary), among other systems of land administration. The book will be published in Italian (Trieste University Press, 2013), and thereafter translated into English and published in South Africa under the “Comparative Law in Africa” book series (Juta Press).

The project is also aligned to the broader mandate of the CCLA in the sense that it is framed in the Afropolitan vision of UCT, and it will position the CCLA as a leading institution in the research on key themes of African law. Further, it seeks to be socially responsive by addressing a subject that affects the lives and livelihoods of almost all Eritrean citizens and giving them full information on the legal regime applicable to their land.

Future activities

The CCLA is in the process of peer-reviewing papers for the first edition of its journal, the Journal of Comparative Law in Africa. Furthermore, papers presented at its workshop on comparative law methodology in Africa held in October 2012 are being peer-reviewed for publication as the inaugural volume in the above-mentioned CCLA book series.

The CCLA has recently secured an endowment to support its academic visitors programme and has been nominated to host a fellow under the All Africa House fellowships from September to December 2013. The CCLA is home to the emerging African Association of Comparative Law and is connected to a number of other networks, including the African Legal Support Facility, the Organisation for the Harmonisation of Business Law in Africa, the Global Forum on Law Justice and Development, and the International Association of Legal Sciences.

In its effort to be one of the main actors of legal development in Africa and beyond, the CCLA has been already involved in some relevant activities in this respect: the Chair has been the facilitator of the last meeting held by the African Legal Support Facility (emanating from the African Development Bank) on capacity-building for lawyers in Africa. He has also been a member of the teams of experts advising the Egyptian government on the Draft Mediation Law and the Ghanaian government on the Legal Aid Bill. He is presently a member of the team of experts advising the government of Fiji on the Draft Mineral Law.

The CCLA is also currently working on the organisation of a group involving Somali scholars and jurists resident in South Africa and lawyers interested in Somali law to create a working group to advise the Somali government in the rebuilding of their legal system and to do systematic research on Somali law.
The Centre of Criminology’s research programme builds on established areas within criminology and established strengths within the Centre of Criminology, and is stretching the boundaries of criminology in ways that will enable it to recognise and respond to the changing international and local risk landscapes.

Research on policing at the Centre of Criminology is concerned both with public police and private policing developments in South Africa and in transitional contexts, particularly in Africa.

During the course of 2012, research under the direction of Professor Elrena van der Spuy explored policing in the context of peacekeeping. This entailed an exploration of the way in which the transnational space of peace missions places new demands on the national police as well as the role of policy transfer. It also involved an investigation into the politics and logistics of policing conflict through the examination of national and regional case studies. Professor van der Spuy also undertook research on the Social History of Criminal Justice Reform in South Africa post-1990, in relation to the police, the former Independent Complaints Directorate, the Judicial Inspectorate of Prisons and the National Prosecuting Authority.
The Polycentric Governance Programme, directed by Julie Berg, explored changes in the character of policing by focusing attention on the authorities who direct, and the providers who undertake, policing. Research foci within this area include:

- City Improvement Districts and their security governance
- Accountability of the private security industry
- Developing a “whole of society” approach to security governance within the Western Cape
- Developing innovative policy with The Safety Lab, a project of the Cape Town Partnership and the Provincial Government of the Western Cape and the Western Cape Department of Community Safety
- Developing a networked, international research programme on transnational private security

Initial discussions were held with the Safety and Violence Initiative at UCT about establishing a multidisciplinary programme on manifestations and dynamics of non-state violence in Africa.

In the light of the sharp deterioration of the global environment, the Centre of Criminology has introduced environmental security governance within its research ambit.

The Centre’s Penal Policy programme, led by Dr Gail Super, an NRF postdoctoral research fellow, explored the relationship between punishment and society and the role of punishment in state-making. Dr Super’s book Governing through Crime in South Africa: the Politics of Race and Class in Neoliberalizing Regimes will be published by Ashgate Publishing in 2013.

In the light of the sharp deterioration of the global environment, and the local impact this is having on ecosystems and communities across Africa, the Centre of Criminology has introduced environmental security governance within its research ambit.

This research stream, led by Professor Clifford Shearing, explored how influential “fulcrum” institutions, with the capacity to lever societal change, are responding to the risks presented by an increasingly insecure environment. Partners within this programme include the World Wide Fund for Nature (WWF), several municipalities and private sector institutions.
Inspiring the Next Generation of Scholars

Scholarship at the Centre for Law and Society is always orientated outward to what it sees as the key challenges facing South Africa today, while from within its teaching and supervision programme develops a new generation of engaged scholars and activists.

The Centre for Law and Society (CLS) has consolidated and expanded its flagship programmes – the Law, Race and Gender Research Unit (LRG), and the Rural Women’s Action Research Project (RWAR) – led by Dr Aninka Claassens, director of RWAR; and Associate Professor Dee Smythe, director of the CLS.

For two decades LRG has carried out in-depth research, and has trained and mentored more than a thousand judicial decision-makers on a range of social issues, even as it has actively sought to support the transformation of the justice system.

The CLS has been closely involved with law reform, constitutional litigation and community organising, which has led to the establishment in 2012 of the Alliance for Rural Democracy.

RWAR, too, has adopted a distinctive methodology: combining regular rural, community-based consultations with empirical research, to establish the content of living customary law which is in contradistinction to the rule-bound versions of customary law entrenched by new, conservative laws.

The work of the Centre for Law and Society has resulted in high quality research outputs such as the Acta Juridica on Marriage, Land and Custom (forthcoming, 2013), edited by Claassens and Smythe. The CLS has also been closely involved with law reform, constitutional litigation and community organising, which has led to the establishment in 2012 of the Alliance for Rural Democracy.
Acting for Rural Women

Women make up 59 percent of the poorest areas in South Africa, and while research shows significant numbers of single women have managed to acquire independent land rights since 1994, these positive developments have been put at risk by recent traditional leadership laws that bolster the power of chiefs to unilaterally define the content of custom. These new laws have also exacerbated the tendency of chiefs to enter into unilateral mining and investment deals on communal land without consulting its occupants.

The apartheid tribal boundaries effectively re-imposed by these laws serve two purposes: they lock 16 million people into ascribed tribal identities, while simultaneously locking alternative institutions out. This pre-empts rural people’s ability to organise themselves in any way other than as tribal subjects.

The Rural Women’s Action Research Project highlights the danger of reactionary versions of customary law used to bolster autocratic chiefs and shut down processes of local transformative change. At the same time, there is enormous potential in recent Constitutional Court judgments that interpret customary law as ‘living law’ that develops as society changes.

So it becomes crucial to provide evidence of current practice and underlying values in challenging the distorted version of customary law entrenched by the new laws. This is necessary for litigation purposes in striking down the new laws, and to develop feasible alternatives to government’s current approach.

RWAR’s research shows that rural people are engaged in finding positive ways to reconcile citizenship rights and indigenous precedents. Rigorous empirical research is crucial, as is the involvement of rural people in the design and development of the research, and for the articulation of policy implications.

Documenting Traditional Courts

Researchers have documented on a daily basis for nine months – under the leadership of Dr Sindiso Mnisi Weeks – the vernacular dispute management practices of six headmen in the Msinga area.

Drawing on this data, and further interviews with members of the Mchunu and Mthembu traditional councils, traditional leaders and disputants, Dr Mnisi Weeks will complete a monograph on the subject. The research provides a foundation for opposing the autocratic Traditional Courts Bill in its current form and is the basis for developing a position on the future regulation of these courts.

Pathways to Justice: Msinga and Surrounding Areas

This project, led by Associate Professor Dee Smythe with Diane Jefthas, complements research concerning Traditional Courts in the same area of Msinga.

It documents intersections between traditional justice mechanisms and the formal criminal justice system. Analysis of 1066 police dockets have begun to reveal patterns of vigilantism, compensation payments, and the relationship between police and traditional leaders. Qualitative research with traditional leaders, police, prosecutors and magistrates is under way.

Changing Marital Status and Access to Land for Rural Women

Massive processes of change are under way in rural areas in relation to single women’s access to land since 1994, according to survey data.

Using in-depth qualitative research, Dr Aninka Claassens and Nolundi Luwaya, have set out to better understand the dynamics of change processes and the factors that both support and inhibit positive change. Research findings will be used in policy briefs and articles that critique current
Professor Jaco Barnard-Naudé

Jaco Barnard-Naudé completed his law studies at the University of Pretoria and also holds a master’s degree in creative writing from UCT. He is an NRF-rated researcher, an honorary Fellow at the Birkbeck Institute of Humanities, and a recipient of the UCT Fellows’ Award, the Grotius Medal, the Santam Prize for Economics and the Gauteng Law Council Prize. He completed a doctorate in critical legal theory with specific focus on adjudication in the South African law of contract in transformation.

number of influential journal articles and book chapters on this topic in the context of both post-apartheid South Africa and foreign jurisdictions.

In 2012, his published research reflected his interest in poststructuralist influences on literature, with two articles on the relationship between philosophy and literature in the context of the Afrikaans literary tradition. He also published an article in the Stellenbosch Law Review on the relationship between law and poetry against the background of protest poetry in the Afrikaans canon. Professor Barnard-Naudé brought his interest in a post-apartheid critical jurisprudence for South Africa specifically to bear on the four chapters he contributed in 2012 to a new textbook, Introduction to law and legal skills, published by Oxford University Press Southern Africa. In these contributions he stresses the importance of understanding the inextricable relationship between law and politics in the study of the South African transition to democracy.

2012 also saw Professors Barnard-Naudé and De Vos shifting their ongoing collaboration to contemporary politics in South Africa with the publication of an article on the politics of aesthetics in the context of the Jacob Zuma Spear debacle. In this contribution they draw on insights from postcolonial and aesthetic theory to plead for a nuanced understanding of Brett Murray’s painting as a complex and problematic work, whilst at the same time arguing the importance of the constitutional right of freedom of expression for democracy. Professor Barnard-Naudé concluded his research outputs for 2012 with the publication in the South African Law Journal of a critical appreciation of Professor Jacques de Ville’s Jacques Derrida: Law as absolute hospitality (2011). In this book review, he argues that current work on poststructuralist ethics all too often loses sight of the political raison d’être of the postcolonial context, namely that it is a context that calls for the building and maintenance of an ontologically post-apartheid, radically horizontal, public sphere, in which the (constitutional) ideal of equality plays a fundamental role.
Professor Hugh Corder

Hugh Corder, a graduate of the universities of Cape Town, Cambridge and Oxford, has been Professor of Public Law at UCT since 1987. His main teaching and research interests fall within the field of Constitutional and Administrative Law, particularly judicial appointment and accountability, and mechanisms to further administrative accountability. Professor Corder has been widely involved in community work since his student days, concentrating on popular legal education, race relations, human rights and the abolition of the death penalty. He served as a technical adviser in the drafting of the transitional Bill of Rights for South Africa. He has written three books, edited a further seven, and contributed many articles and chapters in books.

Professor Corder had a busy and productive 2012, of which two research projects representing different aspects of his areas of interest are highlighted here. For him, research in law tends to be a solitary activity. Although he has occasionally written with others, and although he has also been part of a research team, usually for short periods of intense activity (such as drafting a bill for Parliament), his preferred position is to read, reflect and write on his own. The works highlighted below represent the outcome of both sorts of research.

His work in the area of constitutional law, and his particular focus for the past 35 years, has been the judicial branch of government, as well as a specialised area of constitutional law called administrative law, which is any legal system’s response to the rapid growth and intrusiveness of executive authority over the last century. It typically centres on the courts’ attempts to regulate the exercise of that power to ensure a measure of procedural fairness.

The first piece is a substantial chapter for a book on the judiciary in South Africa. The editors asked Professor Corder to write on judicial accountability, a particularly vexed topic, for the following reasons. Judicial impartiality and independence are critical to any constitutional democracy, but judges exercise authority on behalf of the state in interpreting and enforcing laws, so there must be methods to ensure their accountability to the electorate. One of the ways in which this occurs is through the doctrine of the “separation of powers” in government, and through the role of the executive and Parliament in appointing judges. This chapter focuses on accountability mechanisms for serving judges, such as that they sit in open court, that their judgments are criticised by other lawyers, academics and in the media, that judgments may be appealed to higher courts, and that judges who are guilty of gross misconduct may be impeached. Most of the chapter examines the structures and procedures introduced recently into our law by Parliament, such as a binding Code of Conduct as well as tribunals established under the auspices of the Judicial Service Commission. One such notorious incident involves a judge who was found guilty of drunken driving, and whose case will soon be heard by a tribunal.

The second piece is a chapter in a book (edited by leading constitutional scholars from Australia, Switzerland and the USA) which seeks at an international level to explore themes common to constitutional law in a comparative manner. Professor Corder was twinned with a Swedish academic, and they were asked to write about access to information, a vital part of administrative justice in any modern system of constitutional governance. Sweden was the pioneer in this area, South Africa very much a latecomer, and the authors approach the issue from very different legal and cultural vantage points, so there was much of interest in the writing process. It is hoped that the outcome will be equally stimulating!
Professor Hanri Mostert

Professor Hanri Mostert’s undergraduate studies in Humanities and Law at Stellenbosch University piqued her interest in the resource potential of land. Throughout her doctoral studies she pursued the question of how land as a scarce resource of great public importance could be appropriately regulated, whilst simultaneously private claims to it could be acknowledged. Having honed her research skills at the Max Planck Institute for Public and International Law in Germany, she completed her doctorate in 2000.

Since then, through her appointments at Stellenbosch University (2001 and 2008), and the University of Cape Town (since 2008), she has endeavoured to share her insights with new generations of property-law students. Her work has had impact both locally and internationally, through her appointment as a visiting Professor at the Rijksuniversiteit Groningen in the Netherlands, her involvement in the International Alliance for Land Tenure and Administration, and her work supporting the South African Law Commission, World Bank and international and national litigation.

Professor Mostert’s original interests in property law have matured into specialisations in land law and mineral law. In these fields, she has contributed to the most authoritative sources on South African law, addressing issues of constitutional property protection, landlessness, tenure security, restitution, nationalisation, land governance and mineral-resource regulation. Her latest monograph, Mineral Law – Principles and Policies in Perspective (Juta, 2012), has already assisted the courts’ understanding of mineral law.

Her work emphasises the state’s duties to achieve better living standards and ensure responsible individual autonomy. She defends the notion of engaged citizenship in the enhancement of freedom and quality of life for individuals and the community and comments on the role of the judiciary in building a society subscribing to principles of accountability and trust in property law.

Professor Mostert has now embarked on a project to create a book series dealing with the mineral laws of Africa, and building a network of African mineral law specialists. With Juta Law Publishers she is also working on a series of opinion pieces on law, the first of its kind in South African legal publishing.

Professor Mostert holds a B rating from the National Research Foundation. She also held fellowships of the Commonwealth Programme, the Max Planck Foundation, the German Academic Exchange Service and the Alexander Von Humboldt Foundation.
Professor Chuma Himonga

Professor Chuma Himonga completed an LLB at the University of Zambia, an LLM at King’s College London, and a PhD at the London School of Economics and Political Science. She is Professor of Law at the University of Cape Town and an NRF-rated researcher. She has served as a former deputy dean of undergraduate and postgraduate studies at UCT, an Akademische Rätin auf Zeit at the University of Bayreuth, Germany (1988–1994), and as a lecturer at the University of Zambia (1978–1988). She has collaborated in three major international and regional academic research projects in Europe and Africa, and is a former member of the South African Law Reform Commission Project Committee on Customary Law.

Professor Himonga convenes public and postgraduate seminars in All Africa House (where she serves as the warden), and manages a fellowship programme for academics from other African universities, funded by UCT. She has served on a number of boards of trustees, including the International Association of Law Schools Board from 2005 to 2010.

Professor Himonga’s current preoccupation as holder of the South African Research Chair in Customary Law is refocusing research in customary law from theoretical studies to “grounded” empirically based investigations of the actual workings of customary law. This approach reflects the changed conceptualisation of customary law as living customary law in legal theoretical discourses. It is furthermore consistent with the normative frame of living customary law confirmed as the legitimate sources of law by the South African Constitution and Constitutional Court, and increasingly by other African legal systems.

A true and more realistic determination of the relationship between customary law and other components of Africa’s legal pluralistic landscape depends on how well the former is researched and understood as a system of living law.

The ground-breaking nature of the direction of the South African Research Chair in Customary Law’s research is to be viewed against the dearth of research on the African continent that takes the empirical investigation of customary law as a normative system seriously. While volumes of important literature have been published on customary law, little is based on the actual practices of the people who are subject to customary law, and therefore of little relevance to the lives of this legal system’s adherents and its implementation by the state. A true and more realistic determination of the relationship between customary law and other components of Africa’s legal pluralistic landscape, including human rights and democratic governance, also depends on how well the former is researched and understood as a system of living law. These underscore the significance of Professor Himonga’s scholarly undertakings and the direction of the research at her Chair.
Reinventing Labour Law

The employment relationship has throughout the centuries been one of the most regulated of contracts. This regulation has extended to basic conditions, health and safety, unemployment insurance, dismissals, strike law, and much more. Most regulation reflects the priorities and policies of the government of the day. The Labour Relations Act 66 of 1995 (1995 LRA) was historically a fresh start in a democratic South Africa, an act harnessed to the Bill of Rights which, for the first time, guaranteed a range of labour-related rights.

This volume of Acta Juridica is partly devoted to a critical review of the first 15 years of the 1995 LRA. However, the intention was that the contributing authors should focus on more than the successes and failures of the act and that at least some of the contributions should have a strong prospective emphasis, exploring the possible future challenges to and solutions for regulating the labour market post-2011. In other words, the editors intended this volume to assist in tracking the future of labour-market regulation in South Africa.

Fisheries and Sustainability. A Legal Analysis of EU and West African Agreements

Marine-living resources are currently under severe threat from unsustainable use. International law urges a precautionary approach in the use of remaining fish stocks, necessitating rational domestic management of coastal fisheries and requiring foreign nations accessing these stocks to co-operate to this end. The manner in which bilateral fishing relations between the EU and various West African states have historically played out, however, has not followed this route. This book is a legal study of these relations from an inter-disciplinary and contextual perspective with particular reference to sustainability questions, using three broad conceptual lenses – common resource management, integration towards sustainable development, and the colonial legacy – to interrogate the extent to which these interactions operated as legal instruments of sustainability.

Human Dignity: Lodestar for Equality in South Africa

Human Dignity: Lodestar for Equality in South Africa provides an in-depth analysis of human dignity and its relationship to equality in South African law. The author argues that human dignity is the attributive key that unlocks the constitutional meaning of equality and unfair discrimination. Equality cannot be usefully debated without first asking the vital question “Equality of what?” The answer, it is contended, must be “human dignity”. The philosophical and Abrahamic religious roots of these constitutional concepts of dignity and equality are investigated, then further explored and illustrated in the comparative context of South African, German and Canadian constitutional jurisprudence.

Clashes and tensions between rights inevitably occur when the equality and non-discrimination rights of a Bill of Rights are applied horizontally, that is between subjects of the state themselves. The human dignity
of the contestants plays a vital role in resolving such tensions and conflicts. Human dignity moreover has a determining function when applying constitutionally mandated restitutionary (compensatory) equality and when determining what the legitimate extent and duration of such restitution is. These issues are also considered in a comparative constitutional context.

### Mineral Law: Principles and Policies in Perspective

**Mineral Law: Principles and Policies in Perspective**

Mineral Law: Principles and Policies in Perspective provides a unique look at the context of current mineral law. It examines the system introduced by the Mineral and Petroleum Resources Act 28 of 2002 by juxtaposing it with preceding generations of mineral law. It deals with the regulatory and proprietary aspects of mineral law, the constitutionality of the transitional provisions introducing the new mineral law order, and its continuity with former generations of mineral law.

### The New Environmental Governance

The New Environmental Governance (NEG) explores a bold and profoundly new way of governing global environmental problems. It seeks to help overcome the limitations associated with relying on an interventionist state, and its market-based approach to governance, and to offer more effective and legitimate solutions to today’s most pressing environmental problems. As such, NEG emphasises a host of alternative characteristics of governance that integrate participation, collaboration, deliberation, learning and adaptation, and “new” forms of accountability.

Yet, while these unique features have generated significant praise from legal and governance scholars, there have been few systematic evaluations of NEG in practice. Indeed it is still unclear whether NEG will in fact “work” and, if so, when and how. This book offers one of the most rigorous research investigations into cutting-edge trends in environmental governance to date. Focusing its inquiry on some of the most central, controversial and/or under-researched characteristics of NEG, the book offers fresh insights into the conditions under which we can best achieve successful NEG.

The book synthesises its findings to identify seven key pillars of “good” NEG, central to its success, that will provide useful guidance for policymakers and scholars seeking to apply new governance to a wide range of environmental and non-environmental policy contexts. The book also advances our understanding of state governance and is a valuable reference for scholars, researchers and students working in law and regulation studies, especially those in the field of environmental law.
Accountable Government in Africa: Perspectives from Public Law and Political Studies

The book brings together a number of leading experts in the fields of public law, political science and democratisation studies to discuss problems of accountability, identify ways of making African governments accountable and describe the extent to which these mechanisms work in practice. Thus it presents new knowledge about legal and political developments in a number of African countries that is relevant to the policy goal of developing and deepening democratic governance and accountable government on the continent. Accountable Government in Africa will be of interest to academics, students and practitioners in the fields of public law, public administration, political studies and African studies, as well as anyone who has an interest in developing and deepening democratic governance and accountable government on the African continent.

African Perspectives on Tradition and Justice

This volume aims to produce a better understanding of the relationship between tradition and justice in Africa. It presents six contributions of African scholars related to current international discourses on access to justice and human rights and on the localisation of transitional justice.

The contributions suggest that access to justice and appropriate, context-specific transitional justice strategies need to consider diversity and legal pluralism. In this sense, they all stress that dialogical approaches are the way forward. Whether it is in the context of legal reforms, transitional processes in post-war societies or the promotion of human rights in general, all contributors accentuate that it is by means of co-operation, conversation and cross-fertilisation between different legal realities that positive achievements can be realised.

The contributions in this book illustrate the perspectives on this dialectical process from those operating on the ground, and more specifically from Sierra Leone, Mozambique, Malawi, South Africa, Uganda and Rwanda. Obviously, the contributions in this volume do not provide the final outcome of the debate. Rather, they are part of it.
Centre of Criminology

The Centre of Criminology (previously the Institute of Criminology), founded in 1977, aims to initiate, co-ordinate and develop research in the broad field of criminology, and to promote public interest in all aspects of criminology. The centre’s research programme focuses primarily on state policing, plural policing, crime prevention, and environmental security. Teaching support to the criminology focus falls within the Department of Public Law and research support is provided by the centre’s Multi-Media Electronic Resource Library.

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Intellectual Property and Policy Research Unit

The Intellectual Property (IP) and Policy Research Unit assists in developing IP law and policy in Southern Africa and aims to contribute to the manner in which this topic is treated in the emerging and developing countries throughout the world. The unit is in a position to become an influential leader within Southern Africa for research and scholarship in intellectual property law and policy. It seeks to explore many issues facing the changing world of IP and relate these to the needs of society, IP holders and consumers. The unit is leading research projects in areas such as IP rights and innovation, development, copyright and creative commons, nanotechnology and new technologies.

Director: Professor J Kinderlerer
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Institute of Development and Labour Law

The Institute of Development and Labour Law was established in 1996 through the merger of the Labour Law Unit and the Institute of Development Law. The institute plays a leading role in development and labour law teaching and research. It is involved with training courses in South Africa and other countries in Southern Africa. It also regularly contributes to the training programmes of other organisations, and collaborates closely with other leading university centres and NGOs.

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Security and Justice

Professor Clifford Shearing holds the South African Research Chair in Security and Justice at UCT and is also Chair of Criminology and director of the Centre of Criminology. Previously he held positions at the Australian National University (2001–2006) and the University of Toronto (1975–2001).

He obtained a PhD in sociology at the University of Toronto in 1977. He is an A1-rated NRF scholar. Professor Shearing’s research and writing has focused on the governance of security and he has sought, through his policy work and practical engagements, to enhance the quality of security and justice. A particular focus of his work has been contributing to the development of institutions and processes that enhance the ability of poor communities to both direct and contribute to their safety. His current research focuses on developments in international private security and the emerging issue of environmental security.

Customary Law

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Professor Clifford Shearing

UCT’s Dr Waheeda Amien (left), Professor Nazeem Goolam (Rhodes University) and Professor Chuma Himonga (UCT), pictured at the CCLA Methodology Workshop held in 2012.
The present state of world economies tells us that commerce can no longer drift within a business-as-usual pattern of thinking. Those who work and study in the field must ask the difficult questions most likely to bring about structural change. UCT researchers are stepping outside traditional boundaries to grapple with poverty and unemployment, inequality, HIV/AIDS and the other critical issues facing South African society today.
The two greatest influences on the way UCT’s Commerce Faculty has gone about its work in the past year are a quest for relevance, at both policy and grassroots level, and an increasing spirit of collaboration within the sciences. In addition, the faculty has continued to place emphasis on social innovation and entrepreneurship, along with leadership and a values-driven ethic that has seen it grow in both excellence and relevance, increase its research outputs, and seize the unique opportunities of the day.

The Commerce Faculty has enjoyed the highest rate of improvement in annual peer-reviewed, accredited journal outputs at UCT over the past three years.

During a period of significant budgetary pressure that forced steady increases in the faculty’s ratio of undergraduate students to staff, and postgraduate students in need of supervision, two professors received the first A ratings ever awarded by the National Research Foundation to researchers in any commerce faculty in South Africa. The number of staff with an NRF B rating, which indicates considerable international recognition, doubled. These are objective signals of improvement not easily achieved.

The basic essential condition for this success under pressure is straightforward: the faculty’s academic corps has an unusually low median age, so a high number of the staff are still growing in their research capacities, confidence and efficiency. Crucially, when confronted with shrinking resources, especially in that most precious asset, time, most staff have responded by working even harder and longer than they had already been. The faculty has supported and leveraged this superior collective work ethic through organisational change.

Across the sciences, research has for many decades become increasingly collaborative; this is due mainly to greater specialisation which requires projects to involve multiple authors. A second driver is the global tendency to extend larger grants to fewer but more ambitious projects, rather than making small grants to individuals. This is leading international research universities to organise around strong thematic research units guided by the best principles of entrepreneurship and enterprise management.

Organisation into research units is particularly important to the Commerce Faculty for an idiosyncratic set of reasons. As noted above, the faculty is comparatively young, and young researchers thrive best given close mentorship and leadership by established scholars who are better positioned to attract funding. Relatedly, a key to improving postgraduate recruitment and completion rates is providing incoming doctoral and research master’s students with strong support structures. Research students who work not merely with a single supervisor, but as members of a collaborative group engaged in multiple related projects at any given time, are much more likely to graduate more quickly, experience less stress and risk of alienation during their thesis work, be exposed to a wider view of research in their discipline, and be richly networked when they seek employment after completing their studies.

The Commerce Faculty has long contained within itself a model for this kind of organisation. Historically, the strongest part of the faculty concerned with research is the School of Economics (SoE) which has, for almost a decade, been structured around four research units: the AIDS and Society Research Unit (ASRU), DataFirst, the Development Policy Research Unit (DPRU), and the Southern Africa Labour and Development Research Unit (SALDRU).

SALDRU – the longest established and mightiest of the units – has for 30 years highlighted poverty and inequality as its focal issues and produced a substantial body of groundbreaking work that has helped policymakers to systematically address poverty alleviation in South Africa.

The unit is entrusted with the design and administration of the National Income and Development Survey, funded by the Office of the President. Since 2010, it has housed the
Abdul Latif Jameel Poverty Action Lab for Africa (J-PAL Africa), with its Head Laboratory at MIT, and it works with African governments, NGOs and businesses to generate evidence needed for effective policies that improve the lives of poor people. SALDRU has provided the recruitment and project context for multiple doctoral and research master’s students.

Outside the SoE, four Commerce research units already existed before 2010: the Centre for Actuarial Research (CARe), which focuses on technical demography and on modelling the demographic and epidemiological dynamics of HIV/AIDS; the Centre for Information Technology and National Development in Africa (CITANDA), which studies the management, development, use and impact of information and communication technology in areas related to business, economic and social development in Africa, with a special focus on new mobile communication technologies and applications customised to the needs of African enterprise; the Institute for Monitoring and Evaluation (IME), which promotes capacity-building in programme evaluation in Africa; and the University of Cape Town Unilever Institute of Strategic Marketing (UISM), which has built a national reputation as South Africa’s foremost source of intelligence on South African consumer behaviour.

Since 2010, a strategic plan to extend existing research platforms into “wall-to-wall” research units across the faculty has been adopted. No academic is required to join a unit but, if coverage of units is sufficiently deep, all academics can find a natural home in at least one.

The first two new units to be accredited by the University Research Committee (URC) were the Research Unit in Behavioural Economics and Neuroeconomics (RUBEN), which uses experiments to study ways in which people and households in developing and least-developed economies assess risk and make decisions, and the unit for Policy Research in International Services and Manufacturing (PRISM), which seeks to improve South Africa’s competitiveness through undertaking evidence-based research on firm and sector-level competitiveness, as well as contributing to policy frameworks that impact on African industrialisation paths. Both RUBEN and PRISM have collaboration agreements with strong international partner institutions, which the faculty views as a preferred feature of all research units. RUBEN is currently in negotiation with the Risk Management Institute at Georgia State University to design a joint doctoral programme.

This was followed by the African Collaboration for Quantitative Finance and Risk Research (ACQuFRR), which will be part of a larger, forthcoming structure – the research wing of the planned African Institute for Financial Markets and Risk Management (AIFMRM), funded by a coalition of banks and insurance firms.

The UCT Tourism Research Unit (TRU) studies South Africa’s tourism industry with the aim of identifying unrealised opportunities and formulating innovative and sustainable methods of filling these gaps.

Two units operating within the faculty, not yet URC-accredited, are the Development Unit for New Enterprise (DUNE), which focuses on building entrepreneurial capability in South Africa by researching the dynamics of leadership and innovation in the fields of general entrepreneurship, technopreneurship and social entrepreneurship; and the unit for Practice and Research on Occupational Health Psychology in Africa (PROHPA), which is dedicated to applied research on issues relating to the well-being, safety and health of people at work, through focus on the work environment, the individual, and the work–family interface.

Most of these new units are in their founding stage of development and considerable growth is expected in their range and quantity of output in the years ahead. Crucially, all are tasked with diversifying their sources of research funding to enable more growth and scope in the faculty as a whole.

The optimistic expectation is that the recent acceleration of research in the faculty will continue through coming decades with dynamic outcomes, not only for the academic community, but for South Africa at large.
The business of **GLOBAL CHANGE**

UCT’s Graduate School of Business (GSB) is different from others; it stands out from the crowd and speaks to a relevance badly needed in the world today. As a business school it is prepared to ask the uncomfortable questions and make the difficult choices to stand things on their heads, if necessary, to bring about practical change, from the shaping of national policy to innovation in local business models for improved service delivery.

The GSB sees one of its key roles as enabling new ways of thinking, behaving and striving to be proactive in response to Africa’s challenges. In the wake of the financial crisis, and with social and environmental challenges multiplying across the planet, innovation from business schools is a necessity, not a luxury. And at the heart of all GSB initiatives is a commitment to research.

The GSB has identified five systemic research themes around which mainstream research is clustered: values-based leadership, social innovation and entrepreneurship, governance and sustainability, development finance, and infrastructure, reform and regulation.

But the organising principle of all research at the school is understanding emerging markets. Given that the school is situated, geographically, in a society and economy which is undergoing a rapid socio-political and economic transition from agrarian and feudal lifestyles to modern consumer lifestyles and careers, it is ideally situated to study such contexts. It provides researchers with a special opportunity to conduct emerging market research that is of interest to the leading international scholarly journals in all management disciplines, and contributes to the well-being of diverse stakeholders.

Research excellence is encouraged and incentivised at the school and 20% of GSB staff now have National Research Foundation ratings. Emphasis is on supporting and incentivising an increase in the quality, quantity and relevance of research that is transforming...
and transformative, selectively comprehensive, locally responsive and engaged, and globally competitive.

In a boost to research at the school, the first Old Mutual Research Fellows in Emerging Economies were recruited during 2012 with funding from Old Mutual. The research fellowship is aimed at understanding the complexity and uncertainty inherent in emerging markets, while simultaneously developing young, previously disadvantaged academics.

The establishment of two new research centres is also furthering research output: the Bertha Centre for Social Innovation and Entrepreneurship and the Allan Gray Centre for Values-Based Leadership.

Partly as a result of these activities, the GSB remains one of the most recognised and celebrated business schools in Africa. In 2012 it was endorsed by the international community, receiving accreditation from both the Association of MBAs and the European Foundation for Management Development. The school’s full-time MBA programme is also the only one in Africa to be ranked in the Financial Times Top 100 MBAs ranking and its Executive Education programmes were rated one of the best in Africa.

Such recognition helps to ensure that the school is putting UCT on the world map when it comes to business – specifically to changing the way business is thought about and practised in emerging markets.

As a business school it is prepared to ask the uncomfortable questions and make the difficult choices to stand things on their heads.

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Social Science Chair in Economic Growth, Poverty and Inequality
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Poverty and Inequality Research
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Research Groupings associated with this theme

Advancement of Business Competitiveness Unit
The Advancement of Business Competitiveness Unit aims to be the primary source of knowledge and support for the advancement of competitiveness of organisations in South Africa and the rest of Africa in both the private and public sectors. Research focuses on undertaking surveys to map current business practices in the various sectors of the South African economy with the aim of benchmarking them against best practices. Using case studies, the unit also undertakes in-depth investigations of the business practices peculiar to the value chains of the various sectors. Both the surveys and the case studies will generate insights into the potential weaknesses of the value chains which hinder competitiveness in both the private and public sectors.

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Centre for Actuarial Research
The Centre for Actuarial Research is the only unit of its kind at an African university. It brings together multidisciplinary teams to build capacity, improve techniques and produce independent research in demography, healthcare financing, social security and HIV/AIDS modelling. The main focus of the centre is on training and research in demography and modelling the demographic impact of HIV/AIDS in Southern Africa.

Director: Associate Professor T Moultrie
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Research Unit in Behavioural And Neuroeconomics (RUBEN)
RUBEN is an inter-disciplinary group of researchers who use economic experiments, often together with functional Magnetic Resonance Imaging techniques, to examine the role that social, cognitive and emotional factors play in economic decision-making. In particular, the methodological approach in which the members of the team are experts allows the estimation of risk...
attitudes and time preferences of individuals, households, and communities in the field. RUBEN is currently the only centre for experimental research in economics on the African continent, providing training, research leadership and technical resources for the benefit of researchers across the continent. A key aspect of RUBEN activity is training. RUBEN hosts annual training workshops for scholars from the rest of the continent, and raises funds to cover all workshop costs for these participants. In addition, the unit aims to provide scholarships for four to six postgraduate students annually.

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Policy Research in International Services and Manufacturing

Policy Research in International Services and Manufacturing (PRISM) is a research and policy unit within UCT’s School of Economics. PRISM provides a lens to focus research and policy work broadly on issues of globalisation, trade and industrialisation. It is home to a number of related research activities, projects and programmes concerned with issues of globalisation, global value chains, industrialisation paths, foreign direct investment and multinational corporations, international trade, foreign investment, the defence industry, policy governance, infrastructure development, and international competitiveness. PRISM has an applied focus, responding to economic policy questions issues in South Africa, the rest of Africa and beyond.

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UCT Tourism and Events Research Unit (UCT-TRU)

The UCT Tourism and Events Research Unit is an interdisciplinary specialist research and teaching unit within the School of Management Studies. The mission of the unit is to undertake high quality research and engage in research-led teaching in order to contribute to policy formation by business, governments and international organisations. Current research interests include the analysis and measurement of tourism’s economic impact, consumer behaviour and the demand for tourism and travel, and the impact of social media on tourist decision-making.

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The African Collaboration for Quantitative Finance and Risk Research (ACQuFRR)

ACQuFRR is a research unit that spans the activities of the quantitative finance group in Actuarial Science and researchers in the Department of Finance and Tax who share an interest in risk research. It provides structure and support for the pursuit of quantitative financial (risk) research that is distinctive to Africa and emerging market economies. Many of its teams are multidisciplinary, in keeping with its mandate, and may include market practitioners. ACQuFRR’s focus is on postgraduate training, research and professional workshops.

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Environmental-Economics Policy Research Unit

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Southern Africa Labour and Development Research Unit

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Centre for Information Technology and National Development in Africa

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Development Policy Research Unit

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Global Partnerships, Local ICT Solutions

Over the last decade, UCT’s researchers have contributed to the rapid evolution of processors, high performance computing and information systems, which is pushing the boundaries of research paradigms.
High Performance Computing at UCT

From supercomputers to mobile technology, the field of High Performance Computing has opened up a host of new possibilities for researchers, with some having played a key role in the development of industry-standard computing languages and software, and others contributing to emerging technologies in taking healthcare to the next level.

High Performance Computing (HPC) is an enabling technology that seeks to improve the performance of computing applications. The interdisciplinary nature of HPC research impacts on a wide range of applications; for example, a carbohydrate simulation might be reduced from years to months, or digital 3D content produced in real time rather than requiring minutes to generate. At UCT there are number of researchers working on HPC, and a major theme of their research is improving the speed of discipline-specific computational solutions.

The Centre for Research in Computational and Applied Mechanics (CERECAM) has been in existence in various forms since 1981. During this period, it has grown into a flagship research centre comprising 13 full-time academic staff members from six departments spanning three faculties, and with networks across the world. Consequently, inter-disciplinary thinking and activity have become firmly embedded in the objectives of the centre.

The principal objective of CERECAM is to provide a coherent focus and point of interaction at UCT for research and applications in the general area of non-linear mechanics by promoting and supporting fundamental research, applied research, and industrial interaction in the mechanics of structures, solids, and fluids. The application of research that is facilitated through CERECAM is both broad and varied: this ranges from the development and utilisation of HPC tools to study the biomechanics of myocardial infarction (heart attacks) and the production of biodegradable stents, to the computational aspects of flotation, leaching, precipitation and crystallisation, which are important to the chemical process industry, the mining industry and the environmental field.

Research areas of interest thus span a wide range that includes theoretical, computational and experimental investigations in solid and fluid mechanics, with corresponding research activities organised into a number of research programmes which range from those of a fundamental nature to projects having a direct link to industry and other applications. Areas of activity in solid mechanics include plasticity, structural mechanics and fracture mechanics. In the domain of fluid mechanics, much activity is motivated by problems in aerodynamics and in the mining industries. Beyond these traditional areas of interest, biomechanics is a major area of activity, and particulate flow characterisation has become established as a major focus in its own right.

During 2012, twelve postgraduate CERECAM students graduated, two of whom were registered at the doctoral level. Thirty-three students continue their studies through the centre, approximately two-thirds of whom are PhD candidates.
Biomechanics of the Upper Airway

Sleep apnoea is a type of sleeping disorder characterised by pauses in breathing or instances of shallow or infrequent breathing during sleep. Each pause in breathing is called an apnoea, and can vary in duration from at least ten seconds to minutes. There are three types of sleep apnoea and, according to the World Health Organisation, more than 120 million people worldwide suffer from this chronic respiratory disease.

In another CERECAM project, Professor Daya Reddy and PhD student Jean-Paul Pelteret are concerned with the use of modelling and computational techniques to develop a better understanding of the mechanisms of obstructive sleep apnoea. The initial phase of this work involved the development of a model for the non-linear anisotropic behaviour of the tongue, which comprises a number of muscle groups, as well as of other relevant soft tissues. Further work has entailed the simulation of fluid-structure interaction involving the tongue and soft palate, and upper airway flow.

Myocardial Infarction and Heart Failure

Cardiovascular diseases (CVD) will become the leading cause of death by 2020, superseding infectious diseases such as HIV, TB, and malaria. The risk of CVD has been reported to increase with the improvement of economic wealth and social environment, in particular in Africa.

A higher risk for acute myocardial infarction, the leading causes of congestive heart failure, has been reported in the black African group in sub-Saharan Africa due to an increased level of hypertension. Similarly, the American Heart Association expects in the near future a dramatic increase in CVD incidences in Africa, in particular in the younger population, in conjunction with the emergence of a new epidemic of obesity, diabetes and uncontrolled hypertension. Up to one-third of infarct patients develop heart failure, making myocardial infarction the most common cause of heart failure. The fact that 30 to 40% of patients die from heart failure within the first year after diagnosis, even with optimal modern treatment, indicates the urgent need for alternative therapies.

The aim of this collaborative research project, which is sponsored by the national Centre for High Performance Computing, is the development and utilisation of HPC tools to study the biomechanics of myocardial infarction (MI) and emerging MI therapies based on biomaterial injection into the infarct. The presented problem is highly complex, including the representation of the architecture of cardiac soft tissue with dispersed biomaterial at micro- if not nano-scale, the highly non-linear elastic myocardial mechanics, and the electro-sensitivity of the myocardial muscle. Comprehensive treatment exceeds conventional computing resources in terms of problem size and complexity of the developed codes to capture the physical phenomena with sufficient accuracy. HPC will form an imperative platform for this research towards the advancement of MI therapies and prevention of heart failure.

The project is led by Associate Professor Thomas Franz and Professor Daya Reddy, in close collaboration with UCT’s Dr Sebastian Skatulla, Dr Dieter Legner, Associate Professor Neil Davies, Dr Jeroen Kortsmit and Laura Dubuis, and Dr Carlo Sansour of the University of Nottingham, and provides an excellent framework within which seven postgraduate students are being trained and mentored.
Designing Biodegradable Stents

In modern society, advances in biotechnology have made it possible for the quality and length of human life to be vastly improved. One such advancement has been the development of the stent, a tiny mesh ‘tube’ which, when inserted into a natural passage in the body, serves to prevent or counteract a disease-induced constriction in the flow of blood or other bodily fluids.

Permanent metal drug-eluting stents, i.e. stents which slowly release a drug, are the best-performing stents in clinical use today. There are, however, drawbacks to using permanent stents: they induce a chronic foreign-body stimulus in the host artery, obstruct future cardiac interventions and also prevent normal artery mechanical behaviour, to name but a few. If the stent can maintain its strength long enough to assist in the healing of the artery, and gradually transfer load onto the native vessel as it degrades, a fully healed artery may be restored. Thus there is much interest in the design of biodegradable stents.

Current research is concerned with a preliminary investigation into the properties of materials suitable for use in stent manufacture, the design of associated stent geometries, and computational simulations. This project is supported by Disa Vascular, and led by Professor Daya Reddy, with one master’s student Richard Pauck.
Computational Electromagnetics: Electro-Mechanical Coupling of Electro-active Polymers

Functional or active materials are those materials whose physical and chemical properties are sensitive to change in the environment, such as temperature, pressure, or the presence of an electric field. These materials are used to develop smart structures which are capable of sensing and adapting to changes in their environment, and smart systems, which comprise smart material, a smart structure, and intelligent processing. As such, they have a broad range of applicability and play an essential and important role in everyday life.

In recent years, functional or active materials have played an increasingly important role in the design of advanced and smart structures as well as intelligent and micro-electromechanical systems. Amongst these kinds of smart materials are the smart hydrogels used in the development of therapeutic devices and drug delivery, piezoelectric polymers which produce an electric current upon being subjected to mechanical strain (and have industry and manufacturing as their largest application market, followed by the automotive industry), and conducting polymers which are collectively known as electroactive polymers (EAP). EAP have a wide range of applications, with one of the most common being in the development of artificial muscles.

These materials are used to develop smart structures which are capable of sensing and adapting to changes in their environment.

A research project being led by Dr Sebastian Skatulla of the Department of Civil Engineering intensively studies the properties of EAP in experiments, and has developed a number of mathematical models. In contrast to existing theories, Dr Skatulla’s work seeks to address nonlinear electro-mechanical coupling in a very fundamental manner, that is, to formulate a continuum mechanical approach which directly links electric stimulus and resulting deformation of the polymer material. As the theory is kept very general, it is applicable to a high diversity of electro-mechanical coupling problems.

Dr Skatulla’s collaborators include Dr Carlo Sansour (University of Nottingham) and Associate Professor Arunachalakasi Arockiarajan (Indian Institute of Technology Madras).
Strain Gradient Plasticity

In physics and materials science, plasticity describes the change in the shape or size of a material undergoing non-reversible changes in response to an applied force or change in temperature. Perfect plasticity is a property of materials to undergo irreversible deformation without any increase in stresses or loads. Plastic materials with hardening require increasingly higher stresses in order for further plastic deformation to occur. Generally plastic deformation is also dependent on the speed of the deformation; such materials are said to deform visco-plastically.

Because the constitutive relations of classical plasticity do not possess a natural length scale, they are therefore unable to account for size effects. Gradient theories represent a popular and well-established extension which allows for physically relevant length scales to be introduced.

Current research in this area is devoted to problems of single- and polycrystal plasticity. A crystal has atoms in a near-perfect arrangement where a ‘pattern’ is repeated in regular intervals, whereas a polycrystal is composed of many microscopic crystals. However, the arrangement of atoms or molecules in most crystalline materials is not perfect. The regular patterns are interrupted by crystallographic defects. One focus has been on the development of variational formulations, where the role of particular choices of defect energy and of dissipation functions has been investigated. Also of interest are new hardening relations.

Another area of research is on modelling the influence of the grain boundary on the overall response of the continuum. A grain boundary is the interface between two crystallites in a polycrystalline material. Grain boundaries are defects in the crystal structure, and tend to decrease the electrical and thermal conductivity of the material.

Computational work has been concerned with the development and implementation of finite element approximations for visco-plastic crystal problems involving large deformations, and in which both energetic and dissipative microstresses are present. Both single crystals and ensembles of crystal grains are considered.

This large, multi-institution project, led by Professor Daya Reddy, spans a network of five institutions across the globe, and has already produced one master’s student. Two doctoral students and a second master’s student are currently engaged in research in this area, while Professor Reddy’s collaborators include Dr Francois Ebobisse and Dr Andrew McBride from UCT, Professor Swantje Bargmann (Technische Universität Hamburg-Harburg), Emeritus Professor Morton Gurtin (Carnegie-Mellon University), Dr Britta Hirschberger (Leibniz Universität Hannover), Professor Paul Steinmann (Friedrich-Alexander-Universität Erlangen-Nürnberg) and Professor Ali Javili (Friedrich-Alexander-Universität Erlangen-Nürnberg).
Information technology solutions for

The Developing World

ICT4D is a multidisciplinary field which investigates the design and creation of computer systems for the developing world. These systems could cover any sub-discipline in ICT, for example, virtual environments, computer security, interaction design, artificial intelligence, and information retrieval. However, such systems need to be designed and configured according to the needs of the developing world within which power is limited, networks are scarce, and users can be illiterate. ICT4D thus focuses on the creation of ICT solutions that address defined developmental and social challenges such as education, medical care, identity and human dignity.

The work of the UCT Centre in ICT for Development (ICT4D) is about bringing digital technology to bear on the challenges facing society. The centre creates new forms of technology to directly address the developmental problems within society, problems that do not exist in developed economies where most of the world's technology is created.

In order to ensure the efficacy, relevance and sustainability of the centre's work, it has partnered with a variety of departments throughout the university – the spectrum ranges from recent projects with the Department of Civil Engineering to others with the Centre for Film and Media Studies in the Faculty of Humanities. The centre also engages with NGOs and civil society through developing digital technology to enhance and improve the work that they are doing.

As educators and researchers, staff affiliated with the centre also take a long-term approach to the problem of creating technology relevant to Africa. The best and most sustainable way to reach that goal is to impart those skills to students and educators throughout Africa. To this end, the Hasso Plattner Institute in Germany sponsors nine PhD bursaries in the centre, specifically for African postgraduate students to visit UCT and conduct research in ICT4D.

The centre is also helping define this field of research internationally by co-hosting the ICTD conference in 2013. This is the first time it will be held in Africa, and it is expected to attract some 500 delegates from across the world, drawn from commercial organisations, government, NGOs and a wide variety of academic disciplines. The work of the centre is further supported by technology companies, the most recent of which is Nokia, which will open a research lab within the centre in 2013.
When trainees leave, however, they often battle to find jobs. One of ICT4D's HPI bursary students, Shikoh Gitau, spent several months visiting the Learn to Earn site, observing and interacting with the trainees to see if she could discover how better to find them jobs. Over time, she realised that employers were posting jobs on websites; however, the trainees did not look at these websites – their Internet access was mediated through basic-feature mobile phones. In instances where they did find a relevant job advert, they did not have access to computing facilities to create a CV, and were therefore unable to e-mail these to potential employers.

Thus, obtaining design input from the Learn to Earn community, Gitau set about building a mobile service for mobile handsets which took job advertisements from popular websites and modified them so that they could be accessed on smart phones. Furthermore, the system would ask users a series of questions, the answers to which it used to generate a CV from a template, which could be sent to potential employers.

Ummeli

Ummeli is a system aimed at finding jobs and training opportunities for the unemployed. The idea for this project came from an NGO based in Khayelitsha called Learn to Earn, which trains people in a variety of skills.

The Transformation of Information Systems at UCT

A decade ago, the information-systems research agenda at UCT seemed clear: statistically driven empirical research in how information systems functioned (or, sometimes, not) inside corporate organisations. Since then, three key trends have emerged in the way in which research is conducted and students are trained.

Firstly, the democratisation of Information and Communication Technologies (ICTs) has ensured that computerised information systems are no longer the domain of large corporates, but rather extending to small and medium-sized organisations. Even more dramatically, information systems are changing the way governments work and many students now investigate e-government systems. These environments have proved to be different from those of a large corporate, with much of the current information-systems research being undertaken in these settings.

Secondly, Web 2.0 tools such as wikis, blogging and social networking have wrested the control of Internet content generation from big business and yielded it much more democratically to ordinary individuals. At UCT, researchers were thrust into the social sciences by having to investigate how individuals and communities were reacting to information technologies. With this came a change in mindset about the nature of data to collect, the underlying paradigms, and the theories to use to frame an analysis.

Finally, mobile phones hold the promise to give every African his or her own computing device, and with it, access to previously unimaginable amounts of information and computer power.

The transformation of the discipline does not stop there. New information technologies such as cloud computing, 3-D printing and biometrics, virtualisation, augmented reality, and big data emerge at an ever-faster rate, forcing us to relook the way we work and train students. Applying a transdisciplinary approach puts researchers in the prime position to explore topics such as technology innovation and entrepreneurship, security, and governance approaches.
Scientific Computing

Professor Kevin J. Naidoo has held the Scientific Computing SARChI Chair since 2007 and is director of the Scientific Computing Research Unit at UCT. His research has two interlinked objectives. Firstly, he develops state-of-the-art high performance computing software to provide a modelling and informatics platform creating a life-science virtual laboratory. This includes the development of accelerated software for high-speed chemical and chemical biology computations. A second research objective is to use the life-science virtual laboratory to identify enzyme targets and investigate their detailed molecular action. Professor Naidoo’s current focus is the implementation of his gene-to-molecule rational approach to answering key questions that will lead to solutions in microbial and neoplastic (cancer) diseases.

Computational Mechanics

Professor Daya Reddy, who holds the SARChI Chair in Computational Mechanics, is a member of the Department of Mathematics and Applied Mathematics, and Director of the Centre for Research in Computational and Applied Mechanics (CERECAM). He is a graduate of UCT and Cambridge University, and served as dean of the Science Faculty between 1999 and 2005. There are three major, inter-related foci of the research chair: the mathematical modelling of complex material behaviour; analysis of the resulting models to determine their well-posedness; and the development and implementation of algorithms for computational solution. Examples of recent and current work include the behaviour of metals at the micro structural level, non-Newtonian fluids such as polymers, and a variety of applications in cardiovascular biomechanics. The research is highly multidisciplinary and includes collaborators in the mathematical sciences, biomedical sciences, and various branches of engineering.

A major project has been concerned with the development of models and associated simulations for the behaviour of single crystals, in the micron range. There is substantial practical interest in such problems, given their relevance to the manufacture of MEMS (micro-electromechanical systems). The mathematical models are considerably more complex at such scales as they need to take account of size-dependent behaviour. Work during 2012 built on the results of a research programme that has been in progress for the last seven years, with collaborators based in the USA and Germany. A further achievement during 2012 has been the completion and publication of work on modelling of the upper airway. The anatomically accurate mathematical model takes account of neural stimuli to muscles in the tongue and adjacent tissues, and the resulting simulations have allowed for new insights into the mechanisms that induce sleep apnea.
Research Groupings associated with this theme

Scientific Computing Research Unit

The Scientific Computing Research Unit (SCRU) was established in 2009 and has as its core mission the development and application of computer code for scientific problems, specifically in chemistry, biophysics, physics, and engineering.

The unit has made major technical advances in biophysical computational modelling, with the development of a generalised free energy code called FEARCF. In 2009, the unit was awarded a long-term development grant from the Nvidia Corporation to advance the SCRU program to port quantum code to graphical processing unit-based computer clusters. The research group has strong links with international groups, particularly via its Scientific Computing International Lecture Series programme.

Director: Professor KJ Naidoo
E-mail: kevin.naidoo@uct.ac.za
Web: http://scru.uct.ac.za/

Center for Information Technology and National Development in Africa (CITANDA)

CITANDA is located within the Department of Information Systems. It brings together researchers, projects, funders, and programmes focused on the use of information and communication technology (ICT) in the service of national development. CITANDA researchers study, using a diversity of research approaches, the management, development, adoption, and impact of ICT in areas related to business, economic, and social development in Africa.

The centre specifically explores and investigates information systems (IS) phenomena that arise at the nexus of interaction between information technology and Africa’s business, cultural, social, and economic context, in order to advance knowledge concerning IS in organisations and society in Africa. Through CITANDA, the Department of Information Systems attracts a large cohort of PhD and master’s degree students from across Africa and beyond.

Director: Professor J-P van Belle
E-mail: jean-paul.vanbelle@uct.ac.za
Web: http://www.commerce.uct.ac.za/citanda

Information and Communications Technology Centre for Development

The Information and Communications Technology Centre for Development (ICT4D) was established in 2008 to capitalise on UCT’s unique position in the ICT domain, namely, producing world-class ICT research, but being based in a developing economy. Incorporating researchers from across the university, the centre looks to create ICT solutions that can be applied in a developing-world context.

ICT4D was established to capitalise on UCT’s unique position in the ICT domain.

Being the only such centre in a developing country, we have been able to attract researchers and students from across the globe. The Hasso Plattner Institute Research School in ICT4D, which provides bursaries for African students working in this field, was launched in 2009 and will be based within the wider structure of the centre.

Director: Professor G Marsden
E-mail: gary.marsden@uct.ac.za
Web: http://www.ict4d.cs.uct.ac.za/
FACULTY REPORTS

Faculty of Humanities
Faculty of Health Sciences
Faculty of Science
Faculty of Commerce
Faculty of Law
Faculty of Engineering & the Built Environment
Centre for Higher Education Development
Faculty of Humanities

Members of the faculty continue to contribute to outstanding scholarship in the arts, social sciences, and creative and performing arts, and this research report provides rich evidence of the wide spectrum of research and creative activity produced in the faculty, in the form of journal articles, books and book chapters, conference papers, compositions, exhibitions, and performances.


Solo exhibitions by colleagues in the Michaelis School of Fine Art and the Centre for Film and Media Studies include Surveys (From the Cape of Good Hope) by Jane Alexander, R-A-T: an associative ordering by Fritha Langerman, Division of the World by Pippa Skotnes, This is a True Story by Penny Siopis, Community Punching Bags by Johann van der Schijff, Remnants & Ancestors: Anarchies of Krotoa and Anne Barnard by Carine Zaayman, and The Kings Map: Francois Le Vaillant in Southern Africa 1781–1784 by Ian Glenn.

The department in the faculty that produced the greatest number of peer-reviewed, accredited journal articles in 2012 is the newly formed School of African and Gender Studies, Anthropology, and Linguistics (AXL) within which are located two of the faculty’s four DST/NRF SARChI Chairs, and, more recently, two Mellon research chairs. Last year was the first in the existence of AXL and the very high level of publication and postgraduate supervision, as well as the concentration of research chairs in this new school, is evidence of a high-quality critical mass of very productive scholars. AXL is followed by the School of Languages and Literatures, Sociology, Psychology, Education, and the Department of English Language and Literature. The faculty now has 69 NRF-rated researchers (up by 10 since 2011), of whom 25 are B-rated and five are A-rated: professors David Chidester (Religious Studies), Rajend Mesthrie (Linguistics), and Mark Solms (Psychology), Distinguished Professor Philippe-Joseph Salazar (Rhetoric Studies) and Emeritus Professor John de Gruchy (Religious Studies).

PROFESSOR PAULA ENSOR
Dean of Humanities

Dean’s Report
The development of new postgraduate programmes is nourished by research activity, which simultaneously contributes substantially towards the augmentation and support of research. A substantial grant from the AW Mellon Foundation has enabled the faculty to mount a new honours programme in Curatorship, driven by the Centre for Curating the Archive and the Michaelis School of Fine Art. The Department of Political Studies is contributing to UCT’s new Graduate School for Development Policy and Practice (both the MPhil and the Executive course programmes) and other new postgraduate programmes on offer include master’s degrees in Documentary Arts, in African Cinema, and in Screenwriting, and a new Honours programme in Romance Languages and Literature. The faculty committed substantial resources during 2012 to renovating space for postgraduate students, in order to promote a vibrant postgraduate research culture on campus.

During 2012, we confirmed the appointment of Professor Lungisile Ntsebeza as the AC Jordan Chair in African Studies. The faculty also raised a substantial grant from the AW Mellon Foundation to appoint two research chairs in the Humanities, which will be filled in early 2013.

We are proud of colleagues and students who won prizes in 2012. Professor Kelwyn Sole won the 2012 Thomas Pringle Award for Poetry, awarded by the English Academy of Southern Africa for the best poem, Cape Town (TM), published in a South African journal in the last three years. Professor Sole also launched a new 76-page book of poetry, Absent Tongues. The 2012 UCT Creative Works Award was won jointly by professor Gavin Younge and professor Michael Godby.

A new research centre was launched at the end of 2012, the Centre for African Language Diversity (linked to the African Language Archive), under the leadership of Dr Matthias Brenzinger. The centre has been set up to document endangered languages, especially in Southern Africa, and to become a node for scholarship and research in African languages.

The large research clusters or ‘hubs’ in the faculty – the Centre for Social Science Research (with its constituent units, the Democracy in Africa Unit, the AIDS and Society Research Unit, and the Sustainable Societies Research Unit), the Institute for Humanities in Africa, and the Gordon Institute for Performing and Creative Arts – as well as the four DST/NRF SARChI Chairs, continue, in their different ways, to promote scholarship through publications, performances and exhibitions, postgraduate supervision, and the organising of seminars and colloquia.

Departments and units within the faculty have been greatly enriched by the contributions of a large number of international visitors during 2012. These visitors contribute to seminars and colloquia, participate in research collaborations, and form networks with colleagues working in the global north and south.

The faculty continues to benefit handsomely from the Emerging Researcher Programme, the Vice-Chancellor’s Strategic Fund, and the University Research Committee block grant and travel funding and we are grateful for the ongoing support from UCT’s Office of Research and Innovation.
DOCTORAL GRADUATIONS

S. ALKEMA (MUSIC)
Conductors of the Cape Town Municipal Orchestra, 1914–1965: a historical perspective
Supervised by Professor J. May

A.M. BANGENI (EDUCATION)
Negotiating writing: a case study of the transition of English second-language Social Science graduates to postgraduate professional disciplines
Supervised by Associate Professor R. Kapp

K. BARKER (FILM AND MEDIA STUDIES)
Sex, soap and social change: an examination of the elements underlying the successful application of entertainment-education
Supervised by Dr T. Bosch

A.-J. BETHKE (MUSIC)
Contemporary musical expression in Anglican churches of the Diocese of Cape Town: Developments since the liturgical, theological and social revolutions of the twentieth century
Supervised by Dr M. Bezuidenhout

J.M. BOREL-SALADIN (SOCILOGY)
Testing the social polarization hypothesis in Johannesburg, South Africa
Supervised by Professor O. Crankshaw

E.K. BOTHA (EDUCATION)
Discourses of language acquisition and identity in the life histories of four white South African men fluent in IsiXhosa
Supervised by Dr C. McKinney

A.A. CROWE (EDUCATION)
Supervised by Associate Professor R. Laugksch and Professor T. Dunne

J.F. DE SOUSA JUNIOR (SOCILOGY)
Networks, [mis]trust, and Pentecostal conversion: Narratives of divergent pathways among small black entrepreneurs in Tshwane
Supervised by Professor J.G.B. Maree

S.F. DEWING (PSYCHOLOGY)
Evaluating the implementation of options for health in the Western Cape: an intervention aimed at increasing ARV adherence and reducing sexual risk among people on ARVs in Cape Town, South Africa
Supervised by Professor J. Louw and Dr C. Mathews (Public Health and Family: Medical Research Council)

M.J. EVANS (FILM AND MEDIA)
Transmitting the transition: media events and post-apartheid South African national identity
Supervised by Associate Professor I.E. Glenn

M.J. FLEISHMAN (DRAMA)
Remembering in the Postcolony: refiguring the past with theatre
Supervised by Professor N. Worden
T.-L. GRANT (EDUCATION)
Scenario pedagogy: a negotiated, multimodal approach to developing professional communication practices in Higher Education
Supervised by Dr A. Archer

P. GRASSOW (RELIGIOUS STUDIES)
“Settlers, Missionaries and Converts”: a theological case study of the missionary activity of William Shaw in the Eastern Cape
Supervised by Emeritus Professor J. Cochrane

E.T. GXUBANE (SOCIAL DEVELOPMENT)
Exploration of residential diversion within a restorative justice framework in the management of young sex offenders in South Africa
Supervised by Associate Professor D. Cooper and Dr R. Graser (retired)

A. HUNMA (EDUCATION)
The exploration of a performative space to nurture EAL international students’ writer identities at a South African university
Supervised by Dr L. Thesen

M.V. MACABELA (LANGUAGES AND LITERATURES)
Country and city: a study of autobiographical tropes in Ncumisa Vapi’s novel Litshona Liphume
Supervised by Adjunct Professor T. Dowling

R. MACDONALD (ENGLISH LANGUAGE AND LITERATURE)
Reading restitution in District Six: law, discourse and ‘governmentality’
Supervised by Professor J. Higgins

L.M.D. MAGALHÃES (MUSIC)
An annotated catalogue of works for piano duet: a supplement to Cameron McGraw’s Piano Duet Repertoire
Supervised by Professor H. Hofmeyr

A. MARNEWECK (DRAMA)
Plot 99: towards a feminine semiotic: spiritual and sexual emergence(y) in women’s puppetry and visual performance
Supervised by Associate Professor J. Pather and Associate Professor J. Bennett

W.F.T. MINNAAR (LANGUAGES AND LITERATURES)
’n Herwaardering van Olga Kirsch se oeuvre: identiteit, moederskap en ballingskap aan die hand van die psigooanlitiese teorieë van onder andere Sigmund Freud, Jacques Lacan en Julia Kristeva
Supervised by Professor J. Hambidge

N.N. MKHIZE (SOCIOLOGY)
Private game farms and the tenure security of farm workers and dwellers in Cradock – implications for tenure reform in South Africa
Supervised by Professor L. Ntsebeza

M.L. MOLEFE (EDUCATION)
A study of life sciences projects in science talent quest competitions in the Western Cape, South Africa, with special reference to scientific skills and knowledge
Supervised by Associate Professor R. Laugksch

K.L. MORREIRA (ENGLISH LANGUAGE AND LITERATURE)
Social change, class formation and English: a study of young black South Africans with “Model C” school backgrounds
Supervised by Professor R. Mesthrie
G. Ncube (Historical Studies)
The making of rural health care in colonial Zimbabwe: a history of the Ndanga Medical Unit, Fort Victoria, 1930–1960s
Supervised by Professor H. Phillips

S. Ngale (Religious Studies)
From Tsonga to Moçambicanidade: civil religious dynamics in Mozambican nationalism
Supervised by Professor D. Chidester

A.M. Nkwake (Social Development)
An examination of childcare practices and perceptions amongst employed Ugandan males and their working spouses in the Kampala and Mpiji districts
Supervised by Dr C. O’Brien and Mrs S. Sturgeon

D.T. Nogueira-Godsey (Religious Studies)
Spirit and economy: Pentecostalism and the Afterlives of Max Weber
Supervised by Professor D. Chidester

S. O’Connell (African Studies)
Tonal landscapes: re-membering the interiority of lives of apartheid through the family album of the oppressed
Supervised by Associate Professor N. Shepherd and Professor A. Bogues (African Studies, Brown University)

A.E. Okech (African Gender Institute)
Building nations: discourses on widow inheritance amongst the Luo in Kenya
Supervised by Associate Professor J. Bennett

A.A. Platts (Religious Studies)
Jacques Demida, the Sacred Other and Seventh-day Adventism: stumbling on the creative play of différance in Genesis
Supervised by Emeritus Professor J. Cochrane

S. Ravengai (Drama)
Subalternity and the negotiation of a theatre identity: performing the Postcolony in alternative Zimbabwean theatre
Supervised by Associate Professor G. Morris

P. Silbert (Education)
The imagined learner in neoliberal times: constructions of the South African learning subject in education policy discourse and school practice
Supervised by Dr H. Jacklin

N. Xulu (Sociology)
Supervised by Professor A. Sitas
School of African and Gender Studies, Anthropology & Linguistics

Research Report 2012
DIRECTOR: PROFESSOR JANE BENNETT

African Studies Section
(Including the Centre for African Studies)

DIRECTOR OF CENTRE: PROFESSOR LUNGISILE NTSEBEZA, AC JORDAN CHAIR IN AFRICAN STUDIES
HEAD OF SECTION: ASSOCIATE PROFESSOR NICK SHEPHERD

Profile
The goals of the African Studies Unit and the Centre for African Studies are to encourage and co-ordinate teaching and research in the various fields concerned with people in Africa, as well as developing African Studies graduate courses and programmes. We also provide service courses for non-Humanities students, such as Engineers and Architects, at both undergraduate and postgraduate levels. At the core of our teaching and research is our intellectual project of examining the ways in which knowledge of Africa has been constructed in a range of discourses that cut across a number of disciplines. Within this forum, our courses cover themes such as the representation of Africa across a number of media in both popular culture and in academic disciplines. In this regard, we provide a critical understanding of how knowledge in and about Africa has been filtered through the colonial library. In addition, the Centre’s activities include producing our journal, Social Dynamics, holding regular seminars, workshops and forums for debate and providing a venue for performances, art exhibitions and film.

Statistics
Permanent and long-term contract staff

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Students

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Research Fields and Staff

PERMANENT AND LONG-TERM CONTRACT STAFF
Associate Professor Harry Garuba
Associate Professor Nick Shepherd
Professor Lungisile Ntsebeza
Professor Crain Soudien
Dr Horman Chitonge
Mr Nkululeko Mabandla

EMERITUS PROFESSORS
Professor Brenda Cooper (MA Birmingham) (PhD Sussex)

HONORARY PROFESSOR
Professor Anthony Bogues (Brown University, USA)

HONORARY RESEARCH ASSOCIATES
Louise Green (University of Stellenbosch)
Kylie Thomas (Rhodes University)

VISITING RESEARCH ASSOCIATES
Cheryl-Ann Michael (University of Western Cape)
Steven Robins (University of Stellenbosch)
Fiona Ngarachu (University of Southampton, UK)
Ghirma Negash (Ohio University, USA)
Isaac Ndlovu (University of Venda)

POSTDOCTORAL FELLOWS
Jeremiah Arowosegbe

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Web: http://www.africanstudies.uct.ac.za
Anthropology Section

HEAD OF SECTION: PROFESSOR FRANCIS NYAMNJOH

Section Profile

The Department’s research has a wide theoretical range with a particular, but not exclusive, focus on southern Africa. Study areas include child labour, citizenship, domestic dynamics, ethnicity, gender and sexuality, marginality, memory, migration, narrative, urban processes, violence, Truth and Reconciliation. Other topics include comparative pedagogies, identity construction, medical anthropology, anthropology of knowledge, anthropology of the environment.

Departmental Statistics

Permanent and long-term contract staff

| Professors | 2 |
| Associate Professors | 2 |
| Senior Lecturers | 2 |
| Lecturers | 2 |
| Technical and Clerical Staff | 1 |
| **Total** | **9** |

Honorary staff

| Honorary Professors | 4 |
| Honorary Research Associates | 20 |
| **Total** | **24** |

Students

| Post-Doctoral | 1 |
| Doctoral | 24 |
| Master’s | 27 |
| Honours | 15 |
| Undergraduate | 843 |
| **Total** | **910** |

Research Fields and Staff

DR DIVINE FUH

Joined the University of Cape Town in March 2012 from the University of Basel in Switzerland where he was senior researcher at the Chair for Research and Methodology in the Institute for Sociology. His research mainly focused on questions relating to youth, agency and transitions in West and Southern African cities with particular thematic focus on consumption, popular culture, sports, masculinities, elites, space and transnational citizenship. He is currently researching on how young people contribute towards transforming urban communities in Johannesburg and Cape Town, and how they make youth an end rather than stagnated transitional stage?

DR LESLEY GREEN

Anthropology of knowledge; anthropology of the environment; lowland South America; cultural astronomy; public archaeology; ethnographic research methodologies.

PROFESSOR CAROLYN HAMILTON

Carolyn Hamilton is the National Research Foundation (NRF) Professor in Archive and Public Culture at the University of Cape Town and a member of the Public Life of Ideas Research Network. Formerly director of the Constitution of Public Intellectual Life Research Project and the Graduate School for the Humanities at the University of the Witwatersrand, she has published widely on history and theory of archive; ethnography of memory work; the production of history; the history of pre-industrial southern Africa; the public life of ideas; public culture.

DR SUSAN LEVINE

Child labour; children’s health; visual anthropology; political economy; medical anthropology; gender and sexuality; HIV/AIDS; community development.

DR HELEN MACDONALD

Violence, narrative, scepticism and the everyday, pluralistic health, and magico-religious knowledge, witchcraft in India, transformation in Higher Education.

PROFESSOR FRANCIS NYAMNJOH

Joined the University of Cape Town in August 2009 from the Council for the Development of Social Science Research in Africa (CODESRIA), where he served as Head of Publications from July 2003 to July 2009. Dr Nyamnjoh is a 2010 B2 NRF rated researcher, and a fellow of the Cameroon Academy of Science since August 2011. He is currently researching “ICTs, Mobility and Marginality”, and has published widely on globalisation, citizenship, media and the politics of identity in Africa. He has also published ethnographic novels.

ASSOCIATE PROFESSOR FIONA ROSS

Ethnographies of/and the Marginal. Domestic worlds; violence, loss and the recuperation of social worlds; gender, testimony and voice; truth and reconciliation.

ASSOCIATE PROFESSOR ANDREW SPIEGEL

Housing and migration patterns and family relationships; urban water and sanitation management - South Africa; comparative pedagogies; racism; history of South African anthropology.
Contact Details
Postal address: School of African & Gender Studies, Anthropology & Linguistics. Anthropology Section, University of Cape Town, Private Bag X3, Rondebosch, 7701
Telephone: +27 21 650 3678
Fax: +27 21 650 2307
E-mail: san-socanth@uct.ac.za
Web: http://www.socanth.uct.ac.za/

Gender Studies Section
(Including the African Gender Institute)

DIRECTOR OF INSTITUTE: ASSOCIATE PROFESSOR JANE BENNETT
HEAD OF SECTION: DR HELEN SCANLON

Profile
Gender Studies offers an undergraduate major in Gender Studies, a postgraduate Honours programme in Gender and Transformation, and Master’s and PhD level programmes in Gender Studies. Faculty research interests cover questions of African feminist theory, militarism and transitional justice law and policy, women’s peace-building activism, the psychology of violence, sexual and reproductive rights, histories of movement building, and queer politics.

The Gender Studies undergraduate programme offers a broad-based introduction to fundamental theoretical research in the field, with a special interest in African contexts. The Honours programme is geared towards providing participants with excellent grounding in the kinds of research training needed to work in fields which draw heavily on gender analysis and theory (such as development, conflict studies, sociology and social anthropology).

The section regularly hosts academics and visitors; last year, Gender Studies hosted (with the AGI) visits from Professor Sylvia Tamale, from Makerere University, and Yaba Badoe, an international film-maker.

The AGI’s mission is to contribute to the attainment of gender justice in Africa by participating, through research, networking, and capacity-building in the transformation of inequitable institutions and social practices. The AGI’s work is directed through four themes: sexual and reproductive health and rights; feminist processes in e-technologies; transitional justice, peace activism and gender; and gender, entrepreneurship and livelihoods. Each theme’s work is driven by four interlocking principles: the importance of driving strong research, the integration of capacity-building work in all our projects, the value of working in partnerships within and beyond the university, and the need to support robust public intellectual debate. The AGI also published Feminist Africa, a DHET-accredited academic journal.

Departmental Statistics

Permanent and long-term contract staff

<table>
<thead>
<tr>
<th>Position</th>
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</thead>
<tbody>
<tr>
<td>Head of Section</td>
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<td>Lecturers</td>
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<td>Honorary Research Associates</td>
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<td>Programme Officers</td>
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Students

<table>
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<th>Programme</th>
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</table>

Research Fields and Staff

DR HELEN SCANLON
Head of Section: Gender and history, transitional justice and peace building, women’s human rights

ASSOCIATE PROFESSOR JANE BENNETT
Gender-based violence and conflict; African feminist theory; representation; sexuality and queer studies

MS YALIWE CLARKE
Gender conflict and peace-building; gender analysis and development; African feminisms.

DR ADELENE AFRICA
Women perpetrators of violence, gendered representations of violence, feminist methodologies.

MS MARION STEVENS
Honorary Research Associate, women’s health, sexual and reproductive health and rights, most at risk and marginalized populations and health systems.

DR TIM MURITHI
Honorary Research Associate, Gender, peace and security in Africa; African Union Solemn Declaration on Gender Equality; Gender-based violence, transitional justice and the International Criminal Court; Feminist critical theory.
Contact Details
Postal address: Gender Studies Section, School of African/Gender Studies, Anthropology and Linguistics, University of Cape Town, Private Bag X3, Rondebosch, 7701
Tel: +27 21 650 2970
Fax: +27 21 650 4840
E-mail: genderstudies@uct.ac.za
Web: http://web.uct.ac.za/org/agi/
http://www.feminstafrica.org
http://www.gwsafrica.org
UCT General enquiries: +27 21 650 9111
UCT web: http://www.uct.ac.za

Research Fields and Staff
Contact Details
Postal address: Linguistics section, University of Cape Town, Private Bag X3, Rondebosch, 7701, South Africa
Tel: +27 21 650 2847
Fax: +27 21 650 3150
Web: www.linguistics.uct.ac.za
UCT General enquiries: +27 21 650 9111
UCT web: http://www.uct.ac.za

Research output
Authored books


Edited books


Chapters in books


Articles in Peer-reviewed Journals


Peer-reviewed published conference proceedings


Doctoral dissertations


Master’s degrees (by research)

Thipe, T. 2012. “We are all products of history, but each of us can choose whether or not to become its victims” an exploration of the discourses employed in the formation of the Women’s National Coalition. MSOCSc in Gender Studies. 200pp. Supervised by Professor J. Bennett.


Department of Drama

Research Report 2012

(Including the Little Theatre)

HEAD OF DEPARTMENT: PROFESSOR MARK FLEISHMAN

Departmental Profile

Research in the Drama Department is conducted through the creation of new theatre works, directing, performance practice, and applied theatre. Research enquiries develop out of and feed into the teaching and directing processes for Acting for the Camera, Television drama, Theatre Making, Community Theatre, Acting, Dance Theatre, Applied theatre, Site Specific performance and the development of mixed media theatre and performance works. Research projects are sometimes created in conjunction with other arts practitioners, e.g. visual artists and/or musicians. Many projects are located in the profession through staff links with contemporary South African theatre, performance and dance companies. Partnerships or links with theatre, drama
and dance projects in local communities have further enriched the research possibilities within the department. Globally, the research work of the department has been performed across all five continents.

Postgraduate enrolments continue to increase, offering increased research opportunities, and the department seeks to strengthen both the studio work and documentation of research through seminar papers, debate, submissions for publication and the development of new theatre works and practices at postgraduate level. The Department, with the support of the NRF, is actively exploring ways of presenting and assessing practice as research in conjunction with departments in other South African universities, and in conversation with international universities.

Departmental Statistics

 Permanent and long-term contract staff

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<th>Position</th>
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<td>Undergraduates</td>
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Research Fields and Staff

Permanent staff

PROFESSOR MARK FLEISHMAN
Head of Department; interactive dramaturgy; Staging History/Performing the Archive; migration

ASSOCIATE PROFESSOR GEOFFREY HYLAND
New processes for acting; directing (theatre, dance, opera)

MS MWENYA KABWE
Theatrical exploration of Afropolitan subject positions; site specific, devising

ASSOCIATE PROFESSOR GAY MORRIS
Township theatre and Applied Theatre for education, community and social Development

ASSOCIATE PROFESSOR JAY PATHER
Choreography: mixed and new media / site-specific / urban landscape and architecture; African, indigenous and intercultural knowledges

MR SABATA SESIU
Black/African theatre; Theatre for community Development; Theatre/Drama in education; Creative writing; Theatre making

MS JACQUI SINGER
Emerging female playwrights; image-based theatre

ASSOCIATE PROFESSOR CHRISTOPHER WEARE
Director of the Little Theatre; interrogating systems of dependence versus creative freedom

MS SARA MATCHETT
Psychophysical approaches to theatre making and performance

MS SANDRA TEMMINGH
Contemporary Afrikaans theatre

MS LIZ VAN BREDA
Educational Drama and Theatre

Distinguished visitors

PROFESSOR HAZEL BARNES, MELLON VISITING SCHOLAR

DR RUSTOM BHARUCHA,
MS KIRTI JAIN, NATIONAL SCHOOL OF DRAMA, INDIA
DR ANURADHA KAPUR, NATIONAL SCHOOL OF DRAMA, INDIA

Contact Details

Postal Address: Department of Drama, University of Cape Town, Rosedale Building, Hiddingh Campus, Orange Street, Cape Town, 8001
Telephone: +27 21 480 7121
Fax: +27 21 480 7106
E-mail: drama@uct.ac.za
Web: http://www.drama.uct.ac.za/
The Little Theatre

Research report 2012

DIRECTOR: ASSOCIATE PROFESSOR CHRISTOPHER WEARE
PRODUCTION MANAGER: MR LUKE ELLENBOGEN
ADMINISTRATIVE ASSISTANT: NABEEAH KHAN
HEAD OF WARDROBE: MS LEIGH BISHOP

Unit Profile

The Little Theatre is an interfaculty unit run in association with the Drama Department. It provides theatre spaces and facilities for theatre research for departments within the University as well as opportunities for production for theatre, film, television companies and community groups. It has at its disposal the 250 seat proscenium arch Little Theatre, the flexible staging 70 seat Arena Theatre, the 60 seat Intimate Theatre, the Hiddingh Hall (flexible space), the 40 seat Playroom which is an experimental space and numerous outside spaces on the Hiddingh Campus as well as a scenery workshop, costume wardrobe, furniture and properties store. In addition to staging productions, the Little Theatre serves as an informal resource for past students and members of the public needing theatre information. Assistance is provided whenever possible.

Contact Details

Postal Address: Little Theatre, University of Cape Town, Little Theatre Workshop Building, Hiddingh Campus, Orange Street, Cape Town, 8001
Telephone: +27 21 480 7129
Fax: +27 21 480 7106
E-mail: littletheatre@uct.ac.za

Research Output

Articles in Peer-reviewed Journals


Creative works

Productions

Weare, C. 2012, “An Absolute Turkey”, Directing, Theatre, Student Actors, Little Theatre, (07/03/2012 - 17/03/2012).


Hyland, G. 2012, “Between” by Oskar Brown, Direction, Set and Costume Design, Theatre, Professional Actors, International Dublin Gay Theatre Festival, Ireland and English Theatre, Berlin, Germany (01/05/2012 - 31/05/2012)


Tshazibane, M 2012 “uNonyada noMademfu”, Directing, Theatre, Student Actors, Arena Theatre, Cape Town, (10/03/2012 – 17/03/2012).

Temmingh, S, 2012 “Leonce en Lena” Directing, Theatre, Student Actors, Little Theatre, Cape Town, (27/03/2012 – 31/03/2012).


Sesiu, S, 2012 “Friday Blues”, Written and Directing, Theatre, Student Actors, Arena Theatre, Cape Town, (23/05/2012 – 26/05/2012).


School of Education

Research Report 2012

(Including the Schools Development Unit (SDU) and the Centre for Applied Language and Literacy Studies and Services in Africa)

HEAD OF SCHOOL: ASSOCIATE PROFESSOR RÜDIGER LAUGKSCH

School Profile

The School of Education is a largely post-graduate interdisciplinary department with research activity across a number of important fields. These include studies in knowledge development and transfer (curriculum development, learning and acquisition, scientific literacy, mathematics, science and technology education, primary education, history education), policy and evaluation (research into school reform evaluation studies), student learning in higher education, and studies in race, culture, identity and language. A number of members of staff lead and participate in large collaborative research projects. Significant numbers of staff act as consultants to local and national government, to national commissions as well as to important education NGOs. A number of staff members are involved in materials development for a range of school learning areas.

School Statistics

Permanent and long-term Contract Staff

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<td>Professors</td>
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Honorary Research Associates: 2

Students

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</table>

Research Fields and Staff

Permanent Staff

MR NIGEL BAKKER
Senior lecturer; English education; teaching; creativity; curriculum studies; humanities in the curriculum

PROFESSOR PAM CHRISTIE
Sociology of education; education policy; school organisation and change; ethics and social justice in education.

DR ZAIN DAVIS
Senior lecturer; language and mathematics; textual analysis; the functioning of pleasure in the structuring of pedagogic discourse; continuing professional development of mathematics teachers

PROFESSOR PAULA ENSOR
Mathematics education; sociology of education, especially with respect to curriculum and pedagogy; teacher education; higher education studies; qualitative research methodology
MR DAVID GILMOUR
Senior lecturer; economics of education; education and the labour market; educational planning; educational evaluation; social theory and education

DR JOANNE HARDMAN
Senior lecturer; learning; cognition; computer mediated learning; neuroscience

ASSOCIATE PROFESSOR ANNEMARIE HATTINGH
Physical science teacher education, with a special focus on curriculum design for authentic learning in problem-based learning environments; teacher effectiveness in constraining contexts; doctoral learning communities of practice

DR URSULA HOADLEY
Senior lecturer; curriculum, teachers work and the sociological study of pedagogy

DR HEATHER JACKLIN
Senior lecturer; sociology of education; education policy; education and space/locality; education and gender; learner progress and achievement

MS SHAHEEDA JAFFER
Lecturer; mathematics education, sociology of curriculum and pedagogy, teacher education

ASSOCIATE PROFESSOR RÜDIGER LAUGKSCHE
Scientific literacy or public understanding of science; professional development of science teachers; policy issues related to the provision of teaching and learning in the natural sciences; teaching and learning in biology

DR CAROLYN MCKINNEY
Senior lecturer; language and literacy in education, multilingualism in education, Identity/subj ectivity and learning

PROFESSOR JOHAN MULLER
Curriculum studies; epistemology; sociology of knowledge; school reform; higher education policy

ASSOCIATE PROFESSOR KARIN MURRIS
Programme Leader PGCE Foundation Phase. Philosophy of Education, Philosophy with Children, Child and Childhood Studies, Children’s Literature, School Ethics, Ethical Decision-making, Censorship, Corporal Punishment, Early literacy.

DR AZWI HANGWISI MUTHIVHI
Senior lecturer; developmental psychology; cognitive development; primary schooling, culture and classroom teaching and learning

ASSOCIATE PROFESSOR MASTIN PRINSLOO
Socio-cultural studies in literacy and language, including early childhood, schooling, adult education and electronic media

ASSOCIATE PROFESSOR ROB SIEBÖRGER
History education; curriculum studies; assessment; materials development; teacher education

PROFESSOR CRAIN SODIEN
Sociology of education; race, class and gender; policy shifts in education

DR CLARE VERBEEK
Senior lecturer; Literacy; teaching reading and writing in the early years; family literacy, foundation phase teaching; adult and community education; models for teacher development.

Research Associates

DR MIGNONNE BREIER
Higher education; academic work; professions and professional education; recognition of prior learning; research capacity development; missionary education

DR JEANNE GAMBLE
Vocational education, sociology of work

EMERITUS PROFESSOR PETER KALAWAY
Education and development, education policy, history of education

DR ROBERT MORRELL
Masculinities, gender and education, fatherhood and parenting, violence

Distinguished Visitors

PAUL DOWLING
Institute of Education, London

LORRAINE LING
La Trobe University, Australia

ANNA STETSENKO
City University of New York, USA

MARK WICKENS
Brock University, Niagara, Ontario, Canada

MICHAEL YOUNG
Institute of Education, London
Contact Details
Postal Address: School of Education, University of Cape
Town, Private Bag, Rondebosch, 7701
Telephone: SA (21) 650 2769
Fax: SA (21) 650 3489
E-mail: rudiger.laugksch@uct.ac.za

Research output

Authored books

Edited books


Chapters in books


Soudien, C.A. 2012. The challenge of thinking: the unarticulated transformational imperative? In R. Venter and F. Tolmie (eds), Transforming Theological


Articles in Peer-reviewed Journals


Peer-reviewed published conference proceedings


Department of English Language and Literature
Research report 2012
(Including the Centre for Creative Writing)

HEAD OF DEPARTMENT: ASSOCIATE PROFESSOR CARROL CLARKSON

Departmental Profile
Members of the department are engaged in research over a wide area, ranging from the literature of the European Renaissance to that of contemporary South Africa. Genres covered include drama, poetry and prose, travel writing, and autobiography. Some of the finest writers in the country teach creative writing at undergraduate and graduate level.

Departmental Statistics

Permanent and long-term contract staff

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<tr>
<th>Professors Emeriti</th>
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Students

| Doctoral    | 17 |
| Master's    | 15 |
| Honours     | 101|
| Undergraduate | 2110 |
| Total       | 2303 |

Research Fields and Staff

DR PETER ANDERSON
Poetry, romanticism to modernism, history and literature, 19th-century Cape literature, culture and society, especially the eastern frontier.

DR MARY BOCK (HONORARY RESEARCH ASSOCIATE)
Analysis of verbal and non-verbal aspects of discourse, critical discourse analysis, narrative analysis with particular reference to the language and structure of testimonies from the Truth and Reconciliation Commission.

DR MBONGISENI BUTHELEZI
Teaching and research interests: Oral poetry, oral storytelling, imperialism and colonialism, historical fiction, Africa and the diaspora.

ASSOCIATE PROFESSOR CARROL CLARKSON (HEAD OF DEPARTMENT)
Post-apartheid South African fiction, literary theory, especially deconstruction and language philosophy as it relates to jurisprudence and contemporary South African fine art.

EMERITUS PROFESSOR J.M. COETZEE
A novelist, essayist, linguist, translator

DR VICTORIA COLLIS-BUTHELEZI

ASSOCIATE PROFESSOR IMRAAN COOVADIA (DIRECTOR: CENTRE FOR CREATIVE WRITING)
Eighteenth- and nineteenth century English and American literature, and contemporary fiction.

EMERITUS PROFESSOR DOROTHY DRIVER (HONORARY RESEARCH ASSOCIATE)
Topics/authors in South African literature and colonial literature; the construction/deconstruction of the ‘feminine’ subject in language and literature.

ASSOCIATE PROFESSOR RODNEY S. EDGECOMBE
Shakespeare; Herbert; Marvell; Pope; the age of sensibility; Keats; Dickens; selected contemporary novelists and poets.

EMERITUS PROFESSOR GAIL FINCHAM
Modernism, particularly Joseph Conrad; postmodern fiction; narrative theory; postcolonial fiction and theory.

EMERITUS PROFESSOR GEOFFREY HARESNAPE (HONORARY RESEARCH ASSOCIATE)
Shakespearean poetry and drama; topics/authors in South African literature in English; topics/authors in early 20th-century English poetry; certain other topics/authors by consultation.

DR DERRICK HIGGINBOTHAM
Late Medieval and Early Modern English Theater, Literary History, Genres, and Cultural Change, Shakespeare and his contemporaries, Queer Theory/LGBT Studies Feminist Theory, Marxism, Materialism, and the New Economic Criticism

PROFESSOR JOHN HIGGINS
Literature and society in the 18th century; literature and society in the 20th century; theories of representation; psychoanalysis and cinema; Raymond Williams.
EMERITUS PROFESSOR GEOFFREY HUGHES (HONORARY RESEARCH ASSOCIATE)
The history of English; historical semantics; sociolinguistics; the language of Shakespeare and Chaucer.

MR BRIAN S. LEE (HONORARY RESEARCH ASSOCIATE)
Medieval English and Latin literature; British literature to the end of the Victorian period.

DR CHRISTOPHER OUMA
New diasporic African fiction and focused on childhood as a set of ideas for engaging with contemporary African identity formation. In looking at the recurrent figures, images and memories of childhood the study engages with a range of ideas around memories, archives, chronotopes, heritages, legacies, traditions and genealogies of identity and identity-making.

DR PETER KNOX-SHAW (HONORARY RESEARCH ASSOCIATE)
The literature of cross-cultural encounter with particular reference to the Romantic and post-Romantic periods; Jane Austen and the Enlightenment; 18th-century studies.

PROFESSOR DAVID SChALKWYK
Shakespeare; literature and society between 1580 and 1660 including non-Shakespearian drama and poetry; literary theory: especially Marxism, Derrida, Saussure, Bakhtin/ Voloshinov and feminism; philosophy and literature (especially Wittgenstein); pastoral and politics from 1580-1750; South African prison writing.

PROFESSOR KELWYN SOLE
South African literature (especially black literature); African oral literature; history, narrative and fictionalisation; science fiction; Milton; stylistic and ideological changes in 17th-century poetry.

DR ERIC STRAND
20th-century American literature, but also involves American Studies due to an interest in central symbols such as the “frontier,” understood as a free space where one can reinvent oneself outside the norms of conventional society.

DR HEDLEY TWIDLE
South African literatures in an African context, the colonial and postcolonial and Natural history writing.

DR SANDY YOUNG
Early-modern literature and thought; Trans-atlantic colonial literature and theory; the compilation as a form; Travel writing; South African women’s prison writing and feminist theory; Narrative and testimony.

Contact Details
Postal address: Department of English Language and Literature, University of Cape Town, Private Bag X3, Rondebosch, 7701, South Africa
Tel: +27 21 650 2836/4535/5472
Fax: +27 21 650 2080
Web: http://web.uct.ac.za/depts/english/
UCT General enquiries: +27 21 650 9111
UCT web: http://www.uct.ac.za

Research output
Chapters in books


Articles in Peer-reviewed Journals


Creative writing

Novels


Centre for Film and Media Studies
Research Report 2012
(Including the Centre for Rhetoric Studies)

DIRECTOR: ASSOCIATE PROFESSOR LESLEY MARX

Centre Profile

The Centre for Film and Media Studies, based in the Faculty of Humanities, was established in March 2003.

The aims of the Centre are:
• to enable students at undergraduate and postgraduate levels to pursue research in film and television studies and media studies more broadly and
• to offer students training as creative practitioners in a choice of screen production, radio journalism, screenwriting, print journalism and digital media;
• to extend, intensify and enrich students’ intellectual, creative and practical training and equip them to make key contributions both to scholarship and to the film and media industries;
• to foster cutting-edge research in film, television and media that has especial relevance to Africa, and to South Africa’s place both continentally and globally;
• to strengthen ties with similar institutions, scholars and practitioners locally and abroad.

The Centre offers majors in i) Media & Writing and in ii) Film & Television Studies. In addition, we offer, on competitive entry during the second year, five options for a programme in Film and Media Production, with choices between screen production, radio, screenwriting, print journalism and interactive media.

We offer Honours, MA and PhD level degrees in film and television studies, media theory and practice and in rhetoric. We also offer interdisciplinary Honours and MA level degree programmes in political communication.

The staff of the Centre engage in a wide variety of exciting formal and creative research in, for example, African and South African cinema, radio in South Africa, audience analysis, political communication, rhetoric studies, youth culture, new approaches to film history, film and identity, adaptation theory and practice, screenwriting and video gaming.

Centre Statistics

Permanent Staff

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<td>Distinguished Professor</td>
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Students

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<td>Honours</td>
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<td>Undergraduate</td>
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Research Fields and Staff

DR TANJA BOSCH
Community radio, citizen media and communication for development; health communication, critical theory and cultural studies; qualitative research methods; radio studies and new media.

ASSOCIATE PROFESSOR MARTIN BOTHA
South African cinema, cinema and marginality, the representation of gays/lesbians in cinema, Queer Theory.

DR WALLACE CHUMA
Contemporary journalism and the public sphere, critical political economy of media, media policy and regulation, and media and political transition in Southern Africa.

DR MARTHA EVANS
Media events and the coming of television to South Africa, media and national identity, the TRC as a South African media event.

PROFESSOR IAN GLENN
Media in the new South Africa, liberal Afropessimism, political communication, media technologies and the literature of exploration, François Le Vaillant.

ASSOCIATE PROFESSOR ADAM HAUPT
Youth and media, theories of empire and film, intellectual property, racial identity politics, gender and representation, counter-culture.

ASSOCIATE PROFESSOR LESLEY MARX
African Cinema, British cinema, American Studies, the interface between American and South African history and culture, topics in film theory, genre and adaptation.
DR MUSAWENKOSI NDLOVU
Political communication and political marketing, youth and news media studies.

DR IAN RIJSDIJK
Film and history, Terrence Malick, environment and film.

DISTINGUISHED PROFESSOR PHILIPPE-JOSEPH SALAZAR
Multi-disciplinary research in public rhetoric, deliberative democracy and argumentative culture.

DR IBRAHIM SALEH
Political communication and political marketing, youth and news media studies

DR ALEXIA SMIT
Affect and visceral displays of the body on contemporary British and American television. Television aesthetics across a range of television genres and formats.

DR MARION WALTON
Literacy and access to technology in South Africa, and on developing semiotic models that can explain user experience of computer games and the Web.

Contact Details
Postal address: Centre for Film and Media Studies, Arts Building Room 204, University Avenue, Rondebosch, 7701
Tel: +27 21 650 3373
Fax: +27 21 650 4828
Web: http://www.cfms.uct.ac.za
UCT General enquiries: +27 21 650 9111
UCT web: http://www.uct.ac.za

Centre for Rhetoric Studies
DIRECTOR: PHILIPPE-JOSEPH SALAZAR, DISTINGUISHED PROFESSOR OF RHETORIC

URC POSTDOCTORAL RESEARCH FELLOW: DR SERGIO ALLOGGIO

Centre Profile
The Centre was founded in 1995, as an academic response to the establishment of democracy in South Africa, and in the wake of a large international conference on “Persuasion and Power” held in July 1994. The Centre is unique on the Continent and concerns itself with multi-disciplinary research in public rhetoric, deliberative democracy and argumentative culture. Its pioneering role is recognized by the International Encyclopedia of Communication (Blackwell, 2008).

The Centre was awarded a 5-year endowment from the A W Mellon Foundation to support its graduate recruitment (Mellon-UCT Scholarships in Rhetoric Studies).

A detailed description of the Centre’s research activities and publications (including the African Yearbook of Rhetoric) can be found on its dedicated Website: www.rhetoricafrica.org.

Research Output

Authored books


Chapters in books


Peer-reviewed published conference proceedings


Creative works

Exhibitions

Michaelis School of Fine Art

Research Report 2012
(Including the Centre for Curating the Archive)

DIRECTOR AND HEAD OF SCHOOL: ASSOCIATE PROFESSOR STEPHEN INGGS

School Profile

The Michaelis School of Fine Art is primarily involved in research in the field of fine art and the history and discourses of art. The School has a strong research and exhibition profile with all staff participating in both local and international exhibitions. These include exhibitions curated along various themes, major international biennales, as well as individual one-person shows. There is an emphasis on the scholarly and creative interpretation and intellectualisation of artwork. This is reflected in catalogue publications, artists’ books and journal articles including Artworks in Progress, a journal published by the School. Staff are regularly invited to comment on issues relating to fine arts practice and write review essays in exhibition catalogues.

The School houses the Centre for Curating the Archive, a multidisciplinary research centre focussed on digital archives their exhibition and publication, directed by Pippa Skotnes. The CCA incorporates LLAREC (Lucy Lloyd Archive, Resource and Exhibition Centre) and the Katrine Harries Print Cabinet which publishes artists’ books and curates the University’s print collection. LLAREC also initiated an inter-departmental social responsibility project which runs from the UCT field station in Clanwilliam each year.

The major postgraduate degrees offered at the School include the PhD, Master of Fine Art, Master of Arts in Fine Art, Master of Arts in Art Historical Studies and Honours in Art Historical Studies. Students undertake advanced study in an aspect of art history, contemporary art discourse, studiowork disciplines or specialist interdisciplinary research.

School Statistics

Permanent and Long-term Contract Staff

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Students

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Research Fields and Staff

PROFESSOR JANE ALEXANDER
Sculpture; photography; photomontage; video

EMERITUS PROFESSOR BRUCE ARNOTT
Fine art; sculpture

MS JEAN BRUNDRIT
Photography; lesbian sexuality; identity

MR KURT CAMPBELL
Graphic Design; Design History; 2d Animation, Postcolonial theory, Subaltern studies, philosophy of technology

MS ANNEMIE CONRADIE
Visual studies; commodification of culture; tourism, heritage and local economic development; relationships between theory and practice; body modification and performance.

EMERITUS PROFESSOR MICHAEL GODBY
19th century colonial artists; contemporary South African artists; documentary photography

ASSOCIATE PROFESSOR STEPHEN INGGS
Printmaking, photography, artists’ books and portfolios, particularly the influence of technology on practice; representation of objects and landscape

MS SVEA JOSEPHY
Photography; southern African Photography; contemporary art

MR ANDREW LAMPRECHT
Theory/Discourse in Art; curatorship
ASSOCIATE PROFESSOR FRITHA LANGEMAN
Printmaking; curatorship and display; art and science

MS VIRGINIA MACKENNY
Painting, video; visual theory; contemporary art

DR SIONA O’CONNELL
Visual studies; archives and memory

EMERITUS PROFESSOR MALCOLM PAYNE
Video art; digital printmaking

PROFESSOR COLIN RICHARDS
Contemporary (South African) art practice; theory; history in global perspective

DR RAÉL JERO SALLEY
Painting; Modern and Contemporary Art History; Visual Theory and Discourse; African American Art; Theories of Black and African Diaspora

MR FABIAN SAPTOUW
Process Art; Materiality; Printmaking; History of bookmaking; Text/Image relationships

HONORARY PROFESSOR PENELOPE SIOPIS
Critical practices in contemporary painting; shame and sexuality in visual art; psychoanalysis and art; archival film and narrative in video art

PROFESSOR PIPPA SKOTNES
Visual history and representation; curatorship and the archive; and bookarts

MS ANNA TIEDE
History of art collecting and museum policy; 19th century French art and society; the history of the print; history and theory of art training institutions.

MR JOHANN VAN DER SCHIJFF
Sculpture; interactive art installations; computer aided design and manufacturing

PROFESSOR GAVIN YOUNGE
Issues of ‘Re-wilding’ and ‘Hyperwilderness’ in international contexts; negotiating transnational trauma in sculpture and film

MS CARINE ZAAYMAN
New media; film theory; psychoanalysis and notions of subjectivity in art

Research output

Edited books


Chapters in books


Articles in Peer-reviewed Journals


Peer-reviewed published conference proceedings


Creative works

Exhibition catalogues, catalogue essays and works of a popular nature


Artistic works


Exhibitions

Solo Exhibitions

Alexander, J. 2012. Surveys (From the Cape of Good Hope). Curated by Pep Subiros. Savannah College of Art and Design Museum 02/12-05/12; Contemporary Art Museum Houston. 11/08/12-04/11/12.

Langerman, F. 2012. Waymarker David Krut Projects, Montebello Design Centre, Cape Town. 03/11/12-01/12/12.

Mackenny, V. 2012. Community Punching Bags or CPBs project – an artwork by Johann van der Schijff in collaboration with art educators and high school learners from and around Cape Town. Iziko South African National Gallery Annexe, Cape Town. 23/05/2012 – 23/06/2012; KZNSA Gallery, Durban. 10/07/2012 – 29/07/2012.


Curated Exhibitions


Salley, R. 2012. The Exuberance Project . Mandela Rhodes Gallery, Cape Town. 12/05/12 – 20/05/12.

Saptouw, F. 2012. Context. Michaelis Galleries.16/02/12 – 07/03/12.

Siopis, P. 2012. Subject as Matter in the New Church. In The New Church: No 1, Cape Town; The New Church.


Group exhibitions (Curated)


Brundrit, J. 2012. Home/Land: women, citizenship and photography. Process work from the Home/Land residency. Design Centre, Loughborough University. 05/07/12 to 07/07/12.


Langerman, F. 2012. Context. Curated by Fabian Saptouw. Michaelis Gallery, Cape Town 16/02/12 to 07/03/12.

Langerman, F. 2012. The A-R-T Show. Curated by Carol Brown and David Gere. Museum Africa, Johannesburg; NSA Gallery, Durban; Michaelis Gallery, Cape Town 12/05/12 to 08/06/12.


Richards, C. 2012. If a Tree... Curated by Claire Butcher. Stevenson Gallery, Johannesburg. 05/07/12-03/08/12.


Siopis, P. 2012. Trade Routes Over Time. Curated by Joost Bosland. Stevenson Gallery, Cape Town. 04/04/12 to 12/05/12.


Siopis, P. 2012. This is a True Story, Frieze Art Fair and Prince Charles cinema, London. 11/10/12.


Master’s degrees (by research)


Viljoen, S. 2012. Avant lounge exotica: an investigation into the print magazine and interior living space as a meeting place of consumerist culture and personal subjectivities. MFA. 1-59. Supervised by S. Inggs.


The Centre for Popular Memory focuses on African oral history, research and advocacy while also developing audio-visual archival material for digital dissemination.

Its research respects the value of multi-lingual approaches in collecting, preserving and creating access to data, along with technologically relevant outputs through academic journals, exhibitions, film and other portable media platforms. The Centre’s African Oral history archive contains over 3000 recordings in 12 languages, many with full transcripts and translations.

Departmental Statistics

Permanent and long-term contract staff

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Centre for Popular Memory

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<td>Director</td>
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<td>Deputy Director</td>
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<td>Digitisation Manager</td>
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<td>Sound Archivist</td>
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<td>Project Co-ordinator</td>
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Research Fields and Staff

ASSOCIATE PROFESSOR MOHAMED ADHIKARI
Genocide in settler societies; Coloured identity and politics in the 19th and 20th centuries.
PROFESSOR VIVIAN BICKFORD-SMITH
Urban history, Cape Town history, film and history; race and ethnic identity in South Africa.

DR SEAN FIELD
Popular memory, oral history, visual history and the archival location and dissemination of stories.

ASSOCIATE PROFESSOR SHAMIL JEPPIE
19th century Middle East and North Africa; District Six and Cape Flats history.

BODHISATTVA KAR
Cultural and intellectual histories (particularly histories of body and senses, objects and materiality, practices and customs, sentiments and emotions, and texts and concepts); transnational and comparative histories of colonialism

PROFESSOR ANNE MAGER
Twentieth century gendered history, gender and development, liquor in South Africa in the twentieth century.

ASSOCIATE PROFESSOR RICHARD MENDELSOHN
South African Jewish history; Film and history; Jewry in the South African War.

DR ASHLEY MILLAR
Early modern European views of and encounters with China; Enlightenment intellectual history

DR MAANDA MULAUDZI
Rural South African history focusing on land dispossession, agrarian change, identity and chieftainship with particular emphasis on Venda in the Northern Province.

PROFESSOR NIGEL PENN
The Cape north-western frontier in the 18th century; Khoisan history; Dutch colonial history; comparative Cape and Australian frontier history.

PROFESSOR HOWARD PHILLIPS
Medicine, health and disease in South Africa; history of higher education in South Africa.

PROFESSOR MILTON SHAIN
Comparative studies in South African and American Jewry; antisemitism; history of South African Jewry.

ASSOCIATE PROFESSOR LANCE VAN SITTERT
Environmental history.

PROFESSOR NIGEL WORDEN
Slavery and post-emancipation labour in the Western Cape; 18th century Cape Town; comparative social and cultural history of the Cape and Australia, c.1750-1850.

Contact Details
Postal address: Department of Historical Studies, University of Cape Town, Private Bag X3, Rondebosch, 7701
Telephone: +27 21 650 2742
Fax: +27 21 689 7581
E-mail: Brenda.Beneke@uct.ac.za
Web: https://historicalstudiesuct.wordpress.com

Research output

Authored books

Edited books


Chapters in books


Field, S.P. 2012. “There your memory runs like a camera back”: moving places and audiovisual oral histories from


Articles in Peer-reviewed Journals


School of Languages and Literatures
Research Report 2012
HEAD OF SCHOOL: ASSOCIATE PROFESSOR CLIVE CHANDLER

School Profile
The School of Languages and Literatures was formed in 2002 through the amalgamation of the Department of Southern African Languages and the Department of Modern and Classical Languages and Literatures. The School brings into one organisational unit the teaching of languages and literatures (excluding English Language and Literature) at the University of Cape Town.

We recognize the complexity of our position at the southern end of Africa, in a University which strives to be fully part of Africa and the wider world. The range of languages taught in the School and the research done by staff and students of the School reflect this.

The teaching and research area of the School is wide, covering language, literatures and cultural studies in Afrikaans, Arabic, Dutch, French, Business French, German, Classical Greek, Hebrew, Italian, Portuguese, Sotho, Spanish, and Xhosa, and Special Purposes teaching in Afrikaans and Xhosa. There is also a strong emphasis on the role that these languages and literatures and the cultures they embody, have played and continue to play in Africa. Research in the School also encompasses Literary Semantics, Literary Theory, Afrikaans Media Studies, Creative Writing in Afrikaans and Xhosa, Xhosa Lexicography, Historiography, Multimedia, Literature and the Internet, War Literature, Ancient Literature, Philosophy and Rhetoric, French literature from 17th century to the present, French Linguistics and Sociolinguistics, Teaching French as a Foreign Language, German Colonialism and Postcolonial Literature and Theory, Contemporary German Literature, Literary Theory and Women's Studies, Italian and German post-war Cinema, Italian Literature of the 19th and 20th centuries, Asian Cinema, Italian Renaissance Literature, Modern and Ancient Hebrew Literature, Classical Arabic Literature and Islamic Studies, Modern Arabic Literature and Political discourse, and Hispanic Literature.

The School’s awareness of its location in Africa is reflected in many of its research projects. Among these are studies of language learning in the African context, Xhosa linguistics, African oral traditions and orature, Literature and Cinema in Francophone West Africa, the Translation of Southern African Literature into French, Sephardi Women Writers from the Maghreb, German Colonial Discourse in Africa and German Missionary Writings, Comparative Perspectives on German/Afrikaans Literature.

The School has a number of formal and informal links with universities elsewhere in Africa (e.g. National University of the Ivory Coast at Abidjan, University of St Denis in Réunion, University of Zimbabwe), and further afield (e.g. ENS Cachan – Grenoble 3 Stendhal, University of Bologna). The School is also a founder member of L’Ecole doctorale regionale (Afreique australe – Océan indien).

School Statistics
Permanent and long-term contract staff

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Students

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Honorary staff

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Research Fields and Staff
Permanent staff

ASSOCIATE PROFESSOR CLIVE CHANDLER
Director of School; ancient philosophy and rhetoric; Philodemus; Homer commentaries; madness in antiquity.

PROFESSOR JEAN-LOUIS CORNILLE
Section Head (French); 19th - 20th century French literature.

DR JAY CORWIN
Section Head (Spanish); Senior Lecturer; Latin American literature.

DR RUTH DE OLIVEIRA
Lecturer; didactics of French as a foreign and second language; French Linguistics.
MS SOMIKAZI DEYI
Lecturer; multilingualism in higher education with a particular focus on the teaching of mathematics and science in the home language.

DR TESSA DOWLING
Senior Lecturer; Second language teaching and learning; sociolinguistics.

ASSOCIATE PROFESSOR YASIN DUTTON
Section Head (Arabic); early Islamic law; early Koranic manuscripts; Islamic law in the modern world.

MS HENRIETTA MACALUSO
Lecturer; Modern Arabic literature; 20th century Syrian discourse; Arab nationalism.

MS ANNABELLE MARIE
Lecturer; didactics of foreign language and analysis of French literature, especially from the Caribbean and French-speaking Africa.

ASSOCIATE PROFESSOR ABNER NYAMENDE
African Literature; Oral Literature; Xhosa Clan Names.

MS RETHABILE POSSA
Lecturer; Sesotho Literature; Folklore, riddles and onomastics.

DR AZILA REISENBERGER
Section Head (Hebrew); Modern and Ancient Hebrew literature.

DR ROMAN ROTH
Section Head (Classics); Classical Archaeology and material culture of the Mediterranean world.

MS BRIGITTE SELZER
Section Head (German); Lecturer; German language and literature; woman/gender studies; satire; language skepticism 19th/20th century; turn-of-the-century literature; German Romanticism.

MR WILHELM SNYMAN
Lecturer; German and Italian 20th century literature and post-war cinema; Asian cinema; colonial literature and history of Asia and Africa; pedagogics of German & Italian.

DR MANTOA ROSE SMOUSE
Section Head (African Languages); Child language acquisition, Second language teaching.

MRS GAIL SOLOMONS
Senior Lecturer; pedagogics of Latin; language acquisition for second language speakers; the teaching of etymology.

ASSOCIATE PROFESSOR GIONA TUCCINI
Section Head (Italian); Medieval and Renaissance lyric poetry and prose; mysticism and religious writings; 20th century literature, cinema and drama.

PROFESSOR ETIENNE VAN HEERDEN
Historiography and fiction; Caribbean Dutch literature in the former Dutch colonies; theory of literature; creative writing; the Internet as educational medium.

DR IAN VAN ROOYEN
Lecturer; second language acquisition and teaching; special purposes language teaching; contemporary theory of metaphor.

PROFESSOR DAVID WARDLE
Roman history and historiography; Roman exemplary literature; Roman religion and ruler cult.

Distinguished visitors
Dr D Culpin, St Andrews, Scotland.
Professor Susana Chavez-Silverman, Pomona College, USA
Patrick Chamoiseau, Martinique
Professor Mei Zeng, Shandong Jiaotong University, China

Honorary Research Associates
Dr L. Gochin Raffaelli. Italian Literature.
Dr A Seba-Collett. French Literature
Associate Professor A. Wynchank. French Literature.

Research output

Authored books

Edited books


Chapters in books


Articles in Peer-reviewed Journals


Encyclopaedia entries


**Peer-reviewed published conference proceedings**


**Creative writing**

**Anthology of poems**

South African College of Music

Research Report 2012
DIRECTOR: DR MORNÉ BEZUIDENHOUT

College Profile
The South African College of Music pursues a wide range of musical activities. Besides musicology and composition, there is a strong instrumental and vocal tradition in the classical field, as well as a very active jazz department and a flourishing opera school. Ethnomusicology and practical African music studies are an important part of the department’s programme.

College Statistics

Permanent staff

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Honorary staff

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Research Fields and Staff

PROFESSOR HENDRIK HOFMEYR
Composition; orchestration; music theory and analysis

PROFESSOR MICHAEL ROSSI
Jazz: performance (woodwinds); composition; improvisation, history

PROFESSOR KAMAL KHAN
Opera

ASSOCIATE PROFESSOR FARIDA BACHAROVA
Violin performance; chamber music; orchestral studies; professional orchestral musician

ASSOCIATE PROFESSOR MIKE CAMPBELL
Composition and arrangement for jazz ensemble, stage band & symphony orchestra; big band jazz performance; electric bass

ASSOCIATE PROFESSOR VIRGINIA DAVIDS
Vocal performance (specialised in Verdi)

ASSOCIATE PROFESSOR FRANCOIS DU TOIT
Piano performance; chamber music; accompanying; recording

ASSOCIATE PROFESSOR SIDWIL HARTMAN
Vocal performance in oratorio opera, especially Puccini, Verdi and contemporary composers.

ASSOCIATE PROFESSOR ANRI HERBST
Music education; intercultural musicology; neuromusicology

ASSOCIATE PROFESSOR FRANKLIN LAREY
Piano performance; accompanying; chamber music

ASSOCIATE PROFESSOR BRAD LIEBL
Vocal performance (opera and Lieder), especially contemporary and rarely performed repertoire and composers.

ASSOCIATE PROFESSOR REBEKKA SANDMEIER
Opera and oratorio; music of the 15th, 19th and 20th century; historically informed performance

ASSOCIATE PROFESSOR ANDREW LILLEY
Jazz: theory; performance; ensemble; improvisation; contemporary music practice

ASSOCIATE PROFESSOR ALBIE VAN SCHALKWYK
Piano performance; chamber music; art song accompaniment and interpretation

DR MORNÉ BEZUIDENHOUT
Plainchant and liturgy

DR MARTIN WATT
Composition; orchestration; music theory and analysis

DR SYLVIA BRUINDERS
Ethnomusicological theory and methodology; African and African diasporic music; Musical practices and social history of the Western Cape
MR THEO HERBST
Theoretical research: Music Technology; Signal processing methods applied in musical analysis; Applied research: Musical Composition; Technology-based solutions for creative challenges

MR DARRYL ANDREWS
Jazz Guitar Performance, Composition/Arrangement, Ensemble and Theory. Jazz: theory arrangement;

MR WILLIAM HAUBRICH
Brass studies

MR MICHAEL NIXON
Ethnomusicology theory; music in popular culture; music of sub-Saharan Africa; music and society in South Asia; music and society in southern Africa

MR JASON REOLON
Jazz piano; performance; composition; recording

MS BECKY STELTZNER
Woodwinds, and particularly clarinets, in South African history and South African collections; copyright vs. public domain in sheet music and developing syllabi for disadvantaged communities; repertoire development in the woodwind and chamber music fields

MR DIZU PLAATJIES
African music performance (specialised in the performance of indigenous music of the Eastern and Western Cape)

MR PATRICK TIKOLO
Vocal studies

MS AMANDA TIFFIN
Jazz Vocals, Performance, Composition, Arrangement, especially contemporary and jazz vocal arranging

MR JAMES GRACE
Classical guitar performance; chamber music

Research output

Authored books

Articles in Peer-reviewed Journals

Peer-reviewed published conference proceedings

Creative works

Arrangements


Tiffin, A. 2012. Afri-Dite. Commissioned by Lindie Lila. 5-part vocal ensemble; programmed backing; cello. 3.44.

Tiffin, A. 2012. Baby its Cold Outside (Loesser). Commissioned by: Faculty of Health Sciences Centenary. Vocal duet, jazz rhythm section, saxophone. 5 min.


Tiffin, A. 2012. Blessings. Commissioned by Lindie Lila. 6-part vocal ensemble, a cappella. 3.15.
Tiffin, A. 2012. Gayatri Mantra (Trad.). Commissioned by Lindie Lila. Part vocal ensemble; programmed backing; percussi. 4.48 min.

Tiffin, A. 2012. Gershwin medley (G & I Gershwin). Commissioned by: Faculty Of Health Sciences Centenary. Vocal solo, jazz rhythm section, saxophone. 3 min.

Tiffin, A. 2012. Goddess Fertility. Commissioned by Lindie Lila. 5 part vocal ensemble; acoustic guitar, cello. 3.14 min.

Tiffin, A. 2012. I Sing the Body Electric (Gore, M). Commissioned by: Faculty of Health Sciences Centenary. 12-piece vocal ensemble, strings, 2 flutes, saxoph. 8 min.

Tiffin, A. 2012. In My Life. Commissioned by: Faculty of Health Sciences Centenary. 12-piece vocal ensemble, Violin, Rhythm Section. 5 min.

Tiffin, A. 2012. Lady Water. Commissioned by Lindie Lila. 5-part vocal ensemble; programmed backing, cello. 9.04 min.

Tiffin, A. 2012. Make You Feel My Love (Dylan). Commissioned: Faculty of Health Sciences Centenary. 12 piece- vocal ensemble, violin, rhythm section. 4 min.

Tiffin, A. 2012. May the Circle Be Open (Trad.). 7-part Vocal Ensemble, a cappella. 3.04 min.


Tiffin, A. 2012. Sisters of the Moon. 5-part vocal ensemble; programmed backing. 5.12min.

Tiffin, A. 2012. Starlights Keep. Commissioned by Lindie Lila. 5-part vocal ensemble; programmed backing, guitar. 5.49 min.

Tiffin, A. 2012. Tears On My Pillow (Bradford & Lewis). Commissioned by: Faculty of Health Sciences Centenary. 5-part vocal ensemble, rhythm section. 5 min.

Tiffin, A. 2012. The Heart of Life (Mayer, J.). 5-part Jazz Vocal Ensemble, a cappella. 3 min.

Tiffin, A. 2012. Thins Aint What They Used to Be (Ellington). 5-Part Jazz Vocal Ensemble, Jazz rhythm section. 4 min.


Compositions


Campbell, M.I. 2012. Soul March. Commissioned by: Mathambo Music Inc. Jazz Big Band. 3.5 min.


Bacharova, F.A. and Du Toit, G.F. 2012. Cape Town Philharmonic Orchestra Symphony Concert, The Bartered Bride Overture (Smetana), Piano Concert (Scharwenka), Symphony no.4 (Brahms). Cape Town Philharmonic Orchestra, Victor Yampolsky (Conductor, USA), Francois Du Toit (Piano, RSA). City Hall, Cape Town, 24 May. Leader/Concertmaster. 120 min.

Bacharova, F.A. 2012. Fidelio Opera (Beethoven). Cape Town Philharmonic Orchestra. Cape Town Castle 7,9,10 March. Leader/Concertmaster. 180 min. each


Performances

Bacharova, F.A. 2012. Cape Town Philharmonic Orchestra Celebrity Gala Concert, Four Last Songs (Richard Strauss), Overtures (Wagner). Cape Town Philharmonic Orchestra, Benhard Gueller (Conductor, Germany), Elza van der Heever (Soprano, E.) Artscape Opera House, Cape Town, 8 July. Leader/Concertmaster. 120 min.

Bacharova, F.A. 2012. Cape Town Philharmonic Orchestra Symphony Concert, Appalachian Spring (Copland), Rhapsody in Blue (Gershwin), Ma Vlast (Smetana). Cape Town Philharmonic Orchestra, Theodore Kuchar (Conductor, USA), Carl du Plessis (Piano, RSA). City Hall, Cape Town, 23 August. Leader/Concertmaster. 120 min.

Bacharova, F.A. 2012. Cape Town Philharmonic Orchestra Symphony Concert, Piano Concerto no.3 (Beethoven), Symphony no.9 Choral (Beethoven). Cape Town Philharmonic Orchestra, Nicolas Cleobury (Conductor, England), K.Scherbakov (Piano, Switz). City Hall, Cape Town, 8 November. Leader/Concertmaster. 120 min.

Bacharova, F.A. 2012. Cape Town Philharmonic Orchestra Symphony Concert, Rienzi Overture (Wagner), Violin Concerto no.4 in D (Mozart), Symphony no.1 (Schostakovich). Cape Town Philharmonic Orchestra, Victor Yampolsky (Conductor, USA), Oliver (Violin, France). City Hall, Cape Town, 17 May. Leader/Concertmaster. 120 min.

Bacharova, F.A. 2012. Cape Town Philharmonic Orchestra Symphony Concert, Symphony no.3 Eroica (Beethoven), Violin Concerto (Brahms). Cape Town Philharmonic Orchestra, Theodore Kuchar (Conductor, USA), Joshua Bell (Violin, USA). Artscape Concert Hall, Cape Town, 2 September. Leader/Concertmaster. 120 min.


Bacharova, F.A., Van Schalkwyk, A.A. and Stoltz, L. 2012. Sonata in C major for flute, violin and piano (JSF. Bach), Madrigal Sonata (Bohuslav Martinu), Three pieces (Mel Bonis), Deux interludes (J. Ibert), Five pieces, Opus 56 (C. Cui, Trio (Nino Rota). Endler Hall, Stellenbosch, 15 September. Soloist. 90 min.

Bacharova, F.A. 2012. Standard Bank Jazz Festival. Grahamstown National Art Festival. Rhodes University, Grahamstown, 1, 2, 3 July. Soloist. 120 min. per performance

Bacharova, F.A., Stoltz, L., Chernev, K. and Gabriel, P. 2012. The Bacharova Quartet and Friends Concert, Symphony no 104 (Haydn-Solomon), The American Quartet in F (Dvorak), Adagio (Barber), Affirmation Dance (Noel Stokton), SONATA for VIOLIN and PIANO (Martin Watt)-World Premiere. Baxter Concert Hall, 18 September. Soloist. 90 min

Bacharova, F.A. 2012. The Odeon String Quartet Concert, String Quartet no.2(Borodin), Symphony no.104London arrangement for string quartet and flute(Haydn-Solomon),Affirmation Dance(Noel Stokton)-Word Premiere. Odeon Concert Hall, Bloemfontein, 16 August. Leader/Soloist. 120 min.


Campbell, M.I. 2012. Act 2, Mandela Trilogy. Cape Town Opera. Wales Millenium Centre, Cardiff Wales Millenium Centre, Cardiff 20, 21 June. Composer, arranger. 35 min


Grace, J. 2012. Amigos Para Siempre, a three concert series with a uniquely Latin Flavour. Chisholm Recital Room (C7), SACM, UCT, 24 October. organizer and guitar duo partner. 70 min.


Soprano Marie-Claire de Villiers. Chisholm Recital Room (C7), SACM, UCT. 31 October. organizer and guitar duo partner. 80 min.

Grace, J. 2012. Amigos Para Siempre, a three concert series with a uniquely Latin Flavour with Saudiq Khan. Chisholm Recital Room (C7), SACM, UCT, 17 October. organizer and guitar duo partner. 70 min.


Grace, J. 2012. Lunchtime Series at UCT with Goran Krivokapic. Chisholm Recital Room (C7), SACM, UCT, 18 April. Organizer and guitar duo partner. 80 min.

Grace, J. 2012. Magnum Opus, a Three Concert International Guitar Series at UCT with Goran Krivokapic. Chisholm Recital Room (C7), SACM, UCT, 18 April. Organizer and guitar duo partner. 80 min.

Grace, J. 2012. Man, One Guitar, One Stage, One Night Only! with Tony Cox, Dan Patlansky and Richard Onraet. Stellenbosch University Wordfees. Neethlingshof Estate, Stellenbosch, 5 March. Soloist. 120 min.

Grace, J. 2012. Opera y Flamenco in collaboration with the UCT School of Dance. Baxter Theatre, 10 October. Soloist. 80 min.

Grace, J. 2012. Symphony in the City with the KZNPO. Concierto de Aranjuez, Adagio. City Hall, Pietermaritzburg, 8 November. Soloist. 10 min.


Haubrich, W., Campbell, M.I., Lilley, A.C.P and Andrews, D.I. 2012. Mike Campbell Big Band. Trinity, Kirstenbosch,
6 February, 18, 21 April, 7 June, 22 December. trombonist. 240 minutes


Haubrich, W. 2012. SACM Recruitment Workshops. Alexander Road High, Port Elizabeth, 19, 20 April. trumpet, flugelhorn, trombone. 2 days

Haubrich, W. 2012. SACM Staff Concert. Baxter Theatre, 14 February. Euphonium/sax duo. 5 min


Haubrich, W., Rossi, M.J. and Blake, M. 2012. Songfest German Band. German Club, Durban & Joburg Beerfest, 1, 29 January, 18 February, 15 April, 11-14, 27 Oc. trombonist. 240 min.


Hofmeyr, H.P., Stellenbosch University Choir, and van der Merwe, A. 2012. A sexta autem hora for 8-part choir. (a) World Choir Games, Cincinnati, USA, (b) Endler Hall, Stellenbosch; (a) 4-14 July; (b) 19 October. Composer. 4 min.


Hofmeyr, H.P., Kerrod, J. and Stoltz, L. 2012. Il poeta e lusignolo Version for flute and harp; Elegia for flute and harp. 3 performances for the Darling Voorkamerfest; several other performances, 31 August-2 September. Composer. 8 + 5 min.

Hofmeyr, H.P. and Pauw, M. 2012. Incantesimo for flute. (a) Casa Labia Morning Concert Series, Cape Town; (b) Mosselbay Arts Society, St. Peters Church, (a) 14 June; (b) 28 June. Composer. 4 min.


Hofmeyr, H.P., Akustika Chamber Singers, and Burger, C. 2012. Saulus in Damascum for 8-part choir. Spittal an der Drau Competition, Austria & various other performances, June 2012. Composer. 5 min.

Hofmeyr, H.P., Du Toit, G.F. and Stoltz, L. 2012. Sonata for Flute and Piano, Maball for flute and piano. School of Music, North West University; (b) Rhodes University; (a) 31 July; (b) 25 September; (c) 30 September. Composer. 14 + 7 + 4 + 4 min.

Hofmeyr, H.P. and Krawitz, J. 2012. Sonata for Piano. a) Infecting the City, Cape Town Station Concours; (b) ? (c) Music in the City, Hiddingh Hall, Cape Town; (a) 8 March (1st performance), 9 March; (b) 17 Oct. Composer. 17 min.


Larey, F. 2012. Adamant Music School (USA), Faculty Recital. Waterside Hall, Adamant, Vermont, USA, 18 July. Soloist. 15 min.


Rossi, M.J. 2012. Arrivo in Abruzzo, Buon Giorno Le Marche, Yearning. Fermo, Offida, Jesi, Arcevia, Italy, 4-8 August. composer, arranger. 15min. x 4

Rossi, M.J. 2012. Cape Dutch Connection. La Petite Ferme, Franschoek, 30 November, 21 December. soloist, ensemble player. 180min.

Rossi, M.J., Rustin, W., Mople, J. and Blass, D. 2012. Cape Dutch Connection. La Petite Ferme, Franschoek, 23 February. soloist & ensemble player. 180min.

Rossi, M.J. 2012. Cape Ghoema Orchestra. SABC Studios, Sea Point, 8 September. ensemble player, soloist. 90min.


Rossi, M.J. and Di Clemete, G. 2012. Gionni Di Clemente & Mike Rossi. Teatro Torre di Passeri, Italy, Italy 24 November. soloist. 30min.


Rossi, M.J. and Campbell, M.I. 2012. Mike Campbell Big Band. Trinity, Cape Town, 6 February. soloist & ensemble player. 90min.


Rossi, M.J. 2012. Mike Rossi Jazz Basics & Improvisation Workshop. Heathfield High School, Cape Town, 9 March. lecturer, performer. 90 min


Rossi, M.J. 2012. SAJE International Project. Fermo, Offida, Jesi, Arcevia, Italy, 4-8 August. soloist, ensemble player, leader. 90min. x 4


Rossi, M.J., Tiffin, A., Coolseate, A. and Brauteseth, R. 2012. UCT Jazz Voices featuring Mike Rossi. Jazz at the Nassau, Groote Schuur High School, Newlands, 1 April. soloist & ensemble player. 120min.


Rossi, M.J. 2012. UCT-Arcevia, Italy Student Exchange Launch. Hiddingh Campus, UCT, Cape Town, 28 March. Role organizer, soloist, ensemble player. 120min.

Rossi, M.J. and Campbell, M.I. 2012. UNISA International Jazz School. UNISA, Pretoria, 30 September & 6 October. soloist, conductor, ensemble player, lecturer. 6 days


Tiffin, A. 2012. a.s.k Trio Japan Tour 2012. Matsunaga, S (Japan); Kaptein, S. (Holland) Bottazzo, F. Italy). Jiyu-Gakuen Concert Hall, Tokyo; Miyako Island, Alivila, Okinawa, 5 & 15 July. Vocalist, Pianist, Composer, Arranger. 60 90 min


Tiffin, A. 2012. Amanda Tiffin in Concert. J Sweetman, D Ledbetter, M Fox, S Johannes. Baxter Concert Hall, Cape Town, 28 February. Soloist, vocals and piano; Arranger; Composer. 120 min


Tiffin, A. and Ledbetter, D. 2012. Facing South in Concert. Monkey Valley, Cape Town, 16 November. Vocal soloist, composer. 90 min

Tiffin, A., Samuel, G. and Hendricks, M. 2012. Faculty of Health Sciences Centenary Concert. Baxter Concert Hall, Cape Town, 16 May 2012. Musical Director, piano, vocals. 120 min.


Tiffin, A. and Campbell, M.I. 2012. UCT Jazz Singers & Big Band In Concert. St Geroges Cathedral, Cape Town, 26 September. Musical Director, piano. 60 min

Van Schalkwyk, A.A. 2012. Art song recital for The Songmakers Guild: selected songs (Robert Schumann), selected songs (Clara Schumann), selected songs (Fanny Mendelssohn), selected songs (Felix Mendelssohn), Walzergesnge, Op. 6 (Alexander von Zemlinsky), Three Sonnets (Peter Klatzow). Megan Kahts (soprano). Nassau Centre, Newlands, Cape Town, 26 February. Pianist (vocal accompanist) and presenter. 70 min.


Van Schalkwyk, A.A. 2012. Art songs for The Songmakers Guild: Ravel exotique. Histoires naturelles, Chansons madcasses, Cinq chansons populaires grecques, 2 Hebrac songs, Shhrazade (Ravel). Zanne Stapelberg (soprano), Minette du Toit-Pearce (mezzo), Bridget Rennie-Salonen (flute), Marian L. Nassau Centre, Newlands, Cape Town, 3 June. Pianist (vocal accompanist) and presenter. 70 min.


Van Schalkwyk, A.A. 2012. Chamber music at St Andrews: Kegelstatt Trio for clarinet, viola and piano (Mozart), Overture on Hebrew themes (Prokofieff). Matthew Reid (clarinet), Karin Gaertner (viola), Suzanne Martens and Quentin Crida (violins), Peter. St Martins Church, Cape Town, 21 October. Pianist (chamber music). 25 min.


Van Schalkwyk, A.A., Larey, F. and Du Toit, G.F. 2012. Piano Extravaganza, music for 2 and 3 pianos: Variations on a theme by Beethoven (Saint-Sans), Scaramouche (Milhaud), Rapsodie espagnole (Ravel arranged Albie van Schalkwyk for 3 pianos). Baxter Concert Hall, Rondebosch, 6 March. Pianist (and arranger). 75 min.


Van Schalkwyk, A.A. 2012. The Songmakers Guild: Fnf Gedichte von Mathilde Wesendonck (Wagner), La canzone dei ricordi (Martucci), 3 songs (Sibelius). Elizabeth Frandsen (mezzo soprano), Erica Elloff (soprano). Nassau Centre, Newlands, 16 September. Pianist (vocal accompanist) and presented. 70 min.


Recordings


School of Dance
Research report 2012
DIRECTOR: G. M. SAMUEL

School Profile

Academic enquiry (analysis, documentation and publication) and creative scholarship (choreography, direction and performance) inform and constitute a significant and balanced part of the diverse outputs of our School. The participation of staff and students in a variety of dance projects at under- and postgraduate levels acknowledges the coordinate functions of opportunity and responsibility that motivate all UCT endeavour in Africa and universally. Art practice is our business, as referenced in a democratic, multicultural, [South] African society.

Particular awareness of the role of arts and culture in the collective, multicultural, national psyche - eg socio-political matters around integration – still drives many of our community-focused collaborations.

Highlights of the year include an award for the best international guest presentation at the International Theatre Schools Festival in Amsterdam, the Netherlands, and the editing and contribution of several essays by staff and alumni in the first and acclaimed South African post-apartheid publication of its nature. Other highlights include performances, installations, lecture demonstrations, publications, symposia and seminars as well as a range of collaborative engagements (productions and work exchanges) with the following national and international organizations:

Aardklop Kunste fees; Africa Tik tun; African Dance Theatre; African Theatre Association; Artscape; Battswood Arts Centre; Baxter Theatre; The Benesh Institute; Bishops Diocesan College; Bovim Ballet; Cambridge Scholars Publications; Cape Academy of the Performing Arts; Cape Celtic Dance Academy/Company; Cape Dance Company; Cape Junior Ballet Company; Cape Town City Ballet Company; Cape 300 Foundation; Cape Town International Ballet Competition; Cape Town Jewish Seniors; Caribbean Examination Council (Jamaica); Caribbean Journal of Education. (University of the West Indies, Jamaica); Cecchetti Society of Southern Africa; Cedar House School; Council on Higher Education (South Africa); Dance Factory; Dance For All; Dance Umbrella Festival (Johannesburg); Eastern Cape Dance Education Department; Edna Manley College of the Visual & Performing Arts (Jamaica); Elizabeth Ballet Academy (Penang, Malaysia); Elizabeth Sneddon Theatre (Durban); Embo Nangoku Arts Movement; Federal Academy of Ballet (Kuala Lumpur); Flatfoot Dance Company; Gordon Institute for Performing and Creative Arts; Greenapple Academy (Penang, Malaysia); Highlands House; Historic Schools Restoration Project; International Theatre Schools Festival Amsterdam; Irish Dance South Africa; Ikapa Dance Theatre; International Spanish Dance Society; Jazzart Dance Theatre; Irma Stern Museum, UCT; Jikeleza Dance Project; Klein Karoo Nasionale Kunste fees; KykNet, MNet; La Rosa Estudio de Baile Español; LetfeetFIRST Dance Theatre; NasPers: Media 24. (Die Burger, Die Beeld); National Arts Council; National Creative Arts Youth Festival; National Society of Dance Teachers Association; Oude Libertas Amphitheatre; Rhodes University Drama Department; Royal Academy of Dance; SA College of Music; SA Dance Journal; SA Spanish Dance Society; Spier Hotel; Swiss Tennis Club, Cape Town; Temple University, Philadelphia, USA; Terpsichore Ballet Academy (Penang, Malaysia); Theatre Arts Admin Collective; Theatre Dance Association; Tshwane Education Department; Tshwane University of Technology; UCT Drama Department; UCT Faculty of Health Sciences; UCT Graduate School of Business; Underground Dance Theatre; Union of Jewish Women (Cape Town); University of KwaZulu-Natal; University of North Carolina at Greensboro, USA; University of Stellenbosch Drama Department; University of Surrey Dance, Film & Theatre Department; University of the Witwatersrand; Vadhini Indian Arts Academy; Western Cape Celtic Dance Association; Western Cape Education Department; Western Province Dance Teachers Association; Wilvan School of Dance; Zebra Publishers; Zimbabwe National Trust.

Departmental Statistics

Permanent and Long-term Contract Staff

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<td>Associate Professors</td>
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Students

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</table>
Research Fields and Staff

Full-time Staff

ASSOCIATE PROFESSOR R. BAUM
Performance ethnography; race/gender studies; dance/movement therapy

MS D. CHEESMAN
Classical ballet; dance education; Western dance history

MR D. FOURIE
Western dance musicology; performance

DR E. GREYLING
Dance notation; dance ethnology; dance criticism; classical ballet; dance photography; dance videography; dance archives

MS L. RAIZENBERG
Choreography; classical ballet; national dance; theatre technology; Western dance history
Mr M. Rani
African dance; choreography; African dance history

MR G. M. SAMUEL
Choreography; classical ballet; direction; dance education; performativity

MS L. WILSON
Contemporary dance; African diaspora dance; dance education; Western dance history

Part-time Staff

DAME M. BECKER
Spanish dance: performance, choreography, tuition

MS J. BOOYSEN
Contemporary dance: performance, choreography, tuition

MS C. BOTHA
Contemporary dance: performance, choreography, tuition

MS S. BOTHA
Dance education

MS I. FREGE
Choreography; dance education

MS K. JOHNSTONE
Contemporary dance; choreography; dance theory

MR S. KOYANA
African dance: performance, choreography, tuition

MS R. LEVY
Dance education

MR T. PONDO
African music; performance

EMERITUS ASSOCIATE PROFESSOR E. TRIEGAARDT
Classical ballet; direction/production

MR MERVYN WILLIAMS
Ballet: performance, tuition

Contact Details

Postal address: School of Dance, University of Cape Town, Private Bag X3, Rondebosch, 7701
Telephone: +27 21 650 2398/9
Fax: +27 21 650 2494
E-mail: Angie.Pearson@uct.ac.za
Web: http://www.uct.ac.za/depts/ballet/staff.htm
http://www.dance.uct.ac.za/

Research output

Chapters in books


Creative Work

Opera y Flamenco: Produced, directed and choreographed by M. Becker for UCT School of Dance. Baxter Concert Hall. Rosebank, Cape Town. 10 October 2012.


Three Solo Pieces: Choreographed by D. Cheesman for the Cape Town Eisteddfod. Sea Point Civic Centre. Sea Point, Cape Town. 1 - 13 May 2012.


Dance in the City 2: Co-ordinated and directed by D. Cheesman for a fundraising for the Zimbabwe National Trust Building. Artscape Opera House. Cape Town. 18 August 2012.


Valse Classique Choreographed by D. Cheesman for Dance UCT 2012 - [Un]known Spaces. Baxter Concert Hall, Rosebank, Cape Town. 8 - 10 November 2012.

Opera y Flamenco: Co-organised and co-performed by D. Fourie for a collaborative production by the UCT SA College of Music and UCT School of Dance. Baxter Concert Hall. Rosebank, Cape Town. 10 October 2012.

Dancers Do It Musically: Produced and co-performed by D. Fourie for the UCT School of Dance. Rosebank, Cape Town. 26 October 2012.


Dancers Do It Musically: Co-performed by E. Greyling for the UCT School of Dance. Rosebank, Cape Town. 26 October 2012.


Surface: Choreographed and co-performed on location by C. Katzke with Roné Herbst and Teagan de Marigny for the GIPCA Dance for Film Workshop. UCT Hiddingh Hall Campus. Cape Town. (18 – 22 July); Screened at the Baxter Dance Film Festival. (11 August); Baxter Theatre. Rosebank, Cape Town. (12 October) 2012.


An Evening of Irish Dance: Compiled, directed and presented by L. Raizenberg for the Cape Celtic Dance Company as part of a series of collaborative dance presentations with UCT School of Dance. Baxter Concert Hall. Rosebank, Cape Town. 29 February 2012.


An Insight into Competitive Irish Dance: Lecture demonstration presented by L. Raizenberg with members of the Cape Celtic Dance Academy for the Cape Town City Ballet Open Day. UCT School of Dance. Rosebank, Cape Town. 31 March 2012.

Vivaldi Variations: Choreographed by L. Raizenberg for Pas Classique, for Cape Junior Ballet in collaboration with UCT School of Dance. Baxter Concert Hall. Rosebank, Cape Town. [25 April]; for Dance in the City, Artscape Opera House. Cape Town. [8 August]; Bellville Civic Centre. Bellville, Cape Town. 7 September 2012.

Dance by Nature: Produced and directed by L. Raizenberg with original choreographies by second year UCT dance students. Baxter Concert Hall, Rosebank, Cape Town. 6 June 2012.

UCT Dance – A Journey from Past to Present: Directed, co-ordinated and co-choreographed by L. Raizenberg for a UCT School of Dance tour. Frascati 1 Theatre, International Theatre Schools Festival, Amsterdam, Netherlands. 23 - 29 June 2012.

A Brief Encounter and Tan Bi: Choreographed by L. Raizenberg for UCT School of Dance programme A Journey from Past to Present tour to Amsterdam, Netherlands. 23 – 29 June 2012.

Through individual lenses we move: Produced and directed by L. Raizenberg with original choreographies by third and fourth year UCT dance students, Baxter Concert Hall. Rosebank, Cape Town. 22 August, 2012.


Dance UCT 2012, Unknown Spaces: Co-choreographed by L. Raizenberg for UCT School of Dance annual production, Baxter Concert Hall, Rosebank, Cape Town. 8 - 10 November 2012.

Coal Train: Choreographed by M. Rani for a UCT School of Dance tour. Frascati 1 Theatre, International Theatre Schools Festival, Amsterdam, Netherlands. 23 - 29 June 2012.


Amajuba: Choreographed by M. Rani and performed by senior students of African dance for the UCT School of Dance annual production Dance UCT 2012, Unknown Spaces. Dance UCT 2012, Unknown Spaces. for Baxter Concert Hall, Rosebank, Cape Town. 8 - 10 November 2012.

Dance Across the Floor: Directed by G. M. Samuel for the UCT School of Dance. Baxter Concert Hall. Rosebank, Cape Town. 21 March 2012.

Sing the Body Electric: Directed and co-choreographed by G. M. Samuel for the UCT Faculty of Health Sciences collaborative centenary production co-presented by the UCT Faculty of Health Sciences, the South African College of Music and the UCT School of Dance. Baxter Concert Hall. Rosebank, Cape Town. 14 May 2012.

Dance UCT 2012, Unknown Spaces: Directed by G. M. Samuel for the UCT School of Dance. Baxter Concert Hall, Rosebank, Cape Town. 8 - 10 November 2012.


Coppélia: The roles of Dr Coppélius and the Burgomaster performed by M. Williams for the CTCB. Artscape Opera House. Cape Town. Durban Playhouse 2012.

Quando, Quando, Quando: Choreographed by M. Williams for CTCB’s Italian Affair. January 2012.

The Nutcracker: The roles of Drosselmeyer and Mr. Stahlbaum performed by M. Williams for the CTCB. Artscape Opera House. Cape Town. 2012.

The Body Electric (Ensemble Finale): Choreographed by L. Wilson for the UCT Faculty of Health Sciences collaborative centenary production Sing the Body Electric co-presented by the UCT Faculty of Health Sciences, the South African College of Music and the UCT School of Dance. Baxter Concert Hall. Rosebank, Cape Town. 14 May 2012.

Jetlagged: a dance film produced by L. Wilson, co-directed by R. Antrobus and V. Lupuwana, choreographed by K. Johnstone, and co-performed by L. Wilson, for the GIPCA Dance and Film workshop. Filmed on location at UCT Hiddingh Campus. Cape Town. Screened at the Baxter Dance Film Festival. Baxter Theatre. Cape Town. 11 August 2012.


Department of Philosophy
Research Report 2012

HEAD OF DEPARTMENT: PROFESSOR DAVID BENATAR

Departmental Profile

The Department of Philosophy is established in the Faculty of Humanities. The Department focuses on analytical philosophy, offering courses in the Philosophy of Mind, Moral and Political Philosophy, Philosophy of Language, Epistemology, Logic, Aesthetics, Applied Ethics, Philosophy of Science and Critical Thinking.

Departmental Statistics

Permanent and long-term contract staff

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<tr>
<td>Visiting lecturers</td>
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Students

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Research Fields and Staff

Permanent staff

PROFESSOR DAVID BENATAR
Moral philosophy; applied ethics; social philosophy

DR GREG FRIED
Aesthetics; philosophy of mathematics

DR ELISA GALGUT
Aesthetics; philosophy of literature; philosophy of psychology; philosophy of psychoanalysis

DR JACK RITCHIE
Philosophy of science, naturalism, analytic metaphysics

DR JEREMY WANDERER (LEAVE OF ABSENCE FROM JULY 2012)
Epistemology; philosophy of mind; philosophy of language

PROFESSOR BERNHARD WEISS
Realism and anti-realism; philosophies of language, logic and mathematics; early analytical philosophy

Visiting Lecturers

DR LAURENCE BLOOM
Ancient Philosophy, Kant, History of Metaphysics, and Ethical and Political Philosophy

Contact Details

Postal address: Department of Philosophy, University of Cape Town, Private Bag X3, Rondebosch, 7701
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Fax: +27 21 650 5203
E-mail: philosophy@uct.ac.za
Web: http://www.philosophy.uct.ac.za

Research output

Authored books


Articles in Peer-reviewed Journals


Our department is home to one of the bigger postgraduate programmes and boasts a lively and cosmopolitan postgraduate student community. Our postgraduate programmes provide students with a firm academic foundation in political theory; comparative politics; international relations; South African politics; public administration; and public policy, amongst others. Students are encouraged to pursue more specialised study under the close supervision and guidance of faculty.

Our undergraduate courses remain a popular choice and the department is one of the largest departments in the Faculty of Humanities at UCT.

Staff and students both comprise a vibrant and intellectually engaged community and you are most welcome to join us.

Departmental Statistics

Permanent and long-term contract staff

<table>
<thead>
<tr>
<th>Position</th>
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<tr>
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Honorary staff

Emeritus Professors: 2

Students

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Research Fields and Staff

Permanent staff

DR JOHN AKOKPARI
Senior Lecturer: African politics; international relations; political economy; comparative politics.

PROFESSOR ANTHONY BUTLER
Politics & public policy in South Africa, including political funding, theories of the state, policy uncertainty, party systems, the politics of HIV/AIDS policy, and black economic empowerment in SA.
PROFESSOR ROBERT CAMERON  
Senior Lecturer: Comparative local government politics & administration; public sector reform; public administration thought

MR ZWELETHU JOLOBE  
Lecturer: Comparative politics; international relations; African politics; political violence; revolutions; contemporary South African politics; democratisation

PROFESSOR ROBERT MATTES  
Senior lecturer: Democratisation; political behaviour; public opinion; survey research; research methodology; comparative politics

DR VINO Than NAI DOO  
Senior Lecturer: Public administration, with a special interest in comparative public administration and development management.

ASSOCIATE PROFESSOR ANDREW NASH  
Senior Lecturer: South African political thought; the history of political thought in the West; the making of a global political vocabulary

MS LAUREN PAREMOER  
HIV/AIDS Treatment Politics; Social citizenship; Welfare regimes in the Global South; Theories of Rights and Justice; Discourse Analysis.

DR THIVEN REDDY  
Senior Lecturer: Comparative politics; South African politics; regime transition and democratisation; political party systems and political parties; post-colonial theory and identity politics

DR KAREN SMITH  
Senior Lecturer: International Relations theory; the developing world (Africa in particular) as an object of IR study and an agent of IR knowledge; South Africa and India as regional powers in the global South

MS RAENETTE TALJAARD  
Senior Lecturer: Public Policy

PROFESSOR ANNETTE SEE GERS  
Head of Department: Conflict; security; civil military relations in Southern Africa; security among Southern African states; the role of armed forces in democratisation.

DR HARRY STEPHAN  
Senior Lecturer: International relations; international political economy; comparative governance; international law and organisation.

Emeritus Professors

Emeritus Professor Robert Schrire  
International political economy; globalisation; South African politics

Emeritus Professor André du Toit  
Intellectual history of South African political thought & traditions; political ethics, ideologies & discourse; philosophical reflections on the Truth and Reconciliation Commission; narrative interpretation of political violence in South Africa

Guest Lecturers

Ms Laura Freeman  
Lecturer: International relations; conflict; humanitarian aid; international political economy; political philosophy

Mr Markus Korhonen  
Lecturer: Developmental states; democracy and democratisation; politics and development in Botswana.

Contact Details

Postal Address: Department of Political Studies, University of Cape Town, Private Bag X3, Rondebosch, 7701  
Physical Address: Department of Political Studies, University of Cape Town, Room 5.33, Leslie Social Science Building, University Avenue, Rondebosch 7700  
Telephone: +27 21 650 3381  
Fax: +27 21 650 3799  
E-mail: hum-politics@uct.ac.za  
Web: http://www.uct.ac.za/depts/politics

Research output

Authored books


Edited books

Chapters in books


Encyclopaedia entries


Articles in Peer-reviewed Journals


Department of Psychology
Research Report 2012
HEAD OF DEPARTMENT: PROFESSOR MARK SOLMS

Departmental Profile
The Department of Psychology has strengths and interests in various research areas, including social and cultural issues pertinent to social change in the Southern African context, basic and applied topics in the brain and cognitive sciences, and a variety of topics in clinical psychology theory and practice. Additional strengths include - but are not limited to - health psychology, gender, intergroup relations, child development, policy development in mental health, programme evaluation, and trauma studies.

Departmental Statistics

Permanent and long term contract staff

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Research Associate         1
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Students

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Research Fields and Staff

Permanent Staff

DR FLORETTA BOONZAIER
My research interests are in critical social psychology (raced, classed, gendered and sexual subjectivities) and in the social psychology of gender. My continuing work involves the examination of gender-based violence through a critical feminist psychological lens, especially constructions of masculinity and femininity, social responses to intimate partner violence in the South African context, sex work/prostitution in South Africa and broader representations of gender and sexuality in childhood and young adulthood.

PROFESSOR DON FOSTER
Most areas of social and critical psychology: South Africa identities (gender / racial/ class); violence and perpetrators of violence; intergroup relations, history of SA psychology.

DR DEBRA KAMINER
The psychological effects of trauma, in particular the impact of continuous and multiple trauma exposure; and interventions to enhance youth resilience, civic participation and empowerment in contexts of adversity and violence.

DR SHOSE KESSI
My research interests are in social and critical psychology. I am interested in issues of identity, representations, consciousness, community empowerment and social change. My focus is on qualitative research in general and participatory action research in particular through the use of multimedia methods such as Photovoice.

DR DESPINIA LEARMOUTH
My research areas are based in the area of clinical and community health psychology, particularly the synthesis of social and community knowledge with western medical knowledge to increase health behaviour adherence. I am also involved in empowerment projects and work with street-based sex workers and their clients.

WAHBIE LONG
The history of South African psychology particularly insofar as it relates to present-day imperatives around transformation.

PROFESSOR JOHANN LOUW
Two major research areas: firstly, in the history of psychology focusing on: historiography; historical developments in psychological interventions and practices; the history of South African psychology; professionalisation. A second major area of interest is in programme evaluation: programmes in drug and alcohol prevention; violence prevention in schools and information technology in education.

DR SUSAN MALCOLM-SMITH
Main research interest centers on how evolutionarily conserved emotion systems impact on adaptive social function and social cognition. Ongoing projects focus on neuroscientific and neuropsychological investigations of empathy, attachment, and social function in healthy normal populations as well as in psychiatric conditions and developmental disorders.

MS ANASTASIA MAW
Psychological trauma and application of trauma theory in southern African context; working with gender based violence; training and consultation models in psychology.
DR PROGRESS NJOMBORO
Interested in investigating cognitive deficits in neuropsychiatric samples and their relationship to apathy symptoms and related disorders of goal-directed behaviour. Keen on using lesion studies and brain imaging techniques to map out the underlying functional and neural substrates of these negative symptoms.

DR NOKUTHULA SHABALALA
The role of psychology in health care especially in service delivery within primary health care settings, the management of HIV/AIDS and other sexually transmitted infections at various levels, gender issues and race and identity in contemporary South Africa.

PROFESSOR MARK SOLMS
Neuropsychology – research and clinical; brain mechanisms of dreaming, emotion, motivation; psychological mechanisms of confabulation and anosognosia syndromes.

MS LEIGH SCHRIEFF
Current research involves the implementation and evaluation of an intervention aimed at the remediation of attention deficits following traumatic brain injury (TBI) in children; interest in the broader topic of paediatric TBI in a South African context; paediatric neuropsychology research and rehabilitation; Social Psychology; contact theory and intergroup relations.

ASSOCIATE PROFESSOR SALLY SWARTZ
Discourse studies including psychotic speech, language & gender, language and power; language & psychotherapy; conversation analysis; history of psychiatry, including history of South African lunatic asylums; treatment of the insane in South Africa before 1940; social history of insanity in colonial settings.

DR KEVIN THOMAS

PROFESSOR COLIN TREDOUX
Social psychology (contact theory, social influence); psychology and law (all aspects, but especially eyewitness research, child witness research, legal decision making, false memory syndrome); cognitive psychology (face recognition); methodology and statistics. Philosophy of psychology.

DR CATHERINE WARD
Violence prevention from the perspective of children’s development, and particularly in public health approaches to this – in developing evidence-based approaches to violence prevention that have a wide reach and are effective in improving children’s development and reducing their likelihood of becoming aggressive.

DR LAUREN WILD
Processes of risk and resilience in school-age children and adolescents, including (1) family stress (e.g., family conflict and parental HIV/AIDS), caregiving and child adjustment, and (2) identifying factors associated with risk behaviours in adolescents.

DR PEDRO WOLF
Evolutionary psychology (life history theory, assortative mating); methodology and statistics; program evaluation; cross cultural research.

Contact Details
Postal address: Department of Psychology, University of Cape Town, Private Bag X3, Rondebosch 7701
Tel: +27 21 650 3417
Fax: +27 21 650 4104
E-mail: rosalind.adams@uct.ac.za
Web: http://web.uct.ac.za/depts/psychology/
UCT General enquiries: +27 21 650 9111
UCT web: http://www.uct.ac.za

Research output
Authored books

Edited books


Chapters in books


**Encyclopaedia entries**


**Articles in Peer-reviewed Journals**


Department of Religious Studies
Research Report 2012
(Including the Institute for Comparative Religion in Southern Africa, the Research Institute on Christianity and Society in Africa, and the Centre for Contemporary Islam)

HEAD OF DEPARTMENT: PROFESSOR ABDULKADER TAYOB

Departmental Profile

The Department of Religious Studies maintains a strong research profile through its staff and its three research institutes. The Department houses the Institute for Comparative Religion in Southern Africa (ICRSA), directed by Professor David Chidester, which is engaged in research on religion, religions and religious diversity; the Research Institute on Christianity and Society in Africa (RICSA), directed by Emeritus Professor James Cochrane, which is involved in research on the social impact of Christianity in South Africa and the African continent; and the Centre for Contemporary Islam (CCI), directed by Dr Andrea Brigaglia, which has undertaken interdisciplinary projects, including international research on Islamic law in Africa, Islamic publics in Africa, and the presidential legacy project on the manuscript archives of Timbuktu. Still under the co-direction of Emeritus Professor Cochrane, the International Religious Health Assets Programme (IRHAP, previously ARHAP) now with its UCT Hub office in the School of Public Health and Family Medicine in the Faculty of Health Sciences, researches various issues on the interface between religion and public health in Africa and beyond. These research initiatives of the Department have proved to be particularly important for the research development of the many postgraduate students employed by them and have also served to attract national and international researchers to the Department. The Department features two NRF A-rated researchers, Professor David Chidester and Emeritus Professor John de Gruchy, the latter of whom is retired but remains an active researcher associated with the Department. In addition the Department publishes the Journal for the Study of Religion and the Journal for Islamic Studies, which is accredited by the Department of Education, and the Annual Review of Islam in South Africa.

Departmental Statistics

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Honorary staff

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Students

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Research Fields and Staff

DR LOUIS BLOND
Continental Philosophy, Contemporary Jewish Philosophy, Jewish Religious Discourse and Critical Theory

DR ANDREA BRIGAGLIA
Islam in Africa; Sufism, religious literature and scholarly networks in 20th century’s Nigeria, Qur’anic exegesis in West African languages

PROFESSOR DAVID CHIDESTER
History of religions; religion in North America; religion in South Africa

EMERITUS PROFESSOR JAMES COCHRANE
Religion; globalisation; public health; society; Africa; migration

EMERITUS PROFESSOR JOHN DE GRUCHY (SENIOR SCHOLAR)
Christian theology, Bonhoeffer; South African Church; theological aesthetics; reconciliation; public theology; missionary history
DR ANNIE LEATT
Buddhist studies, theories and practices of post-colonial secularism, Asian theories of body, personhood and self-cultivation, political philosophy, critical theory

DR ASONZEH UKAH
Religion and Globalisation; Transnational Religion; Media and Material Culture of African Pentecostalism; Popular Culture of Pentecostalism; Pentecostal Advertising; Faith and Films; Urbanism and Sacred Space

ASSOCIATE PROFESSOR SA’DIYYA SHAIKH
Islamic intellectual history; Qur’anic studies; hermeneutics; Sufism; Islam and gender; women in religion; feminist theory; religion; sexuality and reproductive health

PROFESSOR ABDULKADER TAYOB
Religion Education; Islam and public life; intellectual trends in modern Islam

ASSOCIATE PROFESSOR CHARLES WANAMAKER
Socio-rhetorical Interpretation; Socio-rhetorical Commentary on 1 Corinthians; Cognitive Science and the Study of Early Christianity

ADJUNCT ASSOCIATE PROFESSOR MUNEER FAREED
Islamic law, economics, Islam and development

RESEARCH ASSOCIATE
Dr Lyn Holness
Rethinking faith and its imagery in the light of contemporary developments, notably in science and inter-faith issues; a holistic understanding of researcher development

Highlights from 2012

Book launches:

In December 2012, the Department of Religious Studies hosted a launch of the research report South African Muslim Women: Sexuality, Marriage and Reproductive Choices. The outline outlines the major findings of a quantitative study on South African Muslim women’s views of Islam and lived experiences pertaining to these matters. All participants, local community organizations, NGO’s working in the Muslim community as well as local media (newspapers and radio) were invited to attend the launch. Approximately 100 individuals attended. At the launch, the research team presented the major findings of the research, followed by a panel discussion on the significance of our research findings. The following panelists gave a short presentation related to particular research findings: Dr Rashied Omar (Chairperson Western Cape Religious Leaders Forum), Mwalima Mansura Africa (Islamic Unity Convention), Fatima Noordien (Muslim Youth Movement), and Shamsunisa Sablay (The Islamic Network). Research booklets were made available to all attendees and additional copies were given to local organizations and NGO’s.

Wild Religion is a wild ride through recent South African history from the advent of democracy in 1994 to the euphoria of the football World Cup in 2010. In the context of South Africa’s political journey and religious diversity, David Chidester explores African indigenous religious heritage with a difference. As the spiritual dimension of an African Renaissance, indigenous religion has been recovered in South Africa as a national resource. Wild Religion analyzes indigenous rituals of purification on Robben Island, rituals of healing and reconciliation at the new national shrine, Freedom Park, and rituals of animal sacrifice at the World Cup. Not always in the national interest, indigenous religion also appears in the wild religious creativity of prison gangs, the global spirituality of neo-shamans, the ceremonial display of Zulu virgins, the ancient Egyptian theosophy in South Africa’s Parliament, and the new traditionalism of South Africa’s President Jacob Zuma. Arguing that the sacred is produced through the religious work of intensive interpretation, formal ritualization, and intense contestation, Chidester develops innovative insights for understanding the meaning and power of religion in a changing society. For anyone interested in religion, Wild Religion uncovers surprising dynamics of sacred space, violence, fundamentalism, heritage, media, sex, sovereignty, and the political economy of the sacred.

A special issue of the Journal for Islamic Studies was published on Islamic Reform and Public Life in 2012. The peer-reviewed articles were based on some of the papers presented at the International Conference on Islamic Reform and Public Life in Africa in 2012. These essays suggest some interesting comparisons between Islamic reform movements in various political contexts. From the colonial state to the modern Moroccan Kingdom, these movements are shaped in local politics. Secondly, the articles suggest that reform is not a static concept, but open to creative and malleable interpretation. Finally, reform is not limited to Muslim debate and discourse. It is widely debated in global publics, as the meaning and role of religion in public life becomes critical in a global, and increasingly interactive world.

Conferences hosted:

The Department of Religious Studies hosted an international conference in December 2011, on Theorizing Experience, Subjectivity and Narrative in Studies of Gender and Islam. This conference brought together renowned international and local feminist scholars of gender and feminist scholars of Islam in South Africa. The intellectual project of this conference was to explore critically the connections between Muslim women’s experiences and feminist theory and methodology in order to enable the
expansion and development of Islamic feminist theory and methodology. Papers from the conference will be published in a special journal issue.

The Department of Religious Studies hosted an international conference in October, 2012, on Biographies of Religious Engagement: Islamic Activism in Psychological Perspective. Given the widespread significance and interest in Islamic activism in public life, this conference put the focus on activists and their biographical trajectories over two or three decades. Papers from this conference will be published in a special journal issue.

Visits by scholars from elsewhere:

Professor Gordon Mitchell of Hamburg University joined us as A. W. Mellon Visiting Fellow in the second half of 2012. He presented a series of undergraduate lectures and post-graduate seminars on inter-cultural education through art. He also addressed Western Cape teachers on teaching religion at a workshop on 15th September, 2012.

Contact Details

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Email: tasneem.wise@uct.ac.za
Web: http://web.uct.ac.za/depts/religion/
Facebook: ReligiousStudiesUCT
UCT General enquiries: +27 21 650 9111
UCT web: http://www.uct.ac.za

Research Output

Authored books


Edited books


Chapters in books


Articles in Peer-reviewed Journals


Department of Social Development Research Report 2012

HEAD OF DEPARTMENT: ASSOCIATE PROFESSOR VIVIENE TAYLOR

Departmental Profile

The Department of Social Development provides undergraduate social work education and training commensurate with the professional standards laid down by the South African Council for Social Service Professions. It also offers postgraduate specialist taught programmes in Social Development, Social Policy & Management, Probation & Corrections and Clinical Social Work. Postgraduate programmes by research are offered in Social Planning & Administration, Social Work and Social Development. As befits professional education, the Department maintains relationships with a wide variety of community-based organisations where students undergo professional practice based learning.

The Department places great importance on research. Current research interests of the Department include social policy and social protection systems, the social development of emergent communities, clinical intervention strategies, restorative justice, research on gender inequalities and social transformation, human development and capabilities as pathways out of poverty & social exclusion, social work in prisons, child & youth care, social administration and planning, and HIV/AIDS care strategies.

The Department is also involved in a number of extension services at both national and international levels. The Department collaborates with the Western Cape Provincial Government by providing the specialist social work honours courses in the treatment of substance abuse disorders. International research and comparative work is encouraged. At present staff in the Department are involved in international research collaboration in the fields of comparative social policy in Africa, conflict resolution and community development, financial management of the third sector and mapping social protection systems in Africa.
Departmental Statistics

Permanent and Long-term Contract Staff

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Students

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Research Fields and Staff

Permanent Staff

**ASSOCIATE PROFESSOR VIVIENE TAYLOR**  
Social policy and social protection; human security and social and economic development with emphasis on governance, poverty and gender inequalities.

**ASSOCIATE PROFESSOR ANDRÉ DE V SMIT**  
Organisational theory; management and administration; social policy; social security; resource allocation.

**ADJUNCT ASSOCIATE PROFESSOR ERIC ATMORE**  
Organisational theory; leadership and management; non profit sector; early childhood development.

**DR MARGARET BOOYENS**  
Youth development; social development; community development; poverty alleviation; leadership and management in non-profit organizations.

**DR CONNIE O'BRIEN**  
Community development; mental health issues; cultural diversities; peace education; conflict resolution/mediation; spirituality/counselling; qualitative research.

**DR LEON HOLTZHAUSEN**  

**DR JOHANNES JOHN-LANGBA**  
Migration, climate change and health; HIV/AIDS; social policy and social protection; behavioral and community health, social and public health dimensions of mining, sexual and gender-based violence; psycho social well-being; quality of life; mental health; sexual and reproductive health/rights; and programme evaluation.

**MR THULANE GXUBANE**  
Crime and society; probation and correctional practice; youth justice, juvenile offending and restorative justice.

**MRS FATIMA WILLIAMS**  
Casework/psychotherapy; groupwork and group psychotherapy; human development; mental health; professional development.

**MR RONALD ADDINALL**  
Clinical social work, sexology and psychosexual therapy, sexual health and rights, sexual minorities and human rights, and gender identity variance.

**ADMINISTRATIVE AND CLERICAL STAFF**  
Ms Marguerite Armstrong – Administrative Officer

Mr Olando Jacobs – Senior Secretary

Contact Details

Postal address: Department of Social Development, University of Cape Town, Private Bag X3, Rondebosch, 7701  
Telephone: +27 21 650 3493  
Fax: +27 21 689 2739  
E-mail: Marguerite.Armstrong@uct.ac.za

Research output

**Chapters in books**


Articles in Peer-reviewed Journals


Doctoral dissertations


Master’s degrees (by research)


Department of Sociology Research Report 2012

HEAD OF DEPARTMENT: ASSOCIATE PROFESSOR DAVID COOPER

DEPARTMENTAL PROFILE

The department has a team of active researchers with growing clusters of research groupings formed around staff members and their Master’s and PhD students. During the past few years a range of peer-reviewed journal articles but also a considerable number of books, research and consultancy reports, and public articles and presentations in the arena of national and local debate have been produced.

Research projects currently underway or recently completed in the Department, most with a South African and comparative focus, include work on: land tenure reform and traditional authorities; development of social movements; workers’ experiences of recent social change in South Africa; health policies and medical facilities with particular orientation to the HIV/AIDS pandemic; democracy and inequality in comparative perspective; industrial restructuring, unemployment, skills development and job creation; export agriculture and globalization; “race”, identity and diversity in South Africa; dynamics of corporate culture and managerial identity; organizational transformation; higher education transformation and research development; pedagogics in higher education; urbanisation, social dynamics and inequality; the nature of sociology; issues in social research methods; globalization, it’s meaning and impacts.

Professor Lungisile Ntsebeza’s NRF Research Chair is now in its fifth year of research activity and development. Professor Jeremy Seekings continues to serve as Director of the Centre for Social Science Research. Associate Professor Xolela Mangou is a member of the Editorial Board of Acta Academica and Associate Professor David Cooper serves on the Editorial Advisory Board of the Journal of Applied Social Science.

Departmental Statistics

Permanent and long-term contract staff

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<th>Position</th>
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<tr>
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Students

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Research Fields and Staff

ASSOCIATE PROFESSOR DAVID COOPER

Research development in higher education; students in the South African higher education system; issues of engaged scholarships at universities.

PROFESSOR OWEN CRANKSHAW

Racial and class divisions; sociology of housing and labour markets and the relationship between urbanisation, housing and employment.
DR JACQUES DE WET  
Senior Lecturer; methodological issues in quantitative and qualitative research; social change and identities in post-Apartheid South Africa; people-centred development theory and practice.

ADJUNCT ASSOCIATE PROFESSOR RAJEN GOVENDER  
Political behaviour; capability approach; social justice; methodological issues in quantitative research.

DR JOHANN GRAAFF  
Senior lecturer; development theory; teaching sociology; rural education.

DR JONATHAN GROSSMAN  
Senior lecturer; development of workers’ movement; Marxist theory and practice.

DR JUDITH HEAD  
Senior lecturer; Poverty, inequality & public health; HIV/AIDS in SA & Brazil.

EMERITUS ASSOCIATE PROFESSOR KEN JUBBER  
Evolutionary theory; social theory; history of sociology; philosophy of sociological knowledge.

ASSOCIATE PROFESSOR DAVID LINCOLN  
International division of labour; plantation agriculture; development.

ASSOCIATE PROFESSOR XOLELA MANGCU  
Political Sociology; sociology of institutions; social theory; race, identity and culture; urban sociology.

EMERITUS PROFESSOR JOHANN MAREE  
Industrial relations and industrial strategy; worker participation: skills development.

DR FRANK MATOSE  
Senior Lecturer; Natural resource commons; co-management; biodiversity management and rural livelihoods; land reform and biodiversity conservation; Southern Africa.

DR ELENA MOORE  
Senior Lecturer; Sociology of the family and personal life; intergenerational relations; gender; research methods; biographical research methods.

PROFESSOR LUNGISILE NTSEBEZA  
Rural development; traditional authorities; land rights; rural/urban linkages; land and the struggle against poverty.

DR AMRITA PANDE  
Senior Lecturer; Globalization; gendered bodies and gendered work spaces; new reproductive technologies and women's movement in the Global South.

PROFESSOR JEREMY SEEKINGS  
Political sociology; unemployment; social stratification & race; public policy; social movement; urban sociology.

PROFESSOR ARI SITAS  
Historical forms of deviance and social action; labour and livelihoods; industrialisation and work challenges in emerging powers; reconciliation and trauma; the labour movement in South Africa; migrant and marginal forms of labour.

ADJUNCT ASSOCIATE PROFESSOR SHARLENE SWARTZ  
Marginalized youth and development outcomes in contexts of adversity; social aspects of restitution and transformation; race and education; participatory and emancipatory research methods.

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Web: http://www.sociology.uct.ac.za/  
UCT General enquiries: +27 21 650 9111  
UCT web: http://www.uct.ac.za

Research output

Authored books


Chapters in books


Latif, D. and Sitas, A. 2012. The potential for reconciliation, forgiveness, and social transformation. In N. Trimikliniotis
Articles in Peer-reviewed Journals


O’Dwyer, C., Doyle, M., Moore, E. and Timonen, V. 2012. ‘We have all moved on’: how grandparents cope with their adult child’s relationship breakdown. Families, Relationships and Societies, 1(2): 223-241.


the Faculty of Humanities, a suite of academic programmes in library and information studies, ranging from the Postgraduate Diploma in Library and Information Studies to the PhD, with specialisation in academic and research libraries, and public libraries. Its particular subject foci are in impact analysis and assessment, and research librarianship. Staff research interests range over a wide number of important fields, ranging from the identification of skills sets for different contexts to performance measurement.

Centre Statistics

Staff

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Students

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Research Fields and Staff

**ASSOCIATE PROFESSOR JAYA RAJU**
LIS education and training, particularly its relevance to the African developing context; general/liberal arts education in the higher education context; Higher education information provision in the current knowledge context; Developing LIS skills statements

**ASSOCIATE PROFESSOR KARIN DE JAGER**
Library performance measurement and evaluation in academic and public libraries; establishing benchmarks for information literacy; databases

**ASSOCIATE PROFESSOR MARY NASSIMBENI**
Information society, information literacy; national library and information policy; performance measures for public libraries in South Africa

**DR J. GRETCHEN SMITH**
Communication of information; information need and use; subject analysis and control; indexing, classification and thesaurus construction; knowledge management

**PROFESSOR PETER G. UNDERWOOD**
Soft systems analysis; systems management; information systems design; change management; strategic management, information literacy

**DR CHARLES A. MASANGO (ASSOCIATE)**
Intellectual property rights (copyright); digital licensing agreements; contemporary copyright fair dealing management issues; First Sale Doctrine; public lending rights; indigenous traditional knowledge

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Web home page: http://www.lib.uct.ac.za/lisc/

Research output

**Authored books**

**Chapters in books**


In 2012, the CSSR consisted of a small Directorate, three research units, and additional individual personnel and small projects. The research units were the AIDS and Society Research Unit (ASRU); Democracy in Africa Research Unit (DARU); and the Sustainable Societies (Research) Unit (SSU). All permanent academic staff in the Centre have departmental appointments also.

Methodologically, CSSR research is empirical, but problem-driven. While we utilize both quantitative and qualitative strategies of data collection, our work is always based on systematic research designs with clear conceptualization of variables and transparent rules of operationalising variables, selecting cases and collecting and analyzing data analysis (in contrast to ad hoc fact collection or narrative description). After a reasonable period, collected data are turned into public access data sets. CSSR projects are usually team-oriented, bringing together multiple local and international researchers, and offering post-graduate students significant opportunities for hands-on training by involving them in all stages of projects. Research findings are presented and discussed at regular weekly seminars and published as CSSR Working Papers. Substantively, the CSSR conducts research in the broad areas of globalization, industrialization, democratization, development, poverty and public health.

AIDS and Society Research Unit (ASRU)
The AIDS and Society Research Unit (ASRU) supports research into the social and economic dimensions of AIDS in South and Southern Africa. Special emphasis is placed on exploring the interface between qualitative and quantitative research. Focus areas include: AIDS policy in South Africa, AIDS-stigma, sexual relationships in the age of AIDS, social and economic factors driving HIV infection, disclosure (of HIV-status to others), the interface between traditional medicine and biomedicine, the international treatment rollout, global health citizenship, the international treatment rollout, global health citizenship and leadership, AIDS treatment activism and the impact of providing antiretroviral treatment on individuals and households.

Democracy in Africa Research Unit (DARU)
DARU supports students and scholars who conduct systematic research in the following four areas: public opinion and political culture in Africa and its role in democratization and consolidation; elections and voting in Africa; the development of legislative institutions; and the impact of the HIV/AIDS pandemic on democratization in southern Africa. DARU has also developed close working relationships with projects such as the Afrobarometer (a cross-national survey of public opinion in fifteen African countries) and the Comparative National Elections Project, which conducts post-election surveys over twenty countries across the world.
Sustainable Societies (Research) Unit (SSU) explores the social and institutional dimensions of economic development and the interaction between human society and the natural world. Focus areas include: winners and losers in South African economic growth and the interplay between ecological and economic concerns. The SSU was previously known as the Social Surveys Unit and still works on a number of survey projects, including the Cape Area Panel Study.

Centre Statistics

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Research fields and staff

**PROFESSOR ROBERT MATTES (ALSO IN THE DEPARTMENT OF POLITICAL STUDIES)**
Director of the Centre for Social Science Research; Director of Democracy in Africa Research Unit; public opinion; democratisation; electoral behaviour; social identity; legislatures; survey research

**PROFESSOR NICOLI NATTRASS (ALSO IN THE SCHOOL OF ECONOMICS)**
Director of the AIDS and Society Research Unit; AIDS; unemployment; inequality; social and economic policy; AIDS policy; AIDS denialism; AIDS conspiracy theory; defending HIV science

**PROFESSOR JEREMY SEEKINGS (ALSO IN THE DEPARTMENT OF SOCIOLOGY)**
Director of CSSR; political sociology (race and class; social attitudes, voting behaviour and political protest); comparative politics and political economy of public policy (especially education and welfare policy); democratic theory

**ASSOCIATE PROFESSOR RAJEN GOVENDER (ALSO IN THE DEPARTMENT OF SOCIOLOGY)**
Political behaviour, political deviance and political activism; welfare economics and the capability approach; household poverty dynamics; applied fiscal impact assessment; research methodology and advanced quantitative methods

**DR BEATRICE CONRADIE (ALSO IN THE SCHOOL OF ECONOMICS)**
Director of Sustainable Societies Unit; biodiversity and predators; farm labour markets; women in agriculture; wine industry mechanisation; irrigation farming; sustainability issues and environmental certification

**DR ELENA MOORE (ALSO IN THE DEPARTMENT OF SOCIOLOGY)**
Sociology of the family, family policy, gender and intimacy, intergenerational relations, feminist theories, biographical research methods.

**DR PEDRO WOLF (ALSO IN THE DEPARTMENT OF PSYCHOLOGY)**
Evolutionary psychology

**DR JOANNE WREFORD**
Research Fellow; relationships between Traditional African Healing (TAH) and biomedicine in HIV/AIDS interventions; TAH and HIV/AIDS; children, TAH and treatment for HIV/AIDS; traditional male circumcision/medical male circumcision and HIV/AIDS

**DR ELIZABETH GUMMERSON**
Post-doctoral research fellow: Demography and public policy (class, race, gender and policy effects on mortality and morbidity) poverty/inequality policies and their effect on health and wellbeing; education and health behaviour.

**DR KEVIN ONEIL**
Post-doctoral research fellow; International migration; migration and development; immigrant integration; migration policy; xenophobia; education and support for democracy.

**DR COLLETTE SCHULZ-HERZENBERG**
Post-doctoral research fellow: Elections, public opinion and voter behaviour; politics, groups and identity; party politics; democratization theory; legislative studies; corruption and governance.

**MR NATHAN GEFFEN**
Manager, GroundUp: HIV and TB science and human rights, epidemiology particularly agent-based simulation of epidemics, parallel computer algorithms.

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UCT web: http://www.uct.ac.za

Research Output

Authorised Books

Edited books


Chapters in books


Articles in Peer-reviewed journals


Institute for Humanities in Africa (HUMA)

Research Report 2012

DIRECTOR: PROFESSOR DEBORAH POSEL

Centre Profile

The humanities have long been vital to the creative and critical energies of societies in the throes of profound change. HUMA – the Institute for the Humanities in Africa – is a new initiative at UCT, intended to create a space of dynamic interdisciplinary community for scholars and students in the humanities at large. Fostering top-end academic research, HUMA seeks also to draw on that work to nurture critical public debate, promoting UCT’s vision of itself as a civic university contributing to the making of democratic citizenship.

HUMA's intellectual agenda is driven by two inclusive research themes ‘on being human’, and ‘circuits of consumption’, which inform and structure three primary objectives:

- to conduct and promote research that is historically grounded and theoretically engaged, with an eye to the ‘big’ theoretical and ethical questions that anchor South African issues in wider fields of experience and analysis. The combination of intellectual focus and breadth provided by HUMA's research themes is intended to open up spaces for dialogue, collaboration and argument across disparate theoretical, epistemological and methodological traditions, and in ways that help examine the project of interdisciplinary work.

- to nurture the expertise and enthusiasm of graduate students interested in an academic career, through a combination of intensive and supportive doctoral supervision, and a broader programme of seminars, symposia and workshops that help develop the intellectual versatility and confidence which an academic career requires. A doctoral fellowship programme is central to the pursuit of this objective.

- to bring scholars and graduate students into conversation with interested publics, around issues of shared and topical concern. HUMA hopes to promote what public intellectuals in the humanities do best, which is to de-familiarise and unsettle established ways of seeing, think creatively about pressing social and political questions, and keep the imagination of alternative futures alive.

This mission is embedded in a particular understanding of our location in Africa. Africa is a landmass with a deep and complex history of connection and disconnection amongst its many inhabitants; being African means being party to formative relationships of connection and disconnection that shape the ways we think and act. Our scholarship and debate, then, will be positioned in Africa, even if the focus of our deliberations is not limited to the continent.

Centre Statistics

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Research fields and staff

Deborah Posel is a professor of sociology, an appointment that coincided with her taking up the position as HUMA’s founding director in January 2010. She has written and...
published widely on aspects of South African politics and society during and beyond apartheid.

Shamil Jeppie is an associate professor in the Department of Historical Studies at the University of Cape Town. He was educated at the universities of the Western Cape, Cape Town and Princeton. A recipient of a Fulbright Scholarship, he also held a Chevening Scholarship while at Oxford University and has been a fellow of the Amsterdam Institute for Social Science Research.

Zethu Matebeni studied Sociology at the University of Port Elizabeth (now NMMU), the University of Pretoria and completed an interdisciplinary PhD at WISER, Wits University. Zethu’s wide research interests and publications cover: queer issues, sexuality, gender, race, HIV and AIDS, African film and cinema and popular culture.

Ilana van Wyk received her PhD from the Department of Anthropology and Sociology at the School of Oriental and African Studies in London. Her research focuses on the intersections between money and religion; she works on new forms of Christianity, in particular prosperity gospel and Pentecostal Charismatic Churches, and on the South African Lottery.

Contact Details
Postal address: Institute for Humanities in Africa, University of Cape Town, Private Bag, Rondebosch, 7701
Tel: +27 21 650 4592
Fax: +27 21 650 3949
Web: www.huma.uct.ac.za

Research Output

Authored books

Chapters in books


Articles in Peer-reviewed Journals


2012 marked the centenary of the Faculty of Health Sciences (FHS). It is therefore fitting that the achievements of the year were notable, and reflect the positive growth of the faculty over time.

In 2010, the agreed and stated aspiration of the Faculty of Health Sciences was to achieve a position among the top fifty health science faculties in the world by 2017. In 2012, five years ahead of target, we became the first tertiary institution from any developing country globally to be placed in the Top 50 of the Times Higher Education World University Rankings for clinical, pre-clinical and health universities. Our subject-specific ranking was strongly influenced, by research performance, with scores of 89% on citations and 96% on innovation. This accomplishment was particularly special, because it coincided with the faculty’s centenary celebrations during 2012, marking 100 years of extraordinary growth, achievement and excellence in advancing health. Among more than 70 centenary-branded events, during 2012 were research-centred activities that celebrated our collaborations (both within UCT and externally), as well as activities that centred around public engagement.

The inaugural Wolfson Memorial Colloquium, Generating Knowledge Against Poverty, was held in September, in recognition of contributions to the university by Lord Wolfson of Marylebone and the Wolfson Foundation. The keynote address, A New Agenda for Global Health, was delivered by Baron Peter Piot, Professor of Global Health and Director of the London School of Hygiene and Tropical Medicine, and the work of five top UCT scholars was profiled in this arena. The programme for this prestigious event included conferring four Young Investigators Best Publication Awards for 2011.

A centenary academic debate was hosted in December, on the topic Cholesterol is not an important risk factor for heart disease and current dietary recommendations do more harm than good. The lively presentations by proponent Professor Tim Noakes from the faculty and opponent Dr Jacques Rossouw of the National Institutes of Health in the USA were streamed live on the Internet to more than 1 000 people around the world and uploaded to YouTube. The faculty also hosted a community partnership event to encourage ongoing dialogue with the communities involved in our research, as well as a more focused community collaboration event, specifically highlighting the faculty’s work with the Masphumulele population, Bringing science to the community. The centenary theme was also incorporated into research days hosted by a number of departments, and was highlighted during the 2012 inaugural lectures of FHS researchers, who included professors Anthony Figaji, Clive Gray, Valerie Mizrahi, and Carolyn Williamson.
The FHS makes a significant contribution to UCT’s research income. We were awarded 496 contracts in 2012, to the value of R393 million. This is approximately 57% of UCT’s total research income, and represents a decrease of 4% in contracts income from 2011. The FHS also contributes significantly, in terms of its publication record, which is very strong, both within UCT and in comparison with health sciences faculties at other South African universities. We have been increasing our publication count steadily over the last few years. Peer-reviewed, accredited journal output units for 2011 were 452, approximately 67% more than five years ago and 20% more than in 2010. The 2011 figure, reported in 2012, accounts for 40% of the university’s total.

The faculty is home to 23 research groupings that are accredited by the University Research Committee, including nine Medical Research Council units. In the 2012 NRF rating application cycle, an additional 11 FHS researchers received new ratings, including the faculty’s 11th A rating, when this recognition was given to Professor Jack van Honk (Department of Psychiatry and Mental Health). This increased our total number of rated researchers to 97, including 17 Y ratings. Eight of the 33 DST/NRF SARChI Chairs at UCT are within the FHS, reflecting our involvement in this research and human capacity development initiative of the Department of Science and Technology. Two significant NRF awards were also bestowed on researchers in the faculty during 2012: Professor Tim Noakes, of the MRC/UCT Research Unit for Exercise Science and Sports Medicine, received the NRF’s Lifetime Achievement Award, and Professor Kelly Chibale, of the cross-faculty Institute of Infectious Disease and Molecular Medicine and the Department of Chemistry, received recognition as the NRF Champion of Research Capacity Development at Higher Education Institutions in South Africa.

As part of the faculty’s efforts to foster successful researchers in the health sciences, 21 of our academics joined UCT’s Emerging Researcher Programme during 2012. This capacity-building initiative provides research development grants, workshops, and mentoring to emerging researchers, which serves to strengthen their profiles and prepare them for future research leadership.

In 2012, the faculty was home to more than 1,500 postgraduate students, 325 of these being PhD candidates. A total of 444 FHS students received, between them, 762 scholarships, with a value in excess of R30 million. The faculty benefited particularly from a second round of awards (13 PhD, nine postdoctoral) from the Carnegie Corporation’s Developing the Next Generation of Academics programme. During two graduation ceremonies, the faculty awarded 76 honours, 133 master’s and 38 PhD degrees across a wide range of disciplines. In addition, 192 postgraduate diplomas, one MD and one Doctor of Science were conferred, bringing the total for the year to 442. This is the highest number of postgraduate degrees/diplomas ever awarded in one academic year by the faculty and was greater than the number of undergraduate degrees awarded. The faculty was home to 99 postdoctoral fellows during 2012, representing more than a third of UCT’s 282. Between them, FHS postdoctoral fellows received 168 fellowships, valued at over R20 million. An inaugural Postdoctoral Research Day was held in November, and fellows from across the university were invited to increase awareness and encourage interaction between this contingent of UCT researchers. The day featured 14 oral and 20 poster presentations.

The growth of health research is being encouraged at all levels, and there is huge potential for inspiring undergraduate students to develop research skills. The annual FHS Undergraduate Research Day was held in October and included 12 oral presentations and 14 poster presentations selected from 34 entries. In total, 85 undergraduates from across the faculty participated.

Following the review of the FHS in 2011, the faculty formulated a Strategic Plan for Research in 2012. The strategic plan covers the period 2013–2020 and presents as its main aim ‘to advance and encourage research excellence within the FHS, within the context of the vision and mission of the Faculty and UCT, and thereby improve and promote our national and international standing as a research-led institution’. The ultimate goal is to improve the health of the people of South Africa and beyond. The faculty aims to achieve these targets via six key strategies: improving research infrastructure, building health research leadership and capacity for the future, enabling translation of research into public health impact, encouraging partnerships, increasing funding, and strengthening governance and raising standards.

In conclusion, 2012 was a busy and successful year for the faculty’s research enterprise. We witnessed the contribution of FHS research to the achievement of a position among the top fifty health science faculties in the world during our lively and productive centenary year. With the finalisation of the new Strategic Plan for Research, we look forward to the next year of industry, innovation, and knowledge generation in our faculty.
DOCTORAL GRADUATIONS

L. AHRENSTEDT (SURGERY)
Drug eluting hydrogels: design, synthesis and evaluation
Supervised by Dr D. Bezuidenhout and Professor A. Hult (KTH Stockholm)

A.A. ALHAMUD (HUMAN BIOLOGY)
Implementation of anatomical navigators for real time motion correction in diffusion tensor imaging
Supervised by Associate Professor E. Meintjes

J. ASHMORE (PUBLIC HEALTH AND FAMILY MEDICINE)
Dual practice and equity in the availability of medical specialists in South Africa
Supervised by Professor L. Gilson

I.H. BURGER (HUMAN BIOLOGY)
A control system approach to subject specific prospective respiratory motion correction in cardiac MRI
Supervised by Associate Professor E. Meintjes

L.G. CLOETE (HEALTH AND REHABILITATION SCIENCES)
Developing appropriate Fetal Alcohol Spectrum Disorder (FASD) prevention initiatives within a rural community in South Africa
Supervised by Professor L. London and Professor L. van Niekerk (Stellenbosch University)

I. COOK (HUMAN BIOLOGY)
Voluntary physical activity: measurement and relationship to selected health parameters in rural black South Africans resident in the Limpopo Province, South Africa
Supervised by Professor E.V. Lambert and Professor M. Alberts (School of Health Science, University of Limpopo)

M. DAVIDS (MEDICINE)
Immunological studies in patients with extensively drug resistant tuberculosis
Supervised by Professor K. Dheda and Dr B. Nurse

G.M. DAVIDIA (CLINICAL LABORATORY SCIENCES)
The role of the immune system in the pathogenesis of myelodysplastic syndrome
Supervised by Professor N. Novitzky

L. DE MILANDER (HUMAN BIOLOGY)
Genetic factors associated with performance and exercise-associated weight loss in ironman triathletes
Supervised by Associate Professor M. Collins

K. DHANSAY (MEDICINE)
Isolation and identification of antimicrobial compounds from South African medicinal plants
Supervised by Associate Professor P. Smith and Professor K. Chibale

L. ESAU (CLINICAL LABORATORY SCIENCES)
Proliferative and survival pathways in oesophageal cancer
Supervised by Associate Professor D. Hendricks

T. GENADE (HUMAN BIOLOGY)
A study of neurodegeneration and neuroprotection in Nothobranchius guentheri
Supervised by Associate Professor D. Lang

J. GRAY (HUMAN BIOLOGY)
Lower back pain in adolescent fast bowlers
Supervised by Professor W. Derman, Dr K. Vaughan (Cape Ray) and Professor P. Hodges (University of Queensland)
H.N. HAIRWADZI (MEDICINE)
Autoimmune hepatitis: a clinical-pathologic study of the role of ethnicity, genetics, Type 1 interferons and dendritic cells
Supervised by Associate Professor W. Spearman, Associate Professor E. Shephard and Associate Professor C.W.N. Spearman

M.S. HENDRICKS (HUMAN BIOLOGY)
The tackle in rugby union: understanding training and match behaviours to develop better coaching strategies for skill acquisition, performance and injury prevention
Supervised by Professor M.I. Lambert

M. JANSE VAN RENSBURG (CLINICAL LABORATORY SCIENCES)
The role of the human papilloma virus E6 gene in cellular transformation
Supervised by Professor M.I. Parker

S.Z. KALULA (MEDICINE)
Prevalence of and risk factors for falls in older people in an urban community in South Africa
Supervised by Professor G.H. Swinler and Professor A.A. Sayer (University of Southampton, United Kingdom)

R. KAREITHI (PSYCHIATRY AND MENTAL HEALTH)
Performance of development NGOs in HIV prevention for young people
Supervised by Associate Professor C. Lund

S.R. KLEINTJES (PSYCHIATRY AND MENTAL HEALTH)
Participation of people with psychosocial disability in mental health policy development in South Africa
Supervised by Associate Professor C. Lund and Professor L. Swartz (Stellenbosch University)

K. LAMONT (MEDICINE)
The role of melatonin in red wine-induced cardioprotection
Supervised by Associate Professor S. Lecour

E.E. LEKEI (PUBLIC HEALTH AND FAMILY MEDICINE)
Establishment of a comprehensive surveillance system for acute pesticide poisoning in Tanzania
Supervised by Professor L. London and Dr A.V.F. Ngowi (Muhimbili University, Dar-es-Salaam)

A. LOMBARD (HEALTH AND REHABILITATION SCIENCES)
The effect of sensory processing on the work performance of call centre agents in a South African context
Supervised by Associate Professor E. Duncan

L. MASSON (NEÉ ROBERTS) (CLINICAL LABORATORY SCIENCES)
The impact of sexually transmitted infections and inflammation in the female genital tract and blood on susceptibility to HIV-1 infection and disease progression
Supervised by Dr J. Passmore, Professor C. Williamson and Associate Professor F. Little

R. MATZOPoulos (PUBLIC HEALTH AND FAMILY MEDICINE)
The body count: using routine mortality surveillance data to drive violence prevention
Supervised by Professor J. Myers and Professor M.L. Thomson

A.J. NICOL (SURGERY)
The current management of penetrating cardiac trauma
Supervised by Professor D. Kahn

R.S. NTALE (CLINICAL LABORATORY SCIENCES)
The role of early cytotoxic lymphocyte (CTL) escape in the pathogenesis of HIV-1 subtype C infection
Supervised by Professor C. Williamson

H. ONYA (PSYCHIATRY AND MENTAL HEALTH)
Alcohol use among adolescents in high schools in Mankweng District, South Africa
Supervised by Associate Professor B. Myers and Professor D. Stein

A. PANDOR (CLINICAL LABORATORY SCIENCES)
An investigation into the molecular mechanisms underlying retinitis pigmentosa 17 with the view to developing novel gene-based therapies
Supervised by Professor R. Ramesar

S.P. PARIHAR (CLINICAL LABORATORY SCIENCES)
A role of statins against listeria monocytogenes and Mycobacterium tuberculosis infection
Supervised by Professor F. Brombacher

G.E. PRINSLOO (HUMAN BIOLOGY)
The physiological effects of heart rate variability biofeedback during laboratory induced cognitive stress
Supervised by Professor W. Derman and Dr L. Rauch

F.C. ROBERTSON (HUMAN BIOLOGY)
Issues in the processing and analysis of functional NIRS imaging and a contrast with fMRI findings in a study of sensorimotor deactivation and connectivity
Supervised by Associate Professor E. Meintjes and Associate Prof T. Douglas

M.S. SHEY (CHILD AND ADOLESCENT HEALTH)
Determinants of innate immune responses to mycobacteria
Supervised by Professor W. Hanekom and Dr T. Sribn

K. STINSON (PUBLIC HEALTH AND FAMILY MEDICINE)
Coverage of prevention of mother-to-child transmission services in Cape Town, South Africa
Supervised by Associate Professor L. Myer
J. SUN (SURGERY)
Using community members to assist life-threatening emergencies in violent, developing areas
Supervised by Professor L. Wallis

J. SWART (HUMAN BIOLOGY)
Perceptual cues in the regulation of endurance exercise
Supervised by Professor M.I. Lambert and Professor T. Noakes

D. TAYLOR (MEDICINE)
The use of combinations of chemosensitisers to reverse chloroquine resistance in mice infected with malaria
Supervised by Associate Professor P. Smith

R.N. THUKU (CLINICAL LABORATORY SCIENCES)
Structural analysis of C-terminal truncated mutants of the nitrilase from Rhodococcus rhodochrous J1
Supervised by Professor B.T. Sewell

L. WATSON (CLINICAL LABORATORY SCIENCES)
Novel cell models for the study of Spino cerebellar Ataxia type 7 pathogenesis and therapy in a South African patient cohort
Supervised by Professor J. Greenberg, Professor M. Wood (University of Oxford) and Associate Professor M. Weinberg (University of the Witwatersrand)

S. WIYSONGE (CLINICAL LABORATORY SCIENCES)
Building evidence for improving childhood immunisation coverage in Africa
Supervised by Professor G. Hussey and Professor B.D. Schoub (National Health Laboratory Services)

C.J. YATES (CLINICAL LABORATORY SCIENCES)
Mechanisms of chloride modulated activity in the C-domain of angiotensin converting enzyme
Supervised by Professor E.D. Sturrock

L. ZEMBE (CLINICAL LABORATORY SCIENCES)
Investigating cross-clade immune responses in HIV-1 subtype C infected individuals from South Africa: Implications for HIV Vaccine Design
Supervised by Dr W. Burgers

C. ZHANG (MEDICINE)
Population pharmacokinetic models describing drug-drug interactions and variability in HIV infected South Africans on protease inhibitor-based antiretroviral regimens with and without tuberculosis
Supervised by Dr H. McIlleron, Dr P. Denti and Professor M.O. Karlsson (Pharmaceutical Biosciences, Uppsala University)

PATENTS

FILED APPLICATIONS

BACON, T. AND MCNAUGHTH, A.M.
Prosthesis with Underactuated Prosthetic Fingers.
PCT Patent Application PCT PCT/IB2012/056637

BLACKBURN, J.M., EVANS, M. AND SRIRAM, K.
A Method of Determining the Identity of Analyte Molecule Present in a Complex Sample.
PCT Patent Application PCT PCT/IB2012/056108

BRIJAL, Y., JOHN, L.R. AND SIVARASU, S.
Hand Exoskeleton.
Provisional Patent Application South Africa 2012/08238

BURGER, I.H.
Method for Compensating for Respiratory Motion in Magnetic Resonance Imaging.
National Phase Patent Application South Africa 2012/06353

BURGER, I.H.
Method for Compensating for Respiratory Motion in Magnetic Resonance Imaging.
National Phase Patent Application United States 13/580,640

BURTON, S.G., DAVIDS, L.M. AND ZWANE, E.N.
A Hydroxytyrosol Compound.
National Phase Patent Application China 201080052708.1
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<th>Name</th>
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<td>Katz, A.A., Matjila, M.J., Millar, R.P. and Van Der Spuy, Z.</td>
<td>Compounds and Methods for Preventing Preeclampsia and/or Preventing or Treating IUGR.</td>
<td>Provisional Patent Application South Africa 2012/03098</td>
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RESEARCH CONTRACTS 496
VALUE OF RESEARCH CONTRACTS R393.47 million
NRF-RATED RESEARCHERS 95
SARCHI RESEARCH CHAIRS 8
ACCREDITED RESEARCH GROUPINGS 23
DOCTORAL GRADUATIONS 42
DHET-ACCREDITED JOURNALS 452 units
PEER-REVIEWED PUBLICATIONS 1550
FILED PATENTS 19
GRANTED PATENTS 12
POSTGRADUATE STUDENTS 1591
POSTGRADUATE FUNDING R30.5 million
POSTDOCTORAL RESEARCH FELLOWS 99
POSTDOCTORAL RESEARCH FUNDING R20.3 million
GRANTED APPLICATIONS

ACHARYA, K.R. AND STURROCK, E.D.
ACE N-Domain Crystal.
National Phase Patent Application Australia 2007204226

ACHARYA, K.R. AND STURROCK, E.D.
Crystal (N-Domain).
National Phase Patent Application Europe 07700357.2

BEETON-KEMPEN, N., BLACKBURN, J.M. AND COULSON, L.B.
Cytochrome P450 Bioassay.

BERGMAN, N.J. AND MORGAN, B.E.
Neonatal Brain Well-being Monitor.
National Phase Patent Application South Africa 2011/03203

BURGER, I.H.
Method for Compensating for Respiratory Motion in Magnetic Resonance Imaging.
National Phase Patent Application Britain 1103067.3

BURTON, S.G., DAVIDS, L.M. AND ZWANE, E.N.
A Hydroxytyrosol Compound.
National Phase Patent Application South Africa 2012/02288

CHIBALE, K., NCHINDA, A.T. AND STURROCK, E.D.
Angiotensin I-Converting Enzyme (ACE) Inhibitors.
National Phase Patent Application Europe 06765437.6

Expression of Proteins in Plants.
National Phase Patent Application Europe 06740997.9

Expression of Proteins in Plants.
National Phase Patent Application South Africa 2008/03486

ILLING, N., STEIN, D.J. AND VAN HEERDEN, J.H.
A Method of Diagnosing a Mental State.
National Phase Patent Application South Africa 2011/06540

JOHN, L.R.
Non-invasive Deep Muscle Electromyography.
National Phase Patent Application South Africa 2011/09253

OPIE, L.H.
Compositions and Methods for Treating Heart Failure.
National Phase Patent Application South Africa 2011/01773
Department of Anaesthesia

HEAD OF DEPARTMENT: PROFESSOR JUSTIAAN LC SWANEVELDER

Departmental Profile

Clinical research

The arrival of the new Professor and Head of Department of Anaesthesia, Justiaan LC Swaneevelder, signalled a new era of cardiovascular research in the Department. Professor Swaneevelder is an international expert in the field of Transoesophageal (TOE) and Transthoracic (TTE) Echocardiography, and has played a central role in the development of this field, and formal guidelines for practice and accreditation in the United Kingdom. He is a prominent member of the European Association of Cardio-thoracic Anaesthesia (EACTA). His initial contribution has involved a paper on a suggested time course for accreditation in South Africa, as well as several case reports and an editorial on the subject. Several important collaborations have been established during 2012, involving teaching and research on TTE and TOE by visiting experts (Professors E Sloth, Denmark, A Dennis, Australia and J Ender, Leipzig), with a view to training and studies in both intraoperative and point of care echocardiography. Professor Swaneevelder has also established a new laboratory research post. The first incumbent will collaborate with Professor Karen Sliwa in the Hatter Institute of Cardiovascular Research.

The Red Cross Hospital operating theatre complex continued to create an environment conducive to research, and this was evidenced by the publication of several instructive case reports, and several MMed dissertations. These include a completed pharmacokinetic study of the antimicrobial agent cefazolin during cardiopulmonary bypass. The Department of Pharmacology has developed an assay for cefazolin, which should facilitate several further important clinical trials. Important projects in thromboelastography (TEG) are ongoing, and Dr Owen Hodges is in the process of writing up his PhD on the use of TEG during burns surgery. Valuable guidelines have been published for pain management and sedation in children. A further study on the noninvasive measurement of haemoglobin in paediatrics, is nearly complete.

Obstetric Anaesthesia remains an important area of investigation. Ongoing projects involve spinal anaesthesia in preeclamptic parturient. One study has been completed on the effects of vasopressor therapy pre-delivery on neonatal acid-base status in patients with a non-reassuring fetal heart trace. A second study examines three aspects of spinal anaesthesia, namely stroke volume responsiveness prior to spinal anaesthesia, the haemodynamic effects of the vasopressor therapy prior to delivery, and the effects of various methods of administering oxytocin, including the interaction with an alpha-agonist. For this purpose, a non-invasive cardiac output device has been employed, using an algorithm based upon pulse wave form analysis. As part of these investigations, a collaboration was initiated with the Department of Anaesthesia of the University of Washington. This aspect of the study will examine the population characteristics of the adrenaline β2-haplotype in preeclamptic women. At the same time data would be collected on control healthy women. At least three MMed mini-dissertations will arise from this work. An abstract will be presented on stroke volume responsiveness in preeclampsia at the Obstetric Anaesthetists’ Association Annual Meeting in Bournemouth in May 2013. One of the investigators represented the Department at the Obstetric Anaesthetists’ Association annual 3 day course in London in November 2012. The leader of this research group, Professor RA Dyer, has received a B2 NRF rating on the basis of completed research in the period of review from 2004-2011.

Fluid therapy has continued to be a major area of interest within the Department. Studies on the anion composition of various intravenous fluids are ongoing, in collaboration with University College London. Further intravenous fluid therapy studies have included the development of a semi-automated fluid administration system for patients unable to maintain their own natural fluid balance. This project known as the “Quench” project is being developed jointly between the UCT and University College London Department of anaesthesia and critical care. A major systematic review has been published by Professor James, Professor Mythen (UCL), Professor van der Linden (Belgium) and Dr Richard Weiskopf (UCL) on the role of intravenous hydroxyethyl starch in the perioperative period. The conclusions of this review, together with the findings of the FIRST Trial, should inform the policy on use of the hydroxyethyl starches in the various settings of clinical practice at Groote Schuur Hospital. Professor James remains a very important contributor to research strategy and new protocol design in this and other areas.

The Department is an active research site for the international, multicentre POISE-2 trial of aspirin and clonidine for perioperative protection of high risk patients against perioperative myocardial events, and has recruited the second highest number of patients in South Africa. The South African principal investigator is Professor B Biccard,
from the Department of Anaesthesia, UKZN. The local site was initially set up by Professor M James. The lead author is Dr A Myburgh, with Drs O Porrill and A Emmanuel as co-investigators in 2012.

**MMed mini-dissertations**

The MMed programme for registrars is gathering momentum in the Department. Several projects are under way, and are listed below (Research Fields and Staff). Dr C de Jager has undertaken to provide training in the research process and methodology. In this regard, a formal course is envisaged, and all Consultant supervisors will be involved in the initiative, in order to increase the research capacity in the Department.

**Laboratory Research:**

The Department was involved in several areas of research in 2012. There are ongoing studies on coagulation, and an animal study of coagulation in a porcine model of acute liver failure. Transoesophageal echocardiography is being performed in baboons undergoing valve replacement. Further planned studies include the use of TEG to examine coagulation in HIV parturients, and in patients undergoing renal biopsy. The acquisition of the thromboelastometry device (ROTEM), will allow for more accurate diagnosis of causes of coagulation abnormalities. Lizel Immelman, our senior medical technologist, has been appointed to a permanent post and is performing an important research administrative role over and above her role in teaching and individual projects. She plays an important role in the teaching of the coagulation process and instruction on the use and utility of the TEG and ROTEM devices, which are based on viscoelastic changes during the clotting process.

**Collaboration**

Once again, junior consultants and registrars were encouraged to participate in research activities wherever possible, and scientific writing skills were also improved in this way. National collaboration has been strengthened, in particular with UKZN, where a study has been planned on biomarkers and echocardiography in patients with severe preeclampsia; effects of fluid loading, vasopressors and oxytocin; the genetics of preeclampsia; effects of vasopressors on cord gases.

**Research Fields and Staff**

**SWANEVELDER, JLC.**
Transoesophageal and transthoracic echocardiography (see above). Laboratory work on local anaesthetic toxicity in mice, employing TTE.

**JAMES, MF.**
Ongoing coagulation studies employing thromboelastography; blood transfusion and anaesthesia; crystalloid v colloid in trauma resuscitation; saline v balanced salts in perioperative management.

**DYER RA, REED AR, VAN DYK D, ARCACHE M, EMMANUEL A, SCHULEIN S, VORSTER A,**
Okaisabor O, K Timmerman.
Obstetric anaesthesia:
Cardiac output studies during spinal anaesthesia in patients with preeclampsia; effects of fluid loading, vasopressors and oxytocin; the genetics of preeclampsia; effects of vasopressors on cord gases.

**THOMAS J.**
Management of burns in children; pain management in children; Case reports; Fluid management in children; Noninvasive haemoglobin measurement; Pharmacokinetics of antimicrobial agents during cardiopulmonary bypass; Paediatric burns: Coagulation studies; Evaluation of the need for psychosocial services for paediatric burn patients at the RCWMCH.

See also further MMed supervision, below.

**HODGES O.**
Coagulation in patients with paediatric burns.

**MYBURGH A, HEIJKE SA.**
Transoesophageal echocardiography in cardiac anaesthesia. Point of care TTE.

**MYBURGH A, JAMES MF.**
POISE-2 trial.

**LLEWELLYN R.**
Drug errors in anaesthesia.

**Contact Details**

Postal Address: D23 Department of Anaesthesia, New Groote Schuur Hospital, Anzio Road Observatory, 7925, South Africa
UCT Telephone: SA (21) 406 6143
GSH Telephone:SA (21) 404 5004
Fax:SA (21) 406 6589
Email: justiaan.swanevelder@uct.ac.za; robert.dyer@uct.ac.za
Research output

Articles in peer-reviewed Journals


Department of Clinical Laboratory Sciences

Division Of Anatomical Pathology

HEAD OF DIVISION: PROFESSOR D GOVENDER

Division Profile

The Division of Anatomical Pathology has both diagnostic and academic components. The diagnostic laboratories form part of the National Health Laboratory Service (NHLS) complex at Groote Schuur and Red Cross War Memorial Children’s hospitals.

The Diagnostic laboratories are at both sites and provide a diagnostic surgical pathology, cytology and autopsy services to GSH, the academic hospital complex and associated hospitals and clinics in the Western Cape. The division also serves as a public and private tertiary referral and consultation centre for Anatomical Pathology.

These service commitments drive most of the research programmes that are patient and disease orientated. The Division has recently acquired a research laboratory and had 1 PhD, 13 MSc, 1 BSc Hon, 1 MPhil (Paediatric Pathology) and 3 elective students during the reporting period. The Division has been involved in a range of research activities using a variety of techniques and continues to broaden its research base. The main research focus is in the field of molecular pathology pertaining to diseases that are common in South Africa and the Western Cape – these include various cancers, in particular those affecting disadvantaged population groups. Other research areas include tuberculosis, cardiomyopathy and foetal-alcohol syndrome.

The Division has been approached to provide support for Anatomical Pathology specialist training at the Universities of Botswana and Zambia.

The Division successfully hosted a Centenary Paediatric Pathology Day in September 2012. This coincided with the Faculty centenary celebrations. Several talks were delivered by international guests.
Collaborative Research

The Division has active collaborations internationally with the United Kingdom and continues to establish collaborations with other Academic Pathology departments in Africa. We have recently embarked on a joint breast cancer research project with the Aga Khan University in Nairobi. We are exploring similar collaborations with the Pathology department at the Muhimbili University of Health and Allied Sciences in Dar es Salaam.

There are internal collaborations with the departments of Surgery, Medicine, Cardiology, Obstetrics and Gynaecology, Radiation Oncology, Human Genetics and Medical Biochemistry.

Staff

Permanent and Long-term Contract Staff on UCT Establishment

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<td>Professor (HOD)</td>
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Permanent Joint Academic Staff on NHLS Establishment

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Honorary Staff

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Students

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Distinguished Visitors

- Dr Marta Cohen – Sheffield University, UK
- Dr Cynthia Kaplan – Boston, USA
- Professor Jane Dahlstrom – Canberra, Australia
- Dr Ronald de Krijger – Rotterdam, Netherlands
- Dr Adrian Charles – Perth, Australia
- Dr Irene Scheimberg – London, UK
- Dr Megan Dishop – Aurora, USA
- Dr Aurore Coulomb – Paris, France
- Dr Sara Vargas – Boston, USA
- Dr Victor Mudenda – Lusaka, Zambia
- Professor Victor Wakwe – Port Harcourt, Nigeria
- Dr Carl Albrecht – CANSA
- Alice Victor – CANSA

Research Fields and staff

PROFESSOR DHIRENDRA GOVENDER
Pathobiology of cancers, especially breast cancer, gastrointestinal tract cancers and paediatric solid tumours.

ASSOCIATE PROFESSOR RICHARD NAIDOO
Molecular pathology and biomarkers in cancer.

ASSOCIATE PROFESSOR HELEN WAINWRIGHT
Foetal, perinatal & neonatal pathology, placental pathology, respiratory pathology including TB, cardiac pathology including cardiomyopathy and liver disease.

DR MAUREEN DUFFIELD
Neuropathology, renal pathology and electron microscopy.

DR MICHAEL LOCKETZ
Gastrointestinal tract pathology.

DR SHUMANI MALAKA
Breast, gynaecological and thyroid gland pathology.

DR KOMALA PILLAY
Paediatric pathology, lymphoma and fine needle aspiration cytology.

DR RAVEENDRA SOOKHAYI
Lymphoma and Soft tissue sarcoma

DR HUE-TSI WU
Gynaecological pathology and tissue microarrays.
Contact details
Division of Anatomical Pathology
Department of Clinical Laboratory Sciences
Level 4, Room 4.10, Falmouth Building
Faculty of Health Sciences
University of Cape Town
Anzio Rd
Observatory, 7925
SOUTH AFRICA
Tel: 021 406 6162
Fax: 021 404 7611
E-mail: Dhiren.Govender@uct.ac.za
Website: Anatpath.uct.ac.za

Department Of Clinical Laboratory Sciences

Division Of Chemical Pathology
(Including the Chemical Pathology sections of Groote Schuur Hospital and Red Cross War Memorial Children’s Hospital)

HEAD OF DIVISION: PROFESSOR DAVID MARAIS

Divisional Profile

The Division of Chemical Pathology comprises both academic and diagnostic sections. The academic section is located in the Faculty of Health Sciences and the diagnostic laboratories are based in NHLS core laboratory, Groote Schuur Hospital and Red Cross Children’s Hospital. These offer a comprehensive dedicated routine chemical pathology diagnostic service to both adult and paediatric patients attending the Groote Schuur and Red Cross Children’s Hospitals. There is extensive clinical interaction with members of staff participating actively at the laboratory/ward interface by attendance at ward rounds and clinical meetings with the Division of Endocrinology, Porphyria service and the Lipid Clinic. The Division has a strong specialist diagnostics and research focus on metabolic disorders of acquired and familial aetiology. In addition, the Division has a proud historical tradition of basic science research that cascades down into registrar training. Teaching commitments address both undergraduate and postgraduate needs with a number of MSc, PhD and MMed students under current supervision. The Division is also actively involved in contributing to the teaching programmes of the Division of Medical Biochemistry and the Department of Molecular Cell Biology in the Faculty of Science.

Research activities cover the molecular cell biology of insulin signalling and insulin resistance, the molecular basis of metabolic disease in HIV/AIDS, identification of new biomarkers using proteomics, biochemical mechanisms of ion and drug pumps, the identification of new drug targets in Tuberculosis and Leishmaniasis, the molecular genetics of inherited metabolic disorders, mitochondrial myopathies and erythrocyte antioxidant biochemistry. Individual researchers have established international collaborations across the world. The Division is actively engaged in a number of outreach programmes across Africa. Strong academic links are in place with Walter Sisulu University and there are regular teaching/examining visits from academic staff of the Division of Chemical Pathology to Mthatha. A joint registrar training platform has been established with the University of Stellenbosch and joint academic activities take place regularly between the two Divisions. The Division also regularly hosts supernumerary staff from neighbouring SADC countries (currently Malawi and Zambia) for the purpose of postgraduate training. The Division has established itself as one of the premier Chemical Pathology academic units in Africa for training and research. The Division has held a number of training courses in laboratory methods and laboratory management and has become the preferred provider of these in Africa. In addition, the Division has an active academic programme which is comprised of CPD-accredited weekly journal clubs, seminars and clinical ‘grand rounds’. The Division has also established a tradition of hosting international guest lecturers under the auspices of the Visiting Lecturer’s fund.

The Division’s Research Laboratories and expertise have attracted junior and senior colleagues from other specialties and institutions who have been keen to interact with colleagues in the Division. In particular, these have included the Department of Medicine (Professor Bongani Mayosi), and Division of Medical Biochemistry (Professor Peter Meissner); the Department of Chemical Pathology at the University of Stellenbosch (Professor Rajiv Erasmus); Anatomical Pathology, University of Cape Town (Professor Dhiren Govender).

Distinguished visitors
Michael Livingston (04 Jan 2012)
Professor Gilles Lambert (12 March 2012)
Professor Neil Harris (02 April-13 April 2012)
Dr Ardie Viljoen (03 April)
Professor Ishwarlal Jialal (09 July 2012)
Professor TS Pillay (26 September 2012)
Dr Chantal de Chastellier (09 November 2012)
Professor Wim de Villiers (27 November 2012)
Dr Antonio Assane (04 December 2012)
Dr Eva Naiuea (04 December 2012)
Divisional Statistics

Permanent and Long-term Contract Staff

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Students

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Research Fields and Staff

Permanent Staff

**DR PETER A. BERMAN**
Principal Specialist; Insulin gene polymorphisms; red cell chemistry and biochemistry, urate metabolism, metabolic disorders, Oxalate metabolism and the influence of ascorbate on oxalate excretion; undergraduate and postgraduate teaching. Retired at the end of May.

**DR HELEEN VREEDE**
Senior Specialist; oversees routine laboratory service at GSH; method development; information technology;

**DR GEORGE VAN DER WATT**
Specialist; oversees routine laboratory and inherited metabolic disease diagnostic service at RXH; Chemical Pathology of HIV/AIDS; undergraduate and postgraduate teaching; paediatric biochemistry.

**DR FIERDOZ OMAR**
Oversees the routine diagnostic and molecular laboratory service at Groote Schuur Hospital in charge of the undergraduate teaching portfolio; Postgraduate teaching; Role of cell-free DNA in prenatal sex determination

**DR DAVID HAARBURGER**
Oversees the routine diagnostic laboratory service at Groote Schuur hospital and supports method development and diagnostic interpretation of IMD profiles at RXH. Undergraduate teaching portfolio; Postgraduate teaching. Proteomic markers of HIV, molecular genetics of androgen insensitivity syndrome, steroid profiling by LC MS MS.

**DR JUDY A. KING**
Medical Scientist (Principal); hypertension; renin; aldosterone; sodium channel mutations; routine diagnostic reviewing; undergraduate and postgraduate teaching

**DR E. PATRICIA OWEN**
Medical Scientist (Principal); inherited metabolic disease; homocysteine; mitochondrial DNA mutations; TPMT mutations; urea cycle disorders; hypertension; pre-eclampsia, epithelial sodium channel mutations; newborn screening for glutaric aciduria type 1, postgraduate teaching

**MS FELICITY LEISEGANG**
Medical Scientist (Senior II); molecular genetics of galactosaemia; spinal muscular atrophy; cystic fibrosis; Western blotting in limb-girdle muscular dystrophy; TB-PCR; application of PCR to genetic screening; postgraduate teaching

**EMERITUS PROFESSORS**
Emeritus Professor Eric Harley
Purine and pyrimidine metabolism; comparative biology of red cell antioxidant systems, wildlife conservation, genetics, theoretical evolutionary genetics.
Emeritus Professor Mervyn Berman

**HONORARY PROFESSORS**
Professor Ishwarlal Jialal; Honorary Professor of Chemical Pathology and Medicine, University of Cape Town; Robert E. Stowell Endowed Chair in Experimental Pathology, Director of the Laboratory for Atherosclerosis and Metabolic Research, and Professor of Internal Medicine, Division of Endocrinology, Clinical Nutrition and Vascular Medicine, at the University of California, Davis, Medical Center.

Professor TS Pillay, MBChB Natal, PhD Cambridge UK, MRCPath UK

**GRADUATES 2012**
Dr Philip Fortgens (Pathologist)
Dr Ryan Benjamin (Pathologist)

**Contact Details**
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Telephone: +27 21 406 6192
Fax: +27 21 448 8150
E-mail: cpy-secretary@uct.ac.za
Web: http://web.uct.ac.za/depts/chempath/
Department Of Clinical Laboratory Sciences

Computational Biology Group

HEAD OF GROUP: ASSOCIATE PROFESSOR NICOLA MULDER

Group Profile

The University of Cape Town Computational Biology (CBIO) Group is the centre of Bioinformatics activities at the university. It was originally set up as a Node of the National Bioinformatics Network, which aimed to develop capacity in bioinformatics in South Africa, and to perform world-class bioinformatics research. The CBIO Group is located within the Institute of Infectious Disease and Molecular Medicine (IIDMM) in the Health Science Faculty, and integrates researchers interested in bioinformatics at the university. The group performs bioinformatics research and provides training and services in the discipline.

The mission of the UCT Computational Biology Group is to become an exceptional, internationally recognized research and training center, addressing the challenges of bioinformatics capacity development in South Africa.

CBIO has a large network of connections with other bioinformatics groups in Africa through the African Society for Bioinformatics and Computational Biology, and a pan African bioinformatics network for H3Africa (H3ABioNet). The group also has close ties with the African Institute for Mathematical Sciences (AIMS) by supervising student essays.

Training Activities in the Group

Undergraduate and Postgraduate teaching

The group teaches a module for Molecular medicine students and several modules for the Health Science Honours programme. It also coordinates the Health Science Honours Programme in Bioinformatics. However, the main focus of the group is on postgraduate education, and the group supervises a number of students (listed later). The CBIO staff also organize and teach on a national course program for postgraduate bioinformatics students.

Graduations

Renaud Gajoux –PhD
Holifidy Arisoa Rapanoel –Master’s with distinctions
Boitumelo Mofolo –awarded Master’s degree, will graduate in 2013
Arjun Khoosal –Honours degree
Catherine Van Zyl –Honours degree
Rebone Meraba – Honours degree
Sasha Moola – Honours degree with distinctions

Other Training Activities

The CBIO groups runs short specialized workshops for researchers. In 2012 this included:
- High-throughput Biology and Human Genetics Course (Mauritius) Jan 2012
- Workshop on Population Genetics and Genomics (June 2012)
- UniProt and Tuberculist Workshop (November 2012)
- Microbiome Workshop (November 2012)
- Chipster Workshop (December 2012)

Bioinformatics Service-Related Outputs

Human Genetics Division: Ayton Meintjes and Gerrit Botha work as part of the group’s services team by providing support to other researchers. These include the following activities: Human Genetics Research Unit: Gerrit processed human exome data from 6 patients. He made use of the ICTS HPC (http://srvslnhpc001.uct.ac.za) to do quality control, alignment, post-processing and SNP calling. Visualisation was done with the Galaxy genome viewer together with IGV (Integrated Genome Viewer). He also processed full human genome data from 5 patients using the same hard-ware and tools, including SVA (Sequence Variant Analyzer). Ayton is working with Professor Ramesar from the Human Genetics Division on an AfriVariants database for local population genetics data.

Immunology Division: Gerrit worked with Heather Jaspan on analyzing her microbiome data on infants with HIV-infected mothers, and Ayton worked with Associate Professor Jo-Anne Passmore on array data her group generated on cervical samples.

Medical Biochemistry Division (Blackburn lab): assistance was provided with running large peptide blasts on the ICTS HPC cluster. Pre- and post-processing of data was done using customized tools in Galaxy on our local server.

Molecular and Cell Biology Department: EST data from the resurrection plant Xerophyta Humilis was assembled and genes were predicted. Assembled genes were annotated using a combination of tools such as InterProScan, Blast and Blast2GO. All modules from basecalling to annotation were integrated in our local Galaxy installation, so we can easily rerun the complete workflow. Gerrit also processed and assembled EST data from human, bats and mice. Some modules specific to this pipeline were developed and integrated in our Galaxy installation. Ayton provided support for analysis of array data for Maize and we performed function and path-way analysis on the results.
External collaborations: Ayton works with external collaborators on collecting, processing, storing and visualizing African human genetics variation data. He developed a population genetics module in Galaxy for mining the data. He is also supporting German collaborators on exon array and RNA-Seq data analysis. As part of a Swiss-SA collaboration, Gaston Mazandu’s work on predicting functions for \textit{M. tuberculosis} hypothetical proteins is being fed into the TubercuList and Swiss-Prot databases.

**Additional Achievements in the CBIO Group**

Nicola Mulder has been awarded ~$12 million by the NIH through their H3Africa initiative to lead the development of a Pan-African Bioinformatics network involving over 35 partners in 15 African countries and the USA. The network will be responsible for providing bioinformatics infrastructure to support the NIH and Wellcome Trust funded Human Heredity and Health in Africa projects and for building bioinformatics capacity on the continent. Nicola was promoted to full member of the IIDMM in 2011 and received her first NRF rating at B3. She was also voted in as the next President of the African Society for Bioinformatics and Computational Biology, and joined the African Institute for Mathematical Sciences Executive Committee.

Dr Darren Martin received an NRF rating of B3, and was invited to give a plenary talk at the fourth plant virus ecology network conference in Montpellier, France. In addition, his PhD student Aderito’s first first-author paper was selected for the cover of the Journal of Virology. Finally, Darren’s computer program appeared in the virus epidemic disaster movie Contagion!

**Group Members**

**Staff**

Associate Professor Nicola Mulder (Head of Group)
Dr Darren Martin (Senior Lecturer)
Ayton Meinjies (Software Developer)
Gerrit Botha (Software Developer)
Cashifa Karriem (Administrator)

**Students**

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<th>Course Level</th>
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**Contact details**

**Physical address:**
UCT Computational Biology Group
Room N1.05
Werner Beit North Building Basement
Institute of Infectious Disease and Molecular Medicine
Anzio Rd
Observatory

**Postal address:**
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Institute of Infectious Disease and Molecular Medicine
University of Cape Town Health Sciences Campus
Anzio Rd
Observatory
7925
South Africa

E-mail: info@cbio.uct.ac.za
Web: http://www.cbio.uct.ac.za/
Tel: 021-406 6176
Fax: 021-650 6068

**Clinical Laboratory Sciences**

**Division Of Forensic Medicine And Toxicology**

(Including the Gender, Health and Justice Research Unit)

**HEAD OF DIVISION: PROFESSOR LORNA J. MARTIN**

**Divisional Profile**

A range of activities related to the role of Forensic Medicine in public policy and health promotion are being pursued. These relate specifically to violence against women and children, the role of drugs and toxins in deaths, and firearm injuries. The provision of a sustainable database on violence and injury in the Cape Town Metropole is being implemented as an urgent research priority. We provide inputs into the National & Provincial Injury Mortality Surveillance System (NIMSS & PIMSS).

A large component of operational activity of the Division of Forensic Medicine is that of service delivery. The academic staff are on the joint staff establishment of the University of Cape Town and the PGWC: Health; Forensic Pathology Services. This is a fairly new programme of the PGWC: Health, established in April 2006, when the responsibility of “mortuary services” was transferred to the Province from SAPS. We are responsible for the medico-legal investigation of death of all persons who die within the
Metropole, an area comprising approximately 4.5 million persons, stretching from Atlantis on the West Coast, the Peninsula, the City, to everything south of the N2 up to, but not including, Khayelitsha. Our clinical services are based at Salt River Mortuary and we perform approx 3 500 autopsies per annum. The Division does not yet have a dedicated research laboratory, but this should be established in 2011. We do provide a clinical teaching neuropathology laboratory with a specialist neuropathologist. This, together with the heavy investigative service load and a critical shortage of pathologists, has limited research activities within the Division, but this will change with the establishment of our research laboratory and our proposed Master's course in Forensic Science (2012).

There are active collaborations with the departments of Anatomical Pathology, Surgery, Obstetrics and Gynaecology, Human Genetics, Paediatrics and Psychiatry; and EMS and the Law faculty.

### Divisional Statistics

#### Permanent and Long-term Contract Staff

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<th>Position</th>
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#### Students

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</table>

### Research Fields and Staff

#### Permanent Staff

**PROFESSOR L.J. MARTIN**

Head of Clinical Department & Professor: Management protocols for rape survivors; domestic homicide; monitoring implementation of rape law reforms; domestic violence guidelines for the health sector; epidemiology of female murder; aortic disease; indicators for the Lodox Statscan in children; age estimations for children using Lodox statscans; paediatric trauma and World Cup Soccer; National study of female and children homicide in South Africa; identification of areas for quality improvements in preventable trauma deaths at Groote Schuur Hospital.

**DR G.M. KIRK**

Head of Clinical Unit & Senior Lecturer: Sudden deaths in sport; firearm injuries; death notification; drug-related deaths; forensic histopathology; history of forensic medicine

**DR Y.Y. VAN DER HEYDE**

Senior Specialist & Senior Lecturer: The effects of pre-natal alcohol exposure; paediatric mortality; animal bites in children; early adolescent suicide, child homicide including child abuse; sudden unexpected death in childhood including SIDS.

**DR L. LIEBENBERG**

Senior Specialist & Senior Lecturer: Firearm fatalities and final judicial outcome; aortic disease project; mast cell Tryptase; case studies – curious deaths; atherosclerotic disease prevalence in the Cape Town population; Lodox X-ray application in the forensic setup.

**DR I.J. MOLEFE**

10 year retrospective study of epidemiology and analysis of injury patterns of femicide and rape homicide in Cape Town: A follow-up study.

**DR S. MAISTRY**

Deaths on Table Mountain: A retrospective analysis 2000-2011

**DR S. MFOLOZI**

Development of the NecroChronometer: determining the post-mortem interval using a combination of three methods and location-specific weather information

**DR E.B. AFONSO**

Identifying trends and risk factors for deaths in police custody in the Cape Town Metropole, 1999-2008

**DR A. KHAN**

SNP genotypes and skin tone variation in South Africa; male sexual assault; maternal deaths (a forensic perspective)

#### Contact Details

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Fax: +27 21 448 1249

E-mail: june.mehl@uct.ac.za; lornaj.martin@uct.ac.za

Web: www.forensicmedicine.uct.ac.za
Gender, Health And Justice Research Unit
DIRECTOR: ASSOCIATE PROFESSOR LILLIAN ARTZ
ACTING DIRECTOR: DR KELLEY MOULT (2012)

Unit Profile

The mission of this Unit is to improve service provision to victims of violence against women in South Africa through research, advocacy and education. Drawing together established researchers with a strong record of social-action research in disciplines including law, criminology, forensic sciences and pathology, gynaecology, and psychology, this Unit is the first of its kind in South Africa to respond to the pressing need for research and interventions that cross disciplines in support of our efforts to address the alarmingly high levels of violence against women in this country. The Unit fulfils its mission by conducting rigorous evidence-based research into:

South African women’s experiences of sexual and gender-based violence;
The responses of women, their communities and the criminal justice, health, and welfare systems to violence against women;
The intersections and disjunctures between health and criminal justice responses to violence against women;
The developmental context in which violence occurs, and the role of violence in perpetuating women’s under-development;
The implementation difficulties of translating ‘law on paper’ into ‘law in practice’ in health, criminal justice and medico-legal settings;
The development of indicators for monitoring the implementation of progressive legislation and compliance by criminal justice and health sector personnel with statutory duties;
Risk factors and women’s pathways to crime and experiences and impacts of female incarceration;
International and local models of best practice for addressing violence against women.

The Gender, Health and Justice Research Unit was awarded the University of Cape Town’s Social Responsiveness Award for 2009.

Unit Staff

<table>
<thead>
<tr>
<th>Staff Type</th>
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<tbody>
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Research Fields and Staff

ASSOCIATE PROFESSOR LILLIAN ARTZ
Feminist legal theory; women and law reform; sexual offences; domestic violence; research ethics; the medical management of female survivors of violence; incarcerated women; prison reform and torture.

DR KELLEY MOULT
Feminist criminology; gender-based violence and policy; domestic homicide; forensics, the intersection of traditional and western justice systems, research methods.

YONINA HOFFMAN-WANDERER
International and comparative law; women’s socio-economic rights; religious and cultural rights; incarcerated women; sentencing.

DR STEFFI RÖHRS
Women’s rights, HIV/AIDS and gender-based violence; HIV/AIDS and the law; law reform.

KATE ASCHMAN
Policing and law enforcement; sexual offences and HIV; human rights; gender-based violence and incarcerated women.

TALIA MEER
Gender-based violence, women’s rights, LGBTI rights, access to justice, rural development, and political ecology

TSITSI MPOFU-MKETWA
Women’s empowerment, rural development, urban poverty, social justice and social inclusion.

CARMEN CORRAL-BULNES
Gender-based violence, incarceration, women’s mental health, domestic homicide and aggressive behaviour in intimate relationships.
Research Associates

Professor Jeanne Flavin (Fulbright Scholar – Fordham University)
The impact of the criminal justice system on women; social and civil rights of women; reproductive rights.

Helene Combrinck (University of the Western Cape)
Disability law and policy, domestic violence and disability.

Administration
Debbie Victor

Interns
Louise Carmody (Faculty of Law, UCT)
Chloë McGrath (Department of Criminal Justice, UCT)
Jenna Chai (University of Michigan)
Gabrielle Inglis (McMaster University, Canada)
Swantje Tiedemann (University of Hamburg)
Emma Backe (Vassar College, USA)
Lauren Gomer (University of Kent)

Contact Details
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Telephone: +27 21 406 6024
Fax: +27 21 406 6020
E-mail: mrd-gender@uct.ac.za or kelley.moult@uct.ac.za
Web: http://www.ghjru.uct.ac.za

Department Of Clinical Laboratory Sciences

Division Of Haematology And Uct

Leukaemia Unit
HEAD OF DIVISION: PROFESSOR NICOLAS NOVITZKY

Divisional Profile

Diagnostic Services
The Division of Haematology at Groote Schuur Hospital is a complex unit with multi-disciplinary activities that include outpatient clinics, admission beds as well as diagnostic and research laboratories. The clinical services are organised under the umbrella of the Department of Internal Medicine, while the laboratory diagnostic sections are under the broader organisation of the Department of Clinical & Laboratory Sciences and National Health Laboratory Service (NHLS).

The laboratory continues to offer comprehensive diagnostic testing for the diagnosis and management of all haematological malignancies. It also offers diagnostic services for a Comprehensive Haemophilia Centre, as well as to a number of tertiary/quaternary programs. This laboratory also acts as a tertiary referral centre for local hospitals and outlying clinics of the Western Cape, as well for referral samples from the Eastern Cape. The routine and molecular haematology laboratories were again successfully accredited by SANAS.

Teaching and Training
The department remains a primary teaching and training site for medical technologists, technicians, undergraduate medical students of the University of Cape Town and registrars (specialising postgraduate doctors) in Haematopathology and Clinical Haematology. Currently there are five haematology pathology registrars and one clinical pathology registrar who are enrolled in the UCT postgraduate program.

Dr Karen Shires continues to provide training in the molecular haematology course for haematology registrars and technologists together with Ms Iva Shankland. Dr Karen Shires and Ms Iva Shankland have provided PCR and DNA lectures/practicals for Anatomical Pathology registrars. Dr Karen Shires is part of a team who have developed the Molecular Forensic MSc course. She is the Forensic Genetics course convener.

Dr Shaheen Mowla is involved in the following Undergraduate Teaching: MBChB Intercalated Molecular Medicine course: Basic cell structure and function; Cell Cycle; Cell Stress responses and cell death mechanisms; Restriction Enzymes and Electrophoresis; MBChB Semester 2: Histology of the skin; MBChB Semester 3: Histopathology of the skin.

Consultant pathologists Drs Almero Du Pisani, Jessica Opie and Monalisa Ntobogwana as well as Mr Francois Barton have delivered training courses to NHLS technologists at NHLS Green Point Complex in Cape Town.
Divisional Statistics

Permanent and Long-term Contract Staff:

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<td>Diagnostic Service</td>
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<td>Scientist</td>
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<td>UCT Leukaemia Unit</td>
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<tr>
<td>Laboratory assistants (medical school)</td>
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Students

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<td>MMed</td>
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Haematology Research Projects

**DR KAREN SHIRES**
Novel diagnostic, prognostic and MRD assays for haematological malignancies; cancer testis expression in Multiple Myeloma.

**PROFESSOR NICOLAS NOVITZKY**
Immunomodulation of stem cells for transplantation.

**DR SHAHEEN MOWLA**
Molecular Biology of Cancer; Burkitt's lymphoma and HIV; Role of activation-induced cytidine deaminase in cancer; miRNA in cancer

**DR L A DU PISANI**
Malaria diagnosis, Western Cape, managed and the outcome.

**DR JESSICA OPIE**
HIV-Associated Burkitt Lymphoma and Antiretroviral Therapy; HIV-Associated Hodgkin Lymphoma.

Research Fields and Staff

**PROFESSOR NICOLAS NOVITZKY**
Haematopoietic stem cell biology; clonogenic assays; haematopoietic stem cell transplantation; immune reconstitution; haematological malignancies

**DR CECILE DU TOIT**
Haematopoietic stem cell transplantation; haematological malignancies; haemophilia

**DR ANDREW MCDONALD**
Haemophilia; thrombophilia; stem cell transplantation

**DR JESSICA OPIE**
Molecular biology of neoplasia: chronic myelogenous leukaemia; coagulation abnormalities

**DR JESSICA OPIE**
Molecular biology of neoplasia: chronic myelogenous leukaemia; coagulation abnormalities

**DR KAREN SHIRES**
Molecular biology and diagnostics

**DR SHAHEEN MOWLA**
Minimal residual disease and flow cytometry.

**MRS RYGANA ABDULLA**
Cellular biology of neoplasia; clonogenic assays

Contact Details

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Web: http://web.uct.ac.za/depts/haem/
Clinical Laboratory Sciences
Division Of Human Genetics
Including the MRC/UCT Human Genetics Research Unit and CANSA's National Colorectal Cancer Research Consortium

HEAD OF DIVISION: PROFESSOR RAJ S. RAMESAR

Divisional Profile
The Division is unusual in that it conducts its business through three interacting ‘institutions’:

1. An extensive clinical service through the Provincial Government of the Western Cape;

2. Its laboratory diagnostic services through the National Health Laboratory Services, and

3. Its academic (research and teaching) activities through the University.

The UCT/MRC Human Genetics Research Unit was created while the Human Genome Project was underway. The mandate for this Unit was (i) primarily one of capacity development in the field of Genetics and Genomics, (ii) understanding the relevance of developments in genetics and genomics, as they may be applicable to South Africans, and (iii) the translation of research to the clinical environment.

An emphasis of this Unit is the investment in understanding the rich Human Diversity on our continent and relating this to disease and health. In this regard there has been a head-on engagement with state of the art high-throughput genetic studies of indigenous southern African population populations, which has resulted in the empowerment and capacity development of South African researchers in large scale data handling and analysis. This and other projects involve fruitful collaborations with other Unit directors, such as Professor Himla Soodyall, and colleagues in bioinformatics in the National Bioinformatics node at UCT. The Division is also in involved in several Human, Hereditary and Health Africa projects in networks spanning the continent (www.h3africa.org), and which are funded by the National Institutes of Health (USA) and the Wellcome Trust (UK).

A further investment has been in taking genetics to the ‘clinical’ high street. A measure of relevance and success of the Unit in this regard, is its attraction to other mainstream clinical practitioners e.g. from the disciplines of Gastroenterology, Nephrology, Internal Medicine, Psychiatry, Surgery, and Dentistry (UWC) who are completing PhDs in Genetics, in this Unit. A substantial effort has been made into introducing genetics/genomics into the undergraduate MBChB curriculum and to specialist groups.

Divisional Statistics

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</tbody>
</table>
Research Fields and Staff

PROFESSOR RAJ S. RAMESAR (UCT/PGWC)
Head of Division and Personal Chair
Director: MRC Human Genetics Research Unit
Principal Investigator: Genetics of Bipolar Disorder;
Genetics of Retinal Degenerative Disorders; Molecular
Genetics of Complex Disorders; Pharmacogenetics –
Adverse Drug Reactions in Cancers

PROFESSOR JACQUIE GREENBERG (UCT)
Principal Investigator: Genetics of Neurological Disorders;
Genetics of Neuromuscular Disorders
Co-Principal Investigator: Genetics of Retinal Degenerative
Disorders

EMERITUS PROFESSOR PETER BEIGHTON
Principal Investigator: Genetics Connective Tissue
Disorders

HONORARY PROFESSOR MICHAEL HAYDEN
Co-investigator: Genetics of Neurological Disorders

HONORARY PROFESSOR WILMOT JAMES
Director: Africa Genome Education Institute; African
Genomics, and Co-host: The Darwin Seminars

HONORARY PROFESSOR MATTHEW WOOD
Co-investigator: Genetics of Neurological Disorders

ASSOCIATE PROFESSOR AMBROISE WONKAM (UCT)
Principal Investigator: Phenotypic correlation of sickle cell
anemia to genotypic variations; Genetics of Deafness

ASSOCIATE PROFESSOR COLLET DANDARA (UCT)
Principal Investigator: Pharmacogenomics

DR KAREN FIEGGEN (PGWC / UCT)
Senior Specialist: Principal Investigator: X- linked Mental
Retardation; Bardet-Biedl Syndrome

MRS THERESA RUPPELT (NHLS)
Laboratory Manager: Cytogenetics

Contact Details
Postal Address:
Division of Human Genetics, Department of Clinical
Laboratory Sciences, Level 3, Werner and Beit North
Building; Institute for Infectious Diseases and Molecular
Medicine, Faculty of Health Sciences, University of Cape
Town, 7925, Observatory
Telephone: SA (21) 406 6297; Fax: SA (21) 406 6826/650 2010

Clinical Laboratory Sciences

Division Of Immunology

HEAD OF DIVISION: PROFESSOR CLIVE GRAY

Profile
The Division of Immunology is involved with a range
of activities from identifying the basic mechanisms of
immunity in infectious disease to laboratory diagnostic
testing in the National Health Laboratory Services at
Groote Schuur Hospital. The vision statement for the
Division of Immunology is “Driving Science to promote
World Health” and in 2012, a detailed strategic document
outlining the next 5-10 years was formulated. Part of
that mission is to formulate and introduce a revised
immunology curriculum for MBChB undergraduate
students at all years of their study. Numerous staff are
also either Full or Associate members of the Institute of
Infectious Disease and Molecular Medicine (IIDMM) and
there is a very integrated relationship between the Division
of Immunology and the IIDMM.

Basic Research: The Division houses the UCT/MRC Unit
on Immunology of Infectious Diseases, an Allergy Section
and the SARCHi chair on ‘Immunology of infectious
diseases in Africa’. The Division has an internationally
recognized expertise in generating transgenic mice, for
use in a wide range of immunological studies applicable
to communicable and non-communicable diseases. These
have been used to make important advances in diseases,
such as Tuberculosis, Bilharzia, African Trypanosomiasis,
Candidiasis and cutaneous Leishmaniasis and have
contributed significantly to identifying fundamental cellular
and molecular immunological mechanisms. Together with
international and national collaborations, these animal
tools contribute to many advances in Immunology and
other fields. Basic research in the Allergy Section has
focused on the role of IL-4 and IL-13 in allergy as well as the
application of novel assays to identify sensitivity profiles.
There are very close ties with the South African component
of the International Centre for Genetic Engineering and
Biotechnology, providing a very strong genomics thrust to
the Division.

Translational Research: There is also a strong clinical
immunology emphasis in the Division, specifically in HIV
and TB immunology where studies are underway to
understand adaptive and innate immune responses during
acute HIV infection and in infants exposed to HIV in
utero and upon receiving different childhood vaccinations.
Successfully funded grants have been garnered from the
Canadian Institute of Health Research and the South African Department of Science and Technology for investigating the link between breast-feeding practices and newborn infant immune activation status, which may mitigate EPI responses. Understanding the link between HIV-induced inflammation and autoimmunity, where peripheral tolerance has been broken, is also a new direction within the Division.

**NHLS activities:** The combined functions of the Laboratory for Tissue Immunology (LTI) and the Clinical Immunology and Allergy Laboratory are responsible for providing NHLS activities. The LTI is responsible for HLA class I and class II typing for solid organ and bone marrow/stem cell matching. The Laboratory also performs cross-matching and pre-formed antibody testing for renal transplantation. Accreditation of LTI with the European Federation of Immunogenetics (EFI) was awarded for a further three years in 2012. The Clinical Immunology and Allergy Laboratory performs routine diagnostic testing for autoantibodies and different allergies. The DOI plays a leading role in the Immunology Expert Committee, which has formulated a new workload model for immunology services within the NHLS. The major task for the Expert Committee over the next year will be to formulate a national immunology curriculum so that immunology can become a registered specialist discipline.

**Teaching:** The Division has an active teaching component in the medical undergraduate syllabus and provides cutting edge lectures on the basics of the immune system and integrates immunology concepts and principals with the case studies and problem based learning approach by the Faculty. More advanced courses are offered at the postgraduate level through the Honours in Infectious Disease and Immunology programme and the short semester Research Immunology Course for postgraduate students. The Division also holds workshop on infectious disease and immunology and specifically train students from other countries in Africa on advanced immunology related techniques and cutting-edge science.

International Links: There are very strong links between staff in the Division with international collaborators on all continents in both basic and applied research.

**Divisional Statistics**

<table>
<thead>
<tr>
<th>Permanent &amp; Long Term Contract Staff (UCT/NHLS)</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Professors</td>
<td>2</td>
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<tr>
<td>Associate Professors</td>
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</table>

| Lecturers | 2 |
| Research Staff | 7 |
| Technical Staff | 6 |
| Technical Support Staff | 5 |
| Administrative Staff | 2 |
| Total | 25 |

**Students**

| Postdoctoral | 12 |
| Doctoral | 19 |
| Master’s | 10 |
| Honours | 5 |
| Total | 46 |

**Staff Research Fields**

**Academic Staff**

**PROFESSOR CLIVE GRAY PHD**
Wernher Beit Chair and HOD
Immunology
Full member of the IIDMM; B rating by NRF; Research Profile: Immunology of HIV infection and specific T cell responses during acute infection.

**PROFESSOR FRANK BROMBACHER, PHD**
Professor of Immunology
UCT Fellow; SARCHi Chair, Director of an MRC Unit; ICGEB Coordinator & Group leader, Member of IIDMM; A1-rating by NRF; Research profile: Immunology of infectious diseases, including Tuberculosis, African Trypanosomiasis, Leishmaniasis, Bilharzia and other Helminth infections.

**ASSOCIATE PROFESSOR MUAZZAM JACOBS, PHD**
NHLS Medical Scientist and UCT Senior Lecturer; Full member of the IIDMM. Research profile: Understanding host pathogen interaction and associated immune mechanisms that bring about protection against tuberculosis infection.

**DR BARBARA NURSE, PHD**
NHLS Medical Scientist. Research profile: T cells in allergic diseases: Cytokine responses to allergen and mTB protein in atopic asthmatic children; Immune changes underlying successful immunotherapy; Investigation of the role of T cells in drug-responsive and extensively drug-resistant (XDR) tuberculosis.

**DR WILLIAM HORSNELL PHD**
DR HEATHER JASPAN MD, PHD, FAAP
Senior Lecturer. Associate member of the IIDMM. Research Profile: Investigating immune activation, T cell immunity and susceptibility to HIV in infants.

Visiting Professors

PROFESSOR GUIDO FERRARI
Professor, Duke University Medical Center, Durham, North Carolina, USA
Identifying CD8+ T cell activation, functional profile, and memory differentiation during acute HIV infection and role in determining HIV escape mutants. Identifying epitope targeted by ADCC-mediating Antibody responses and their role in protection from infection.

PROFESSOR JIM ALEXANDER
Strathclyde University, Scotland

Postdoctoral Fellows

DR LYCIAS ZEMBE
Understanding CD8+ T cell recognition patterns in HIV infection

DR SURAJ PARIHAR
DR NASIEMA ALLIE

DR RETO GULER
Investigate using 4 different pathogens, i.e. Listeria monocytogenes, mycobacteria tuberculosis, mycobacteria bovis BCG, and Leishmania major

DR NATALIE NIEUWENHUIZEN
Characterization of Anisakis Allergens

DR MARK BARKHUIZEN:
The Role of Interleukin-12 in Pathogenic Trypanosome Infections

DR ROANNE KEETON
TB Immunology

DR FRANK KIRSTEIN
Investigation of immune responses in different mouse models of allergic asthma”

DR NAI-JEN HSU
Understanding TNF-TNFR signaling and its impact on microglia-neuronal cell interaction

DR TIROYAONE BROMBACHER
Neuro-immunological effects of Nippostrongylus brasiliensis on cognitive function.

DR ROANNE KEETON
The role of TNFR signalling in pulmonary tuberculosis

DR MOHLOPHENI MARAKALALA
Investigation of C-type lectin receptors in immunity to Candidiasis, Tuberculosis and Staphylococcus infections

DR JENNIFER CLAIRE HOVING
Asthma and Allergy

Distinguished Visitors

Harukazu Suzuki - Riken Institute-Japan
Bernhard Ryffel - CNRS France
Daniel Barber - Max Planck, Germany
Martin Bachmann - Cytos, Switzerland
Claudia Jakubzic - Virginia, USA
Mattias Svensson - Karolinska Institute, Sweden
Benjamin Marsland - ETH Zurich, Switzerland
Gordon Brown - Univ Aberdeen, UK
Luisa Martinez Pomares - Univ Nottingham, UK
Jim Alexander - Univ Strathclyde, UK
Andrew Mcdonald - Univ Edinburgh, UK
Abhay Satoskar - Ohio State University, USA
Michael Pepper - University Of Pretoria, SA
Johanna Spaans - University of Ottawa
Stefan Magez - Vrije University, Belgium
Blanka Vidan-Jeras - Slovenia
Debra Rosa - CSIR
Gotfried Alber - Univ of Leipzig, Germany
Musa Mhlanga - CSIR, Pretoria
Thomas Heunig - University Wuerzburg, Germany
Abhay Satoskar - University of Ohio, USA
Bernhard Ryffel - University of Orleans, France
S. Barth - Univ. Fraeuenhofer, Germany

Contact details

Tel: 406-6616
Fax: 406-6029
Email: dhuraiyah.abdullatief@uct.ac.za

Clinical Laboratory Sciences

Division Of Medical Biochemistry

HEAD OF DIVISION: PROFESSOR PETER MEISSNER

Divisional Profile

The Division of Medical Biochemistry is a preclinical, basic science division in the UCT Faculty of Health Sciences and is associated, either wholly or partly, with a number of advanced research entities. Some such entities are laboratory research groups contained entirely within
Division, while some have certain components or personnel falling within the Division, affiliated to other Institutes or Departmental groupings.

Specifically: The Division incorporates the MRC/UCT Research Group for Receptor Biology (co-directed by Associate Professor Arieh Katz and Dr Colleeen Flanagan, ex-UCT now at WITS, and Professor Bob Millar, Senior Scholar in our Division); the UCT Structural Biology Research Group (directed by Professor Trevor Sewell); members of the Institute of Infectious Disease and Molecular Medicine (IIDMM) at UCT (Profs Sturrock, Blackburn, Meissner, Parker, Katz and Leaner); and the International Centre for Genetic Engineering and Biotechnology (ICGEB) (Professor Iqbal Parker).

Through 2012 there were 53 research postgraduate students registered for either Master’s or PhD (57 in 2011), and a further 11 Honours students were based wholly in Medical Biochemistry for the duration of their research projects (April – November) (6 in 2011). The Division graduated 4 PhD and 2 MSc students during the course of 2012 (6 PhD and 3 MSc during 2011). Together with various scientific and academic staff our postgraduate students and 20 postdoctoral fellows (18 in 2011) continued to form the basis of a vibrant and on-going research thrust and culture in the Division, forming the core of our Divisional research strategy – out of which flows a contemporary and effective approach to teaching at both under- and postgraduate levels. During 2012 the Division and its’ affiliates published 56 papers in ISI accredited science journals and 2 book chapters. Research activities of the Division cover seven major areas:

1. GnRH receptors, signalling, structure – function and as a target for development of therapeutics for treatment of reproductive cancers (Katz & Millar labs);
2. Molecular mechanisms of cervical cancer and oesophageal cancer development and progression (Leaner, Hendricks and Parker labs)
3. Identification and characterisation of anticancer drugs in natural products (Hendricks lab);
4. Angiotensin converting enzyme (ACE) structure activity relationships and development of ACE inhibitors (drug design) for treatment of hypertension, congestive heart failure, myocardial infarction and renal disease (Sturrock lab);
5. Application of functional proteomics for diagnostics, drug and vaccine development for infectious disease and cancers (Blackburn lab);
6. Diagnostic, structure and function studies in the porphyrias and haem biosynthesis (Meissner lab – currently sited and staffed in the Dept. of Medicine)
7. Structural basis for differential regulation of glutamine synthetase in humans and the malaria parasite, structural studies on the nitrilase family of enzymes in the context of cancer, mycothiol synthetic pathway in Mycobacterium tuberculosis (Sewell lab- currently located on UCT upper campus)

Physical space for the Structural biology research Unit and the Porphyria labs remain a problem. Research staff members, fellows, postgrad students participated in many local and international conferences during the year. Our Division considers such travel essential and worthwhile in that they give rise to new collaborations and maintenance of established collaborations and lab research visits.

**Selected Divisional Statistics**

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<th>Category</th>
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<td>Professor (emeritus) appointed as Senior Scholar</td>
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<td>Professors on establishment but working in affiliated Institutions</td>
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**Honorary Staff**

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**Students & Fellows**

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<td>Honours</td>
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<td>Undergraduate students taking Med. Biochem courses</td>
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</table>
Research fields and staff

PROFESSORS

J M BLACKBURN, BSc (Hons) DPhil Oxon (South African Research Chair)
Proteomics and genomics for diagnostics, drug and vaccine development for infectious disease and cancers

P N MEISSNER, BSc(Med)(Hons) PhD Cape Town (Fellow of UCT)
Haem biosynthesis, disorders of porphyrin metabolism

E D STURROCK, BSc (Med)(Hons) PhD Cape Town
Angiotensin converting enzyme (ACE) structure activity relationships and drug design related to ACE inhibitors for treatment of hypertension, congestive heart failure, myocardial infarction and renal disease

B T SEWELL, MSC Witwatersrand, PhD London.
Structural biology related to regulation of glutamine synthetase in humans and the malaria parasite, nitrilases in the context of cancer, mycothiol synthetic pathway in Mycobacterium tuberculosis

A A KATZ, PhD Rehovot
Gonadotropin-Releasing Hormone (GnRH) receptors: function regulation and ligand receptor interactions; role of cyclooxygenases and prostaglandins in cervical cancer and uterine pathologies

R P MILLAR PhD, FRCPath (Chem), FRSE (Life Fellow of UCT)
Endocrine receptor and molecular biology

PROFESSORS (Working in Affiliated Institutes):

M I Parker, BSc(Hons) PhD Cape Town (MASSAf) (based in the International Centre for Genetic Engineering and Biotechnology – ICGEB, Cape Town)
Cellular and molecular biology of cancer; Regulation of gene expression in cancer

ASSOCIATE PROFESSORS

DENVER HENDRICKS, BSc(Hons) PhD Cape Town
Molecular biology of oesophageal cancer and development of novel chemotherapeutic drugs

VIRNA LEANER, BSc(Hons) PhD Cape Town
Molecular mechanisms associated with the development and treatment of cervical cancer

CYNTHIA SIKAKANA, BS Wesleyan PhD Wisconsin-Madison
Medical education, Metabolism of xenobiotics

HONORARY PROFESSOR

C. SEOGHE, PHD Dublin
W-D SChUBERT, PHD Berlin

HONORARY ASSOCIATE PROFESSOR

LUIZ ZERBINI, MSC PHD SÃO PAULO BRAZIL

EMERITUS ASSOCIATE PROFESSOR

L R THILO, MSC UNIVERSITY OF PRETORIA DR RER NAT HEIDELBERG

HONORARY SENIOR LECTURERS

HENRY JABBOUR, PHD SYDNEY
G PROTEIN – COUPLED RECEPTORS IN REPRODUCTIVE BIOLOGY AND HIV
COLEEN FLANAGAN, PHD CAPE TOWN
CYCLOOXYGENASES IN GYNAECOLOGICAL CANCERS

HONORARY RESEARCH ASSOCIATE

ARVIND VARSANI, PHD CAPE TOWN

POSTDOCTORAL FELLOWS

PAULINE VAN DER WATT
ANDREW JM NEL
PUTUMA GQAMANA
BRANDY YOUNG
KATE HADLEY
YABING WANG
JEAN WATERMEYER
ARON ABERA
VICTOR FRANCIS
ROSS ANDERSON
CLAIRE NEWTON
JACQUELINE BRACHER
ROSS DOUGLAS
JEREMY WOODWARD
ALBERT ABIE
SERAH KIMANI
LISELOTTE ANGUS
REBECCA TADOKERA
BEVERLEY VAN ROOYEN
ROBERT NDORIA THUKU

CHIEF SCIENTIFIC OFFICER

SYLVA SCHWAGER, MSC
PROTEOLYTIC PROCESSING OF MEMBRANE PROTEINS

RESEARCH ASSOCIATES AND MID-CAREER FELLOWS

KURT SALES, PHD (Katz/Millar Lab, IIDMM)
GEORGIA SCHAEFER (PARKER LAB, ICGEB)
CATHERINE KASCHULA (PARKER LAB, ICGEB)
Contact Details
Division of Medical Biochemistry
Dept. of Clinical Laboratory Sciences
Level 6, Room 6.07, Falmouth Building
UCT Medical School
Anzio Rd
Observatory, 7925
Cape Town, SOUTH AFRICA
Tel: 021 404 7712 (Secretary)
021 406 6206 (Head)
Fax: 021 4066061
E-mail (Head): Peter.Meissner@uct.ac.za

Clinical Laboratory Sciences
Division Of Medical Microbiology
HEAD OF DIVISION: PROFESSOR MARK NICOL

Divisional Profile
The Division of Medical Microbiology (www.medmicro.uct.ac.za) encompasses a tertiary diagnostic microbiology service, provided by the National Health Laboratory Service, Groote Schuur Hospital and an active research programme based at the Health Sciences Campus.

We aim to conduct research that is relevant to the needs of diagnostic microbiology services and focused on important infectious diseases in South Africa. This includes work on the development and assessment of novel diagnostics for tuberculosis as well as on the transmission and molecular epidemiology of drug resistant pathogens within our hospitals. The latter work is conducted under the ambit of the Centre for Hospital, Tropical and Opportunistic Infections of the National Institute for Communicable Diseases. More recently, together with the Department of Paediatrics and Child Health, the Division has developed a programme of research focusing on the evolution of the microbiome in early childhood and the association between the microbiome and respiratory illness in young children.

The Division is the academic home of the highly regarded Molecular Microbiology Research Unit (www.mrc.ac.za/mycobacteriology/mycobacteriology) headed by Professor Valerie Mizrahi and Dr Digby Warner which aims to develop and apply genetic tools for the identification, validation and characterisation of novel drug targets and vaccine candidates for tuberculosis. The Division is also the home of Professor Gregory Hussey and Dr Charles Wiysonge who lead the ‘Vaccines for Africa’ Initiative (www.vacfa.com) which is a partnership of concerned individuals and organisations who have come together with the expressed purpose of increasing awareness of and promoting uptake of vaccines on the African continent.

The Division has been successful in attracting substantial research funding from the Wellcome Trust, EDCTP, National Institutes of Health, Carnegie Foundation, Howard Hughes Medical Institute and Bill and Melinda Gates Foundation in recent years.

The composition of the Division is complex with staff drawn from the University of Cape Town, Groote Schuur Hospital and Red Cross Children’s Hospital and the National Health Laboratory Service and National Institute for Communicable Diseases. This mix of pathologists, scientists and students offers the opportunity for creative, cross-disciplinary research.

Divisional Statistics
Permanent and Long-term Contract Staff

<table>
<thead>
<tr>
<th>Position</th>
<th>Count</th>
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<tbody>
<tr>
<td>Professors</td>
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<tr>
<td>Senior Lecturers</td>
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<td>Clinical Research Officer</td>
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<td>Senior Research Officer</td>
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<tr>
<td>Administrative and Clerical Staff</td>
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<td>Project Manager</td>
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<td>Lab Manager</td>
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<td>Data Management staff</td>
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<td>Technical Support Staff</td>
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<td><strong>Total</strong></td>
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Honorary Staff

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Students

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<tr>
<td>Registrars</td>
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<td>Master’s</td>
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<td>Honours</td>
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<tr>
<td>Undergraduates</td>
<td>407</td>
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<td><strong>Total</strong></td>
<td><strong>433</strong></td>
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</table>

Health Sciences
Research Fields and Staff

Permanent Staff

PROFESSOR MARK P NICOL
Development and evaluating point-of-care tests for tuberculosis; the strain biology of Mycobacterium tuberculosis; the origin and evolution of the human microbiome in early childhood and its impact on respiratory illness.

PROFESSOR GREGORY HUSSEY
Understanding the dynamics of TB infection and disease in adolescents; the epidemiology of TB in infants and young children; evaluation of new TB vaccines

PROFESSOR VALERIE MZRAHI AND DR DIGBY WARNER
Investigate fundamental aspects of the metabolism and physiology of Mycobacterium tuberculosis of relevance to tuberculosis drug discovery and drug resistance

DR ANDREW WHITEAW
TB diagnostics, molecular epidemiology and infection control

DR C BAMFORD
Laboratory detection of multi-resistant organisms; molecular epidemiology of hospital acquired infections; rational use of antibiotics and surveillance of antimicrobial resistance; appropriate use of microbiological investigations; microbiological diagnosis of tuberculosis

DR ELIYA MADIKAKE
*Mycobacterium tuberculosis* drug discovery and development; population genetics of *Acinetobacter baumannii* and *Staphylococcus aureus* in Cape Town Hospitals; the nasopharyngeal microbiome in early childhood

Postdoctoral Fellows

DR WIADAD ZEMANY
Evaluation of novel diagnostic methods for tuberculosis in adults and children; evaluation of the impact of novel TB diagnostics on patient outcomes

DR ELLOISE DU TOIT
Household dust microbial burden and the development of recurrent wheezing in children in the Western Cape: a cohort study.

DR MAMADOU KABA
Molecular epidemiology of infectious diseases; the nasopharyngeal and stool microbiome in early childhood

Contact Details

Postal Address: Division of Medical Microbiology, University of Cape Town, Medical School, Anzio Road, Observatory, 7925
Telephone: +27 21 406 6727
Email: doris.moiloa@uct.ac.za
Web: www.medmicro.uct.ac.za

Department Of Clinical Laboratory Sciences
Division Of Medical Virology

HEAD OF DIVISION: PROFESSOR CAROLYN WILLIAMSON

Divisional Profile

The Division of Medical Virology contributes to the diagnosis, treatment, prevention and eradication of viral diseases in South Africa through a diagnostic laboratory service together with a dynamic research programme.

Virology has a vibrant research programme focusing on: HIV-1 vaccine development; biomarkers of HIV acquisition; mechanisms of HIV-1 transmission and virological control; HIV-1 breakthrough infections in large vaccine and microbicide trials; Human Papillomavirus (HPV); HIV/TB co-infection; Hepatitis B and C; novel respiratory viruses; cytomegalovirus; and the development of new molecular diagnostic tests. The division hosts one South African Research Chair (NRF SARCHI) (Professor Anna-lise Williamson, Vaccinology). High impact research findings
in 2012 include a study elucidating the impact of HIV on the natural history of HPV genital infection; the finding that symptomatic vaginal discharge is a poor predictor of sexually transmitted infections and genital tract inflammation; that genital tract inflammation during early HIV-1 infection predicts higher plasma viral load set-point in women; elucidation of the role of HIV-1 cytotoxic T-cell escape on viral replicative fitness and disease progression; and identification of mechanism of creating an HIV-1 broadly cross-neutralizing neutralizing epitope through immune escape. Research is largely performed within the Institute of Infectious Diseases and Molecular Medicine.

The Virology Diagnostic Laboratory falls within the National Health Laboratory Service, and is located at Groote Schuur Hospital (GSH). It provides a comprehensive service to both GSH and Red Cross Children's Hospital, and serves as a regional reference centre providing a clinical and diagnostic service to local teaching hospitals and surrounding public health clinics. The Diagnostic Laboratory is SANAS accreditation. Two viral outbreaks were investigated over the past year, one caused by influenza A virus in the Red Cross hospital ICU and a second due to respiratory syncytial virus infection.

The division contributes to undergraduate teaching and plays a major role in postgraduate training, and in 2012 hosted 43 postgraduate students and postdoctoral fellows.

**Special awards / honours / promotions**

Jo-Ann Passmore was promoted to Associate Professor. Carolyn Williamson became a member of the Academy of Sciences, South Africa. Carolyn Williamson became a member of Royal Society of South Africa. Narjis Thawer was awarded a DST fellowship for 2012 South African Women in Science awards.

**The following students graduates**

Roman Ntale was awarded his PhD.

**Distinguished visitors**

Mark Brockman from Simon Frasier University, Canada. Suresh Boppana and Dr Cecilia Hutto from the University of Alabama, Birmingham. Mike Cherry from the University of Stellenbosch had his sabbatical in the division. Bert Jacobs was a visiting Fulbright specialist from the Biodesign Institute at the Arizona State University.

Lyle McKinnon from the University of Toronto and Kenyan AIDS Control Project, University of Nairobi. Saggie Pillay, CEO of NHLS. John Wherry from the NIH, USA. Bruce Walker from the Ragon Institute of MGH, MIT and Harvard, USA.

**Divisional Statistics**

**Permanent and Long-term Contract Staff**

<table>
<thead>
<tr>
<th>Role</th>
<th>Count</th>
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<tbody>
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<td>Professors</td>
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<td>Academic</td>
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<td>Administrative and Clerical Staff</td>
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**Honorary Staff**

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**Students**

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**Research Staff and Fields**

**Emeritus Professor**

**PROFESSOR KEITH DUMBELL**

**Academic Staff**

**PROFESSOR CAROLYN WILLIAMSON (UCT/NHLS)**

HIV-1 pathogenesis and prevention; Head of Division.

**DR DIANA HARDIE (NHLS/UCT)**

Molecular biology of Hepatitis B Virus – Head Diagnostic Virology Laboratory.

**PROFESSOR ANNA-LISE WILLIAMSON (NHLS/UCT) – SOUTH AFRICAN RESEARCH CHAIR**

Human Papillomavirus; HIV-1 vaccine development.

**ASSOCIATE PROFESSOR JO-ANN PASSMORE (NHLS/UCT)**

HIV/HPV Immunology.
DR WENDY BURGERS
HIV Immunology and Pathogenesis

DR ROS CHAPMAN
HIV Vaccines

DR GERALD CHEGE
HIV Vaccines

DR NICOLA DOUGLASS
HIV Vaccines / poxviruses

DR MARVIN HSIAO (NHLS/UCT)
Clinical Virology, cytomegalovirus and molecular diagnostics

DR. STEPHEN KORSMAN (NHLS/UCT)
Clinical Virology, Hepatitis B, molecular diagnostics and outreach

DR ZIZIPHO MBULAWA (NHLS/UCT)
Human Pappilomavirus

DR HEIDI SMUTS (NHLS/UCT)
Hepatitis C, Novel respiratory viruses.

DR ZIYAAD VALLEY-OMAR (NHLS/UCT)
Molecular Epidemiology

Honorary Staff

DR ERICA ANDERSEN-NISSEN
Research Associate; HIV vaccines

DR TIM TUCKER
Senior Lecturer; HIV.

Research Staff

MELISSA-ROSE ABRAHAMS
HIV Diversity and Pathogenesis.

CRAIG ADAMS
HIV Vaccines.

BRUCE ALLAN
Human papillomavirus.

DESIREE BOWERS
HIV Vaccines.

KATRINA DOWNING
HIV Vaccines/ Project manager/GLP.

SHIREEN GALANT
HIV Vaccines.

HOYAM GAMIELDIEN
HIV Immunology.

MURRAY LOGAN
HIV Diversity and Pathogenesis.

JINNY MARAIS
HIV Diversity and Pathogenesis.

TRACEY MULLER
HIV Immunology and Pathogenesis.

CECILIA RADEMEYER
HIV Diversity and Pathogenesis.

DEBBIE STEWART
HIV Diversity and Pathogenesis/Project co-ordinator and GLP archivist

RUWAYHIDA THEBUS
HIV Diversity and Pathogenesis.

NONKULULEKO NDABAMBI
HIV Diversity and Pathogenesis.

DANIEL SHEWARD
HIV Diversity and Pathogenesis.

Postdoctoral Fellows

DR DENIS CHOPERA
HIV Diversity and Pathogenesis

DR ZEKARIAS GINBOT
HIV Immunology and Pathogenesis

DR ZIZIPHO MBULAWA
Human Pappilomavirus

DR TRACY MEIRING
Human Papillomavirus

DR NOBUBELO NGANDU
HIV Diversity and Pathogenesis.

DR COBUS OLIVIER
HIV Immunology

DR LINDI ROBERTS
HIV Immunology
Department of Clinical Laboratory Sciences

Research output

Authored books


Hardy, B.J., Seguin, B., Ramesar, R.S., Singer, P. and Daar, A. 2012. The genomic research and health applications in South Africa. In D. Kumar (ed.), Genomics and Health...
Articles in peer-reviewed Journals


widespread testing of HIV vaccine candidates at a clinical trial site in Pretoria, South Africa. AIDS Research and Human Retroviruses, 28(9): 1131-1138.


Nieuwenhuizen, N., Kirstein, F., Jayakumar, J., Emedi, B., Hurdayal, R., Lopata, A.L. and Brombacher, F. 2012. Allergic airway disease is unaffected by the absence of IL-4-dependent alternatively activated macrophages. Journal of Allergy and Clinical Immunology, 130: 743-750.

Novitzky, N. and Thomas, V. 2012. In the absence of clinically significant graft vs. host disease, myeloablative conditioning may allow an effective graft vs leukaemia effect. Leukemia Research, 36(1): 104-109.


Olesen, O.F. and Parker, M.I. 2012. Health research in Africa: getting priorities right. Tropical Medicine & International Health, 17(9): 1048-1052.


Paget, C., Ivanov, S., Fontaine, J., Renneson, J., Blanc, F., Pichavant, M., Dumoutier, L., Ryffel, B., Renaud, C.J.,


for HIV but not for cytomegalovirus-specific CD8+ T Cells. Journal of Immunology, 189(8): 3838-3847.


Tello, J.A., Newton, C., Bouligand, J., Guiochon-Mantel, A., Millar, R.P. and Young, J. 2012. Congenital hypogonadotropic hypogonadism due to GNRH receptor mutations in three...


Department of Health and Rehabilitation Sciences

Department Profile

The Department of Health and Rehabilitation Sciences is a multi-professional Department, and offers undergraduate and postgraduate programmes in Audiology, Speech and Language Pathology, Occupational Therapy, and Physiotherapy. The Department also offers Postgraduate Diplomas, Master’s and PhD programmes in Disability Studies and Nursing.

2012 was a productive year with regard to research activities and graduation of postgraduate candidates. Professor Steve Ersser continues his appointment as an Honorary Professor to the Division of Nursing to develop collaborative research in dermatology nursing. Naeema Abrahams continues her appointment as an Honorary Associate Professor to the Division of Nursing for teaching clinical research methods. One staff members obtained her PhD (Lizhan Cloete). In addition, in 2012 the Department achieved the best throughput rate of postgraduate candidates to date, with one doctoral and 22 master’s graduates. In 2012, the Department entered the second year of a five-year strategy to accelerate the throughput of staff doing PhDs. This programme has been supported by the Emerging Researcher Programme and the Research Office.

Researchers received funding for numerous research activities. Amsuda Sonday, Elewani Ramugondo and Madri Engelbrecht secured NRF grants. Fadia Gamieldien and Matumo Ramafikeng secured scholarships from Canon Collins Trust and Mellon respectively. Madie Duncan secured the final tranche of funding from SANPAD for a participatory development project for disability inclusion in deep rural villages in the Eastern Cape. Dr Wimpenny from Innovation Enterprise Centre at Coventry University, (UK) secured an applied research fellow grant from Coventry University for a cross contextual investigation of undergraduate mental health occupational therapy curriculum & entrepreneurship in collaboration with Madie Duncan and Loren Lewis. Romy Parker was awarded NRF Thuthuka funding to complete her PhD. Niri Naidoo, Gillian Ferguson and Vivienne Norman were awarded Research Development Grants. Pat Mayers and Una Kyriacos received funding from the URC to attend and present at the Nursing Education Tomorrow conference in the UK. Nicki Fouche received a URC Travel grant to visit The Netherlands. Douglas Newman-Valentine was selected to attend a PhD Proposal Development Programme that was run by SANTRUST, an organisation that specialises in

Peer-reviewed published conference proceedings


Department of Health and Rehabilitation Sciences

Department Profile

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Peer-reviewed published conference proceedings


supporting capacity development around PhD proposal development. SANTRUST (legal entity of SANPAD) is funded by Irish Aid and the NRF with the aim of building enhanced doctoral throughput capacity for the Nursing Sciences. Two parallel workshops were held for supervisors at each end of the course and these were attended by Sinegugu Duma and Pat Mayers.

Jennifer Jelsma received funding from the EuroQoL Foundation as well as from the NRF. Theresa Lorenzo received funding from the NRF Community Engagement Strategy Fund for the Disabled Youth Enabling Sustainable Livelihoods (DYESL) study, which investigates the strategies of disabled youth in sustaining their livelihoods. The Division of Disability Studies collaborated with Occupational Therapy departments of five universities in South Africa for this study. She also received funding from the URC Programme for Enhanced Research Capacity for a study that explores the capacity of community disability workers to address the needs of disabled youth. This study is being conducted in rural areas of Botswana, Malawi and Mpumalanga, South Africa. The study on the housing and support options for adults with intellectual disability in the Western Cape was completed as part of the postdoctoral research project by Judy Mckenzie. Theresa Lorenzo was awarded funding from the Vice Chancellor’s Strategic Fund to investigate disability inclusion in the curriculum of faculties at UCT. Jennifer Jelsma was awarded a travel grant from the Vice Chancellor’s Strategic Fund to be used for developing teaching and learning at Kigali Institute in Rwanda.

Elewani Ramugondo was awarded funding from the Vice Chancellor’s Strategic Fund for Internalisation with an Afropolitan Niche to establish occupational therapy training in African countries, including Lesotho, Malawi, Namibia and Botswana. Sinegugu Duma is participating in the PLUME project. This is an initiative of FUNDISA (the Forum for University Nursing Deans in South Africa) and is funded by the NRF to develop lead researchers in all member universities.

The Department raised its international research profile in 2012. Staff members from the Division of Occupational Therapy presented work at the Occupational Therapy Association of South Africa Congress in Durban, as well as Towards Carnegie 3: Reducing Poverty and Inequality Conference in Cape Town. Madie Duncan participated in a panel presentation at a conference on South African Netherlands Academic Partnerships at the Institute of Social Studies (Erasmus University) in The Hague, Netherlands. Romy Parker won the prize for best poster for clinical research at the Pain, Mind and Movement IV pre-congress symposium of the World Congress on Pain. Trish Lang (master’s student) was awarded second prize for a free paper presentation at the Pain SA Congress on EMG activity in chronic neck pain.

Undergraduate student research was also well-represented. Occupational therapy students were were awarded the Marie & Vona du Toit prize for best student project in South Africa for a study on the perceptions of disability of people living in informal settlements in the Saldanha Bay sub-district, South Africa. Undergraduate physiotherapy students also won first and second prize for their presentations the Regional Inter-varsity Physiotherapy Research Forum; and second prize for a poster at the Faculty of Health Sciences Undergraduate Research Day.

There were numerous collaborative research activities and scholarly visits in 2012. Roshan Galvaan initiated a project of international cooperation entitled Occupational Therapy Education for Social Transformation (OTEST): a pilot co-operative inquiry. This project was funded in 2010/2011 by Higher Education South Africa together with the National Research Foundation of South Africa under the auspices of the Academic committee of the India-Brazil-South Africa trilateral Forum (IBSA, 2012). Madie Duncan served as one of 400 people internationally in the UN Grand Challenges for Global Mental Health in 2011 (published in 2012) adding an occupational perspective to this internationally significant policy initiative. Sinegugu Duma presented a workshop on sexual assault forensic nurses for UNEDSA project, based on a study of clinical competencies for forensic nurses. Doris Khalil conducted a study on violence in nursing at the Kwame Nkrumah University of Science & Technology. Pat Mayers continues to be involved in the UCT Knowledge Translation Unit on-going Practical Approach to Lung Health and HIV (PALSA Plus) project on an ad hoc basis. Jennifer Jelsma continues to serve as a member of the WHO Functioning and Disability Group and as a member of the EuroQoL Quality of Life Group. Romy Parker is the secretary of the International Pain and Movement Special Interest Group.

The Department continues to contribute to the development of the professions. Shajila Singh is the Chair of the Professional Board for Speech, Language and Hearing Professions, and is also Chair of the CPD Committee for the Health Professions Council of South Africa. Sinegugu Duma is Chair of the Accreditation Committee of the South African Nursing Council. Sheila Clow has continued to serve on the National Executive Committee of the Society of Midwives of South Africa. Helen Buchanan is president of the Occupational Therapy Association of South Africa. Madie Duncan serves as an ad hoc consultant to OTASA for drafting policy documents, which recently included position statements on re-engineering of PHC.
role & scope of OT, and groupwork practice on OT. She also served as one of 400 people internationally in the UN Grand Challenges for Global Mental Health in 2011 (published in 2012) adding an occupational perspective to this internationally significant policy initiative. Fadia Gamieldien (clinical educator) is on the Mental Health Advisory Committee for the Western Cape Department of Health. Roshan Galvaan initiated a project of international cooperation entitled Occupational Therapy Education for Social Transformation (OTEST): a pilot co-operative inquiry. This project was funded in 2010/2011 by Higher Education South Africa together with the National Research Foundation of South Africa under the auspices of the Academic committee of the India-Brazil-South Africa trilateral Forum (IBSA, 2012). The project included the participation of Dr. Shovan Saha from India and Dr. Sandra Galheigo from Brazil, as co-researchers. Progress was made in 2012 towards joint publications. Michal Harty is a Member of Professional Association’s task team that works towards developing a strategy to facilitate research process for members of the South African Speech, Language and Hearing Professions, and has a VIO Grant with Vanderbilt Peabody College to develop research collaboration.


### Department Statistics

#### Staff

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#### Research fields and staff

**PROFESSOR S.L. AMOSUN**
Non-communicable diseases; disability prevention and health promotion

**MS HELEN BUCHANAN**
Evidence-based practice; hand therapy; measurement instruments; rehabilitation in physical health; clinical reasoning and reflection

**DR THERESA BURGESS**
Muscle damage and endurance exercise; clinical sports physiotherapy; bioethics

**MS LIZAHN CLOETE**
Foetal Alcohol Spectrum Disorders; community development & occupational therapy in primary health care

**ASSOCIATE PROFESSOR SHEILA CLOW**
Midwifery; women’s health care; intrapartum care; mentorship

**ASSOCIATE PROFESSOR SINEGUGU DUMA**
Interplay between HIV and gender-based violence; sexual assault; and curriculum development

**ASSOCIATE PROFESSOR EVE DUNCAN**
Poverty, occupation & psychiatric disability; disability inclusion through participatory development in deep rural communities

**MS EILEEN DU PLOOY**
Occupation based work practice; palliative care

**MS GILLIAN FERGUSON**
HIV, paediatric motor assessment and rehabilitation

**MS NICKI FOUCHE**
Lived experiences in the care of patients in the Intensive Care Units

**ASSOCIATE PROFESSOR ROSHAN GALVAAN**
Occupation-based community development practice; occupational justice; occupational choice; youth; OT curriculum and human rights
MS PAM GRETCHEL
Best paediatric occupational therapy practice

DR MICHEAL HARTY
Augmentative and Alternative Communication (AAC) and family-centred intervention practices

MS CANDICE HENDRICKS
Rehabilitation of sports-related orthopaedic and neuromusculoskeletal conditions

PROFESSOR JENNIFER JELLSMA
Function in children with HIV/AIDS; health related quality of life; living conditions of people with disabilities; use of the ICF

ASSOCIATE PROFESSOR HARCHA KATHARD
Communication impairment; disability and service delivery

DR UNA KYRIACOS
Role of biosciences in clinical nursing education; ophthalmic nursing; preparation of nurse educators

ASSOCIATE PROFESSOR THERESA LORENZO
Disability rights and equity for youth and women; community based rehabilitation

MS SORAYA MAART
Incontinence and sexual dysfunction amongst sexually abused persons; HIV and community empowerment

MS SHAMILA MANIE
Intensive Care Unit management; cardio-pulmonary rehabilitation, TB

ASSOCIATE PROFESSOR PAT MAYSERS
Mental health; support and training for primary health care providers/clinical nurse practitioners with special to HIV and ARV rollout; primary care practice teams

MR DOUGLAS NEWMAN
LGBTI health

MS VIVIENNE NORMAN
Paediatric dysphagia and early intervention

DR MICHELLE PASCOE
Speech, language and literacy difficulties in school-aged children

MS LUcretia PETERSEN
Ototoxicity; otoacoustic emissions

MS ROMY PARKER
Pain in HIV

DR LEOBOGANG RAMMA
Noise and public health

ASSOCIATE PROFESSOR ELEWANi RAMUGONDO
Promoting childhood play in context; play, learning & development outcomes for children on anti-retroviral treatment; the politics of human occupation

MS CHRISTINE ROGERS
Vestibular assessment and management

ASSOCIATE PROFESSOR SHAJLA SINGH
Dysphagia; motor speech disorders; ethics; HIV/AIDS

MS AMSHUDA SONDAY
Inclusive education; profound multiple intellectual disability and quality of life

Clinical Educator Staff

MRS FATEMAH CAMROODIEN-SERVE
Early childhood intervention; parent training

MRS NAILA EDRIES
Occupational health and wellness; promoting behaviour change; musculoskeletal injury management; evaluation and feedback methods to drive learning

MRS MADRI ENGBRECHT
Disability and employment

MRS FADIA GAMIELDIEN
Health professionals’ attitudes towards mental health service users; disability, diversity and social change

MRS FAHMIDA HARRIS
The impact of physical activity on quality of life of persons with mental illness

MS JANE LE ROUX
Evaluating the effectiveness of The Shine Program for literacy development in grade 2 and 3 learners

MR MARC NAIDOO
Clinical education models and strategies; rehabilitation in neuro patients; soccer injury prevention at school level

MRS ELRIETHA OLIVIER
Cochlear implants; bimodal fitting and FM use; balance disorders in cochlear implant recipients
MRS LAURA RUSSELL
Traumatic brain injury care pathways after discharge; assessment of aphasia in South African languages

MRS CELESTE SAMUELS
Right hemisphere communication disorders intervention and referral pathways; cerebral palsy and communication

MRS DES SCOTT
Group teaching in clinical practice; paediatric clinical practice

MRS HEATHER TALBERG
Clinical education best practice models and guidelines; developing professional and reflective practitioners

MS FREDA WALTERS
Fluency, community based rehabilitation; clinical education

Contact Details
Postal address: Department of Health and Rehabilitation Sciences, Faculty of Health Sciences
University of Cape Town, Anzio Road, Observatory, 7925
Telephone: +27 21 406 6401
Fax: +27 21 406 6323
E-mail: debra.adams@uct.ac.za
Web: http://www.health.uct.ac.za/departments/shrs/about/

Research output

Chapters in books


Articles in peer-reviewed Journals


Peer-reviewed published conference proceedings


Doctoral dissertations


Master’s degrees (by research)


Dutton, M. 2012. The effects of scapulothoracic rehabilitation on shoulder pain in competitive swimmers. MSc Physiotherapy. Supervised by Burgess, T. and Parker, R.


Ghafari, N. 2012. A profile of the auditory function of children with TB receiving ototoxic medication at Brooklyn Chest Hospital. MSc Audiology. Supervised by Petersen, L., Rogers, C. and Singh, S.


Olivier, O. 2012. A comparison of treatment protocols for infants with motor delay. MSc Physiotherapy. Supervised by Ferguson, G. and Jelsma, J.


Department of Human Biology

The Department of Human Biology (HUB) includes Anatomy; Biological Anthropology; Biomedical Engineering and Medical Imaging; Cell Biology, Exercise Science and Sports Medicine; Healthcare Technology Management; Human Nutrition; Neurosciences and Physiology.

Professor Laurie Kellaway was an invited guest speaker at the Neuroscience Society of Nigeria (NSN) Conference held Calabar, Nigeria in 2012.

Professor Susan Kidson has been Deputy Dean and was acting Dean of the Faculty of Health Sciences during 2012. During this time she initiated the UCT Stem Cell Initiative along with Professor Jacquie Greenberg of Human Genetics. As part of this initiative Dr Robea Ballo spent two months at the James Martin Stem Cell Unit of the University of Oxford, UK, sharpening her skills in induced Pluripotent Stem Cell technology. She is now offering training in this technology at the Stem Cell laboratory in Cell Biology, to clinicians and postgraduate students at UCT who wish to use the technique in their projects. The team published their first stem cell paper in the SAMJ online in December 2012.

Professor Alan Morris began a 10 month sabbatical to the United States in September 2012 under a Fullbright Visiting Scholar Fellowship. He is currently based at Ohio State University as part of the ‘Global History of Health Project’ being led by Clark Larsen.

Researchers in the biomedical engineering programme and the MRC/UCT Medical Imaging Research Unit were active in many aspects of the research enterprise. Associate Professor Meintjes co-edited a book titled “Substance Use and Abuse in South Africa: Insights from Brain and Behavioural Sciences”. Dr Sudesh Sivarasu’s PhD - “Artificial High Flexion Knee for Eastern Lifestyles” - was published by a German publisher. Drs Lester John and Sudesh Sivarasu filed patent applications for deep muscle electromyography and rehabilitative robotics respectively, while they collaborated with student Yasheen Brijal on the patent for a hand exoskeleton. Professor Tania Douglas was an invited guest lecturer at the University of Minnesota and was invited to present a seminar to celebrate the South Africa-Germany Year of Science. Professor Douglas delivered a keynote lecture at the International Conference on Biomedical Signals, Systems and Images in Chennai, India. Dr Sivarasu delivered an invited lecture at the International Conference on Biomaterials, Implants and Tissue Engineering, also in Chennai. Dr Barak Morgan and his collaborators delivered a paper to the national congress - Towards Carnegie III: Strategies to Overcome Poverty and Inequality - held at UCT.

Professor Viv Russell was appointed Co-Editor-in-Chief of Behavioral and Brain Functions. She continued to serve
as Deputy Chief Editor of *Metabolic Brain Disease* and produced a Special Issue on neuroscience research in Southern Africa in 2012. Professor Russell was invited to give a seminar on her research on ADHD at the University of Massachusetts, USA, in October 2012. Hayley Tomes attended the IBRO school on Epigenetics, Environment and Behaviour in Kalifi, Kenya. Jacqueline Dimatelis, Jurgens van Zyl, Toni-Lee Sterley and Viv Russell attended the Society for Neuroscience meeting in New Orleans, USA in October. Jurgens van Zyl was awarded an IBRO Travel Fellowship to attend the Society for Neuroscience meeting in New Orleans.

Associate Professor Sharon Prince was invited to present a talk at the University of Oxford, in September. She received a C2 NRF Rating and was elected head of the Cancer Research initiative of South Africa (CARISA) breast cancer consortium. She was elected member of the NRF Specialist Committee for Health Sciences. The Prince Laboratory organised and hosted its second CANSA Shavathon, in conjunction with the Cancer Association of South Africa (CANS).

Associate Professor Dirk Lang was invited as an instructor in advanced microscopic imaging techniques for the prestigious summer courses at the Woods Hole Marine Biological Labs (MBL) in Massachusetts, USA during his sabbatical leave from May – August. Together with Tyrone Genade he attended the Society for Neuroscience meeting in New Orleans in October. With Susan Cooper, they continue to be active as consultants and maintain numerous collaborations involving the Confocal and Light Microscope Imaging Facility at UCT.

Dr Liz van der Merwe was elected as chairperson of the Association of South African Woman in Science and Engineering (Western Cape) in December.

Associate Professor Marjanne Senekal was invited by the Sackler Institute for Nutrition Sciences, New York Academy of Sciences, to present at their Conference in New York in December.

Exercise Science and Sports Medicine Research Unit: Academic staff within ESSM continue to be consulted on various issues related to exercise science and sports medicine and are therefore often in the public eye. Professor Tim Noakes published an updated version of “Challenging Beliefs. Memoirs of a Career”, with Michael Vlismas during 2012. The new edition incorporates why the Springboks lost the 2011 Rugby World Cup, and how a low-carbohydrate, high-protein diet will improve your life. He also published “Waterlogged: The serious problem of overhydration in endurance sports” in 2012.

Professors Wayne Derman and Martin Schwellnus were commissioned by the International Paralympic Committee to conduct what is regarded as pioneering research on injuries and illnesses suffered by the athletes at the 2012 Paralympic Games.

Dr Alison September, Dr Mike Posthumus and Professor Malcolm Collins were invited to write a review which coincided with the opening of the Summer Olympics in 2012. The review was titled: Application of genomics in the prevention, treatment and management of Achilles tendinopathy and anterior cruciate ligament ruptures, published in Recent Patents on DNA and Gene Sequences 2012; 6: 216-223.

Dr Alison September was elected as committee member of the Association of South African Women in Science and Engineering (Western Cape) in December 2012, and chairs the Education portfolio.

Dr Julia Goedecke’s NRF rating was renewed and Professor Malcolm Collins’ and Associate Professor Andrew Bosch’s NRF ratings were increased, while Dr Mike Posthumous was rated for the first time. Associate Professor Malcolm Collins was promoted to full Professor in November 2012.

### Departmental Statistics

#### Permanent and long-term contract staff

<table>
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<th>Number</th>
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<tr>
<td>Professors (1 Discovery)</td>
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<td>Associate Professors (1 MRC)</td>
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<td>Senior Lecturers (1 MRC)</td>
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<td>Lecturers (including part-time)</td>
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<td>Postdoctoral and Research Staff</td>
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<td>Technical and Support Staff</td>
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<td>Admin and Clerical Staff</td>
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#### Students

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### Research Fields and Staff

**PROFESSOR LAURISTON KELWAY**  
Head of Department; Models of neuroinflammation, stress and brain function, in vivo and in vitro visual cortical mechanisms
PROFESSOR MALCOLM COLLINS
RUESSM: Chief Specialist Scientist, MRC; Biochemistry; Molecular biology; Genetics – applied to performance and injuries

PROFESSOR WAYNE DERMAN
RUESSM: Sport and Exercise Medicine, Skeletal muscle dysfunction in chronic disease; exercise training in chronic disease

PROFESSOR TANIA DOUGLAS
Director of the MRC/UCT Medical Imaging Research Unit (MIRU); biomedical engineering, image processing

PROFESSOR SUE KIDSON
Developmental biology; melanocytes and hypopigmentary disorders; eye development and glaucoma

PROFESSOR MIKE LAMBERT
RUESSM: Exercise training and recovery; Science applied to rugby, Co-ordinator of the Ex Sci Hons Course

PROFESSOR ESTELLE V. LAMBERT
RUESSM: Physical activity epidemiology and chronic diseases of lifestyle; obesity and chronic disease

PROFESSOR GRAHAM J. LOUW
Human growth; medical education; skeletal analysis

PROFESSOR ALAN G. MORRIS
Human evolution; forensic anthropology, skeletal biology of early peoples in southern Africa; history of physical anthropology

PROFESSOR TIMOTHY D. NOAKES
Discovery Health Chair of Exercise and Sports Science and Director of UCT/MRC Research and Exercise Medicine Research Unit
RUESSM: Regulation of exercise performance; sport and exercise medicine

PROFESSOR VIVIENNE RUSSELL
Neurophysiology: Development, stress, exercise and vulnerability to neuronal injury; Attention deficit hyperactivity disorder; Depression

PROFESSOR MARTIN P. SCHWELLNUS
RUESSM: Sport and Exercise Medicine, Co-ordinator of the MPhil Sport and Exercise Medicine programme

ASSOCIATE PROFESSOR ANDREW BOSCH
RUESSM: Fuel substrate metabolism, exercise training

ASSOCIATE PROFESSOR DIRK M. LANG
Nervous system development and degeneration; axon growth and regeneration. Head of the Confocal and Light Microscope Imaging Facility at UCT

ASSOCIATE PROFESSOR ERNESTA MEINTJES
MIRU: NRF chair; magnetic resonance imaging

ASSOCIATE PROFESSOR EDWARD OJUKA
RUESM: glucose disposal in muscle

ASSOCIATE PROFESSOR SHARON PRINCE
The cell and molecular biology of cancer and the identification of novel targets for anti-cancer drugs, with special focus on the T-box transcription factors Tbx2 and Tbx3.

ASSOCIATE PROFESSOR MARJANNE SENEKAL
Head: Division of Human Nutrition, Weight management and health interventions, dietary assessment, nutritional genomics

DR COLIN ANDREW
MIRU: Senior Lecturer (part-time); Biomedical signal processing

MS ELMI BADENHORST
Lecturer; medical education, underpreparedness and academic performance

MS SHARMILAH BOOLEY
Lecturer; Division of Human Nutrition; Nutrition, HIV/AIDS and quality of life; nutrition related behaviour change interventions for prevention and management of chronic diseases of lifestyle (school and work-place based)

DR KISHOR BUGARITH
Senior Lecturer; physiology, neurobiology of stress, neurobiology of food intake

MS DINAH CURLING
Lecturer (part-time) Division of Human Nutrition

DR LESTER M. DAVIDS
Senior Lecturer; redox and antioxidant biology; skin cancer, pigmeny disorders of the skin, vitiligo, hair follicle biology

MS ZARINA EBRABIM
Clinical Educator (part-time); Division of Human Nutrition

DR JACQUI FRIEDLING
Lecturer; skeletal biology; physical anthropology, forensic anthropology
DR JULIA H. GOEDECKE
RUESSM: Specialist Scientist, MRC; Obesity in relation to disease risk; Exercise metabolism and sports nutrition

DR GENEY GUNSTON
Senior Lecturer; gross anatomy; clinical anatomy; medical education

DR ASFREE GWANYANYA
Senior Lecturer; cardiac pathophysiology, hypertrophy, ion channels

DR JANETTA HARBRON
Lecturer; Division of Human Nutrition; Obesity and other CDL intervention, Nutritional genomics; Sports nutrition.

MS FIONA HERRMANN
Clinical Educator (part-time); Division of Human Nutrition, risks for obesity development in SA communities, nutrition in palliative oncology

DR LAUREN HILL
Lecturer; Division of Human Nutrition, clinical dietetics; critical care, nutrition in surgical gastroenterology, gastrointestinal dysfunction, parenteral and enteral nutrition, oxidative stress and antioxidants

MS FATIMA HOOSEN
Clinical Educator (part-time); Division of Human Nutrition

DR MARCIN JANKIEWICZ
MIRU: Lecturer. Cape Universities Brain Imaging Centre: Magnetic Resonance Imaging

DR LESTER JOHN
MIRU: Senior Lecturer and Software Specialist; Electromyography, Electroencephalography, Brain-Computer Interfacing, Medical Electronics & Devices

DR ROI SIN KELLY-LAUBSCHER
Lecturer: Cardiovascular Physiology, arterial hemodynamics, cardioprotection, ischaemia-reperfusion injury

DR TRACY KOLBE-ALEXANDER
RUESSM: Senior Lecturer, Physical activity and health; Co-ordinator of the BSc (Hons) Biokinetics and MPhil (Biokinetics) courses

MS BAHEYA NAJAAR
Lecturer and clinical educator, Division of Human Nutrition, community nutrition, infant and young child feeding

MR MLADEN POLUTA
Senior Lecturer; Director: Healthcare Technology Management

DR DELVA SHAMLEY
Senior Lecturer; upper limb morbidity in breast cancer, molecular effects of adjuvant therapies in cancer

DR CHARLES P. SLATER
Senior Lecturer; anatomy, medical education

MR STEF STEINER
Lecturer; biomechanics

DR SUDESH SIVARASU
Lecturer, biomechanics, biomechatronics, medical devices & rehabilitation engineering

DR LIZ VAN DER MERWE
Senior Lecturer; ocular development and regeneration, vascular biology, pancreatic islet regeneration, 3-D microscopic image reconstruction.

DR CHRISTOPHER WARTON
Senior Lecturer; medical education, teaching materials, MRI analysis and cerebellar structure

Postdoctoral Fellows/Scientific and Research Officers, Research Associates

DR AMAAL ABRAHAMS
Cell Biology: Research Officer. Role and regulation of the T-box transcription factor TBX3 during the cell cycle

DR YUMNA ALBERTUS-KAJEE
RUESSM: Research Officer. Electromyography in the prevention of chronic disease in patients, and neuromuscular adaptations to exercise in athletes, commercial research.

DR ALI ALHAMUD
MIRU: Postdoctoral Fellow; magnetic resonance imaging

DR REYNA DEEYA BALLIM
Cell Biology: Postdoctoral Fellow. The identification of target genes of the transcription factor TBX2 which mediate its pro-proliferative activities in cancer and the elucidation of its crystal structure with a view to designing drugs that inhibit TBX2’s oncogenic function

DR ROBEA BALLO
Cell Biology and genetics: Genetics of vitiligo.

DR IAN BURGER
MIRU: Postdoctoral Fellow; magnetic resonance imaging

MS SUSAN COOPER
Microscopy Unit: Technical Officer
MS GABI DE BIE
Scientific and Research Officer: knowledge and curriculum in the medical biosciences

DR KYLIE DE JAGER
MIRU: Postdoctoral Fellow; automated microscopy; medical devices

DR JACQUELINE DIMATELIS
Physiology: Postdoctoral Fellow. Neurophysiology: Development, stress, exercise and vulnerability to neuronal injury; Attention deficit hyperactivity disorder; Depression

DR CATHERINE DRAPER
RUESSM: Senior Research Officer. Social science aspects of physical activity as a means of health promotion and disease prevention. Evaluation of physical activity and sport-related programmes. Medical Education.

DR JANINE GRAY
RUESSM: Honorary lecturer. Cricket research – research co-ordinator for Cricket South Africa

DR MARTHA HOLMES
MIRU: Postdoctoral Fellow, neuroimaging

MR DAVID KARPUL
RUESSM: Research Officer: Biomechanics research, Manager of the Biomechanics Lab., electronics

DR DHESHNIE KESWELL
RUESSM: Postdoctoral Fellow, Obesity and diabetes research

DR TERTIUS KOHN
RUESSM: Senior Research Officer. Muscle biochemistry and exercise science

MR SRIRAM KRISHNAN
Development of a light microscope for automated identification of TB bacilli in ZN stained sputum smears

DR JACOLENE KROFF
RUESSM: Senior Research Officer: Manages, runs and supervises all research conducted in the Metabolic Lab.

DR WENDY KROGER
Postdoctoral fellow in cell biology: The molecular mechanisms by which the T-box transcription factor TBX3 contributes to tumourigenesis.

DR AMOD KULKARNI
Postdoctoral Fellow (Claude Leon Foundation). In vitro and in vivo neuro-pharmacokinetics and neuropharmacodynamics of natural neuroprotective agents.

DR ROBERT LAMBERTS
RUESSM: Honorary Research Officer Thermoregulation

DR LELANI MARAIS
Physiology: Postdoctoral Fellow. Neurophysiology: Development, stress, exercise and vulnerability to neuronal injury; Depression

DR BARAK MORGAN
MIRU: Behavioural, physiological and neuroimaging studies in affective neuroscience

DR LISA MICKLESFIELD
RUESSM: Senior Researcher/Honorary Research Fellow (Wits University). Bone health and physical activity

MS MWEETE NGLAZI
RUESSM: Research Officer. Epidemiology and biostatistics

DR MICHAEL POSTHUMUS
RUESSM: Senior Research Officer. Sports orthopaedic research

DR DALE RAE
RUESSM: Senior Research Officer: Circadian rhythms and performance; Commercial research division manager

DR LAURIE RAUCH
RUESSM: Research Officer: Neurobiology of exercise and regulation of the autonomic nervous system during peak performance

DR FRANCES ROBERSTON
MIRU: Postdoctoral Fellow; magnetic resonance imaging

DR ELSKE SCHABORT
RUESSM: Research Officer: Thermoregulation, Performance, Brain regulation of exercise; Commercial research

DR ALISON V. SEPTEMBER
RUESSM: Senior Research Officer. Molecular human genetics

DR JAMES SMITH
RUESSM: Research Officer: Diet, health, metabolism and exercise performance

DR JEROEN SWART
RUESSM: Honorary lecturer. Sport and Exercise Medicine

DR ROSS TUCKER
RUESSM: Central Governor research, Exercise training; Commercial Research division co-management
MRS HENDRIENA VICTOR
RUESSM: Chief Scientific Officer: HPLC analysis, Laboratory support

Contact Details
Postal Address: Department of Human Biology, Health Sciences Faculty, Observatory, 7925, South Africa
Telephone: +27 21 406 6235
Fax: +27 21 448 7226
Email: Lauriston.Kellaway@uct.ac.za
Web: http://www.uct.ac.za/departments/humanbio/

Research output
Authored books


Edited books

Chapters in books


Articles in peer-reviewed Journals


Baron, Y., Corre, S., Mouchet, N., Vaulont, S., Prince, S. and Galibert, M.D. 2012. USF-1 is critical for maintaining genome integrity in response to UV-induced DNA photolesions. Plos Genetics, 8(1): e1002470.


Nieuwenhuizen, N., Kirstein, F., Jayakumar, J., Emedi, B., Hurdayal, R., Horsnell, W., Lopata, A.L. and Brombacher, F. 2012. Allergic airway disease is unaffected by the absence of IL-4-dependent alternatively activated macrophages. Journal of Allergy and Clinical Immunology, 130: 743-750.


Peer-reviewed published conference proceedings


Patents


Doctoral dissertations


Burger, I. 2012. A control system approach to subject specific prospective respiratory motion correction in cardiac MRI. Supervised by Meintjes, E.M.

Cock, I. 2012. Voluntary physical activity: measurement and relationship to selected health parameters in rural black South Africans resident in the Limpopo Province, South Africa. Supervised by Lambert, E.V. and Alberts, M.


Master’s degrees (by research)


Hope, F. 2012. Rehabilitation outcomes of a lifestyle intervention program for chronic disease: medical insurer referred and funded patients versus self-initiated and self-funded patients. MPhil Biokinetics. 90pp. Supervised by Derman, E.


Miller, R. 2012. A computational study of post-infarct mechanical effects of injected biomaterial into ischemic myocardium. MSc (Med) Biomedical Engineering. Supervised by Franz, T.

Modak, G. 2012. Characteristics of dynamics associated with skeletal muscle contraction initiated by acetylcholine injection. MSc (Med) Biomedical Engineering. Supervised by Bugarith, K.H. and Kellaway, L.

Mudd, R. 2012. Exploring the range of motion between the acetabular component and the femoral component in hip resurfacing. MSc (Med) Biomedical Engineering. 116pp. Supervised by Vicatos, G. and Sivarasu, S.

Saleh, M. 2012. Methods and adaptations required to perform small-animal MRI scanning using a large bore clinical MRI. MSc (Med) Biomedical Engineering. 95pp. Supervised by Meintjes, E.M., Davies, N. and Franz, T.

Smit, S. 2012. Stress in the workplace: The contrasting effects of 10 minutes of listening to Chopin vs. heart rate variability biofeedback on autonomic reactivity and cognitive performance. MPhil Biokinetics. 70pp. Supervised by Rauch, L.


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**Department of Medicine**

**HEAD OF DEPARTMENT: PROFESSOR B.M. MAYOSI**

**Departmental Profile**

The Department of Medicine is a large clinical department which plays a leading role in medical education and research, and provides clinical services to the communities of the Western Cape and, in the case of our highly specialised services, to patients throughout southern Africa. The Department consists of 21 clinical and service divisions, 11 major research units, and four affiliated departments of medicine at GF Jooste, New Somerset, II Military, and Victoria hospitals (www.medicine.uct.ac.za). Each day, members of the department treat an average of 2,000 patients in our clinics, admit about 100 patients to our hospital services and perform over 210 medical procedures. The department offers a number of highly specialised services that are unique nationally such as allergology, bone marrow, heart, kidney, and liver transplantation, cardiac electrophysiology, endobronchial ultrasound guided bronchoscopy, and double balloon enteroscopy for visualisation of the small bowel.

There approximately 80 registrars who are training in the department, 20 of whom are from other countries such as Botswana, Ghana, Kenya, Libya, Malawi, Namibia, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe. The department produces formularies and guidelines that are used in most health facilities in South Africa, such as the South African Medical Formulary and Primary Care 101.
Departmental Statistics

Permanent and Long-term Contract Staff

<table>
<thead>
<tr>
<th>Position</th>
<th>Number</th>
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<tbody>
<tr>
<td>Professors</td>
<td>16</td>
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<tr>
<td>Associate Professors</td>
<td>22</td>
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<tr>
<td>Senior Lecturers/lecturers Full-time</td>
<td>85</td>
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<td>Administrative and clerical staff</td>
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Honorary Staff

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<td>Honorary Professors</td>
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<td>Emeritus Professors</td>
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Students

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<td>Doctoral</td>
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<td>Master’s</td>
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<td>Undergraduates</td>
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<td>1295</td>
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</tbody>
</table>

Research Fields and Staff

See Divisions and Research Units within the Department

Contact Details

Postal Address:
Department of Medicine,
Faculty of Health Sciences
University of Cape Town,
Observatory 7925,
Cape Town
Telephone: +27 21 406 6200
Fax: +27 21 448 6815
E-mail: faiza.pearce@uct.ac.za

Department of Medicine

Division Of Clinical Immunology

HEAD OF DIVISION: ASSOCIATE PROFESSOR S.R. RESS

Divisional Profile

The Division of Clinical Immunology undertakes a multi-disciplinary activity that includes teaching of undergraduate and postgraduate students, evaluation of immune function in patients with suspected immune deficiency, and a translational research programme focussed on immunology of autoimmunity, HIV and TB.

Divisional Statistics

Permanent and Long-term Contract Staff

<table>
<thead>
<tr>
<th>Position</th>
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<tbody>
<tr>
<td>Associate Professors</td>
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<tr>
<td>Technical Support Staff</td>
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<td>Total</td>
<td>2</td>
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</tbody>
</table>

Research Fields and Staff

Associate Professor Stanley Ress
Immunology of tuberculosis; Autoimmunity

Contact Details

Postal Address:
Clinical Immunology Laboratory,
H47 Old Main Building,
Groote Schuur Hospital,
Observatory 7925

Telephone: +27 21 406 6201
Fax: +27 21 448 6815
E-mail: stan.ress@uct.ac.za

Department Of Dermatology

HEAD OF DIVISION: ASSOCIATE PROFESSOR NONHLANHLA P. KHUMALO

Division profile

The Division’s training programme includes undergraduate teaching of 2nd to 6th year MBChB students. Postgraduate students include 8 registrars, 1 MRC fellow and 2 PhD fellows. The main research contributions of the Division are in the epidemiology, treatment and prevention of hair disorders and drug-induced skin injury.
Departmental statistics

Permanent and long term contract staff

<table>
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<th>Position</th>
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<tr>
<td>Associate Professor</td>
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<tr>
<td>Senior Lecturers (part-time, 5/8)</td>
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<tr>
<td>(part-time, sessional)</td>
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<tr>
<td>Lecturer (part-time, 5/8)</td>
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<td>(sessional, DOE funds)</td>
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<tr>
<td>Research Staff</td>
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<td>Administrative and Clerical Staff</td>
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<td>Honorary Lecturers</td>
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Students

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<tbody>
<tr>
<td>Doctoral</td>
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<tr>
<td>Master's</td>
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<tr>
<td>Undergraduate</td>
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<td><strong>TOTAL</strong></td>
<td><strong>796</strong></td>
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</table>

Research fields

Permanent staff

**ASSOCIATE PROFESSOR NONHLANHLA KHUMALO**
Professor Khumalo is NRF rated and runs the only academic hair research clinic in the country (with Dr. Laduma Ngwanya). Her research interests include the epidemiology and treatment of hair and scalp disorders that uniquely affect individuals with afro-textured hair. Her international collaboration studies use various research tools - scanning (and transmission) electron microscopy and amino acid analysis of hair. Current studies are investigating the link between folliculitis keloidalis nuchea and HIV transmission. She is also developing a hair classification tool that will be useful for elucidating the relationship between the pathogenesis of alopecia and hair phenotype.

**DR RANNAKOEO LEHLOENYA**
Dr Rannakoe Lehloenya leads a study of the clinical, molecular and genetic aspects of severe cutaneous adverse drug reactions (SCAR). Intrinsic to this will be the development of a predictive model for ascribing causality to ensure safe drug reintroduction especially for antituberculosis treatment reactions. Several other closely related clinical studies include a follow up of patients to assess long term sequelae, evaluation of placenta and newborn following SCAR in pregnancy and the use of clobetasol to prevent nail sequelae of SCAR. The division has become the only African member of the international group, RegiSCAR, contributing cases to the group database, essential as the cause of these reactions in Africa is very different from Europe and Asia.

Department Of Medicine

**Chronic Diseases Initiative In Africa (Cdia)**

**DIRECTOR: PROFESSOR N.S. LEVITT**

Divisional Profile

The Chronic Diseases Initiative in Africa (CDIA), funded by the United Health Chronic Disease Initiative and the National Heart Lung Blood Institute (NHLBI), was launched in November 2009. It forms part of an 11 centre Global Health Initiative focussing on non communicable disease research in the developing world. CDIA comprises of a network of researchers drawn from the University of Cape Town, Stellenbosch University and the University of the Western Cape, along with the South African Medical Research Council, Harvard University and Shree Hindu Mandal Hospital, Tanzania, in addition to representatives from local and national Departments of Health. CDIA’s mission is to serve as a collaborating initiative for the development, evaluation and dissemination of methods and programmes to prevent chronic non-communicative diseases, and improve the quality of care for people with these diseases and their risk factors.

Research

Currently funded projects:

Develop, evaluate and implement integrated chronic disease management guidelines for primary care providers

Eden District Randomised, Controlled-Trial for Primary Care of Chronic, Non-Communicable Diseases (NCDs) is being conducted to test the effectiveness of a novel training approach based on a previously tested model of syndromic screening and management of patients with conditions such as chronic obstructive pulmonary disease, asthma, or TB. A written guideline (101 pages) has been prepared for the management of chronic diseases by primary care nurses and doctors. The trial will test whether the approach, previously shown to be effective for respiratory diseases including tuberculosis and HIV/AIDS, will remain effective when expanded to include the primary care management of other major categories of chronic diseases (hypertension, diabetes, depression).

To calibrate and validate a non-laboratory based screening tool for cardiovascular disease (CVD) risk prediction in South Africa

The predictive performance and risk discrimination of the non-laboratory-based risk score to five commonly used laboratory-based scores (Framingham CHD and
CVD, SCORE for low and high risk settings, CUORE) was evaluated in 11 South African cohorts, which represents all cross sectional studies conducted in the country over the past 25 years for which the necessary data were available.

Develop, evaluate and implement an economic model to assess the cost-effectiveness of interventions. This project aims to develop a CVD Prevention and Management Model that would allow us to predict CVD events accurately and be used in cost-effectiveness analyses comparing the use of different screening and intervention strategies.

Develop the capacity of community health workers, primary care facilities and managers in the area of chronic diseases. This project aims, in collaboration with the provincial DOH to define the role of a community health worker in caring for patients with NCDs and to develop suitable NCD training materials and tools for this group.

Develop, evaluate and implement lifestyle tools for the general public and patients.

"Putting Prevention into Practice" This project aims to produce and pilot a resource package for primary health care providers and community health workers to enable them to offer brief, best practice, behavioural change counselling in a variety of settings, on the topics of smoking; poor diet; obesity and overweight and lack of physical activity.

Develop, evaluate and implement new models for health education, communication and empowerment of patients. The evaluation, by means of a pragmatic cluster randomized controlled trial, the effectiveness of a group diabetes education programme delivered by health promoters with a guiding (motivational interviewing) style, in community health centres in Cape Town.

### Divisional Statistics

**CDIA/UCT Permanent and Long-term Contract Staff**

<table>
<thead>
<tr>
<th>Role</th>
<th>Number</th>
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<tbody>
<tr>
<td>Professor</td>
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<tr>
<td>Professor (Visiting)</td>
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<tr>
<td>Social Scientist</td>
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<td>Administrative and Clerical Staff</td>
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<td><strong>Total</strong></td>
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<table>
<thead>
<tr>
<th>Name</th>
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<tbody>
<tr>
<td>Professor Naomi Levitt</td>
<td>Professor</td>
</tr>
<tr>
<td>Professor Krisela Steyn</td>
<td>Professor</td>
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<tr>
<td>Mrs Kathy Murphy</td>
<td>Social Scientist</td>
</tr>
<tr>
<td>Carmelita Sylvester</td>
<td>Centre Manager</td>
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<tr>
<td>Susan Botha</td>
<td>Administrative</td>
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### UCT Network Members

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<td>Professor</td>
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<tr>
<td>Senior Lecturer</td>
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<td>Other (Senior Researcher)</td>
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<table>
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<th>Name</th>
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<tbody>
<tr>
<td>Professor Bangani Mayosi</td>
<td>Professor</td>
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<tr>
<td>Professor Eric Bateman</td>
<td>Professor</td>
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<tr>
<td>Professor Vicky Lambert</td>
<td>Professor</td>
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<tr>
<td>Professor Karen Silwa-Hahnle</td>
<td>Professor</td>
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<tr>
<td>Associate Professor Alan Bryer</td>
<td>Associate Professor</td>
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<tr>
<td>Dr Tracy Kolbe-Alexander</td>
<td>Senior Lecturer</td>
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<tr>
<td>Dr Lara Fairall</td>
<td>Senior Researcher</td>
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### NON-UCT Network Members

<table>
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<th>Name</th>
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<tbody>
<tr>
<td>Professor Thandi Puoane (UWC)</td>
<td>Professor</td>
</tr>
<tr>
<td>Professor Bob Mash (Stellenbosch)</td>
<td>Professor</td>
</tr>
<tr>
<td>Professor Debbie Bradshaw (MRC)</td>
<td>Professor</td>
</tr>
<tr>
<td>Professor Carl Lombard (MRC)</td>
<td>Professor</td>
</tr>
<tr>
<td>Dr Thomas Gaziano (Harvard)</td>
<td>Adjut Assistant Professor</td>
</tr>
<tr>
<td>Dr Kaushik Ramaya (Shree Hindu Mandal Hospital, Tanzania)</td>
<td>Senior Lecturer</td>
</tr>
<tr>
<td>Mr Jimmy Ledwaba (Provincial Government, Dept. of Health)</td>
<td>Other</td>
</tr>
<tr>
<td>Ms Unita Van Vuuren (Provincial Government, Dept. of Health)</td>
<td>Other</td>
</tr>
</tbody>
</table>

### Contact Details

**Postal Address:** J47 Floor, Old Main Building, Groote Schuur Hospital  
**Telephone:** +27 21 406 6572  
**Fax:** +27 21 406 6513  
**E-mail:** Carmelita.Sylvester@uct.ac.za

### Department Of Medicine

**Division Of Endocrinology And Diabetic Medicine**

**HEAD OF DIVISION: PROFESSOR N.S. LEVITT**

### Divisional Profile

The Division provides an inpatient and outpatient clinical service and sub-speciality training in adult endocrinology and diabetes. It has close clinical links with Paediatric Endocrinology and Diabetes, Reproductive Endocrinology and Chemical pathology.
Research

The Division is involved in a wide range of research activities, interacts with a number of international and local collaborators and is a member of the recently established Chronic Disease Initiative in Africa. The primary areas of research are:

**Metabolic consequences of antiretroviral therapy in HIV+ patients:** Cross-sectional and longitudinal studies examining the metabolic consequences of HAART are underway. These are being funded by the World Diabetes Foundation and Department of Health.

**Burden of disease:** The contribution of diabetes and other chronic diseases to the overall burden of disease pattern in the South African context is being studied in collaboration with Dr Debbie Bradshaw, BOD Group, MRC. A cross sectional survey of diabetes and other cardiovascular risk factors in the Black African community in Cape Town has been completed.

**Obesity:** In collaboration with the Department of Human Biology, a number of studies are in progress. These examine the mechanisms underlying the aetiology of obesity and insulin sensitivity in black and white African women.

**Addison’s Disease:** Cardiovascular risk factors in Addison’s disease has been investigated in collaboration with the University of Gothenberg. The impact of glucocorticoid receptor polymorphisms on cardiovascular risk factors has been assessed in Addison’s disease.

**Health Systems Research:** The Division collaborates in projects being conducted by the Chronic Diseases Initiative in Africa. These include: a pragmatic cluster randomised trial of an integrated guideline for the management of diabetes and other chronic diseases is in primary care centre, a randomised controlled trial to evaluate the effectiveness of a group diabetic education programme using motivational interviewing in underserved communities; and the development of a resource package for primary health care providers and community health workers to enable them to offer brief counselling on lifestyle.

**Research Fields and Staff**

**PROFESSOR N S LEVITT**
Diabetes and hypertension health systems research, diabetes burden of disease, mechanisms underlying the metabolic sequelae of obesity, metabolic consequences of HAART

**PROFESSOR K STEYN**
Hypertension health systems research, burden of chronic disease and smoking in pregnancy

**DR I L ROSS**
National registry for Study of Addison’s Disease and polyglandular autoimmune syndrome

**DR J DAVE**
Incidence of osteoporosis and vertebral fractures in patients with inflammatory bowel disease Metabolic consequences of antiretroviral therapy

Contact Details

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**Department Of Medicine**

**Division Of Gastroenterology**

(Gastrointestinal Clinic)

**HEAD OF GI CLINIC: PROFESSOR S THOMSON**

**Divisional Profile**

The Gastrointestinal Clinic is a multi-disciplinary clinical unit consisting of Medical and Surgical components. This report primarily reflects the Medical component. The Clinic carries a large clinical load and offers a number of specialised services, with clinical and applied research interests in: Hepatobiliary disease; Colorectal disease; Oesophageal disease; Inflammatory bowel disease; \textit{H.pylori} related disease; and Nutrition. The Clinic is involved in a number of collaborative research projects.
**Divisional Statistics**

**Permanent and Long-term Contract Staff**

<table>
<thead>
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<th>Category</th>
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**Students**

<table>
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<tr>
<td>Master’s</td>
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**Research Fields and Staff**

Dr Gill Watermeyer: Risk of malignancy in inflammatory bowel disease treated with Azathioprine or 6-Mercaptopurine; Predicting bad outcome in Crohn’s disease; drug trials – various

Dr Dion Levin: Bleeding Peptic Ulcer Disease; *Helicobacter pylori* testing.

Dr Sabelo Hlatshwayo: Achalasia.

Dr Mashiko Setshedi: Drug induced liver injury.

**Contact Details**

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**Department Of Medicine**

**Division Of Haematology and UCT**

**Leukaemia Unit**

HEAD OF DIVISION: PROFESSOR N. NOVITZKY

**Divisional Profile**

The Division of Haematology at Groote Schuur Hospital is a complex unit with multi disciplinary activities that include outpatient clinics, admission beds as well as diagnostic and research laboratories. The clinical services are organised under the umbrella of the Department of Internal Medicine, while the laboratory diagnostic sections are under the broader organisation of the Department of Clinical & Laboratory Sciences and National Health Laboratory Service (NHLS). The Haematology section of the laboratory was accredited with SANAS 3 years ago and after review, this accreditation was confirmed last year.

Patients with elaborate clinical problems, bone marrow failure or requiring stem cell transplantation are referred from all provinces; particularly the Northern and Eastern Cape and particularly we receive referrals from foreign institutions in Sub-Saharan Africa. In addition, individuals with multiple myeloma and other lymphoproliferative disorders are treated together with the Department of Radiation Oncology in combined clinics. Of concern is that a substantial increase in the numbers of HIV related malignancies and particularly Burkitt’s lymphoma and leukaemia that have significantly strained our hospital beds.

The Division of Haematology provides training for both undergraduate and postgraduate students at the Medical Faculty. Registrars and consultants participate in undergraduate training, facilitating various modules focussing in blood disorders. At the postgraduate level, training is given at the level of Master’s and PhD courses in cell biology as well as specialist training in haematopathology for medical graduates. In addition, within the Department of Clinical and Laboratory Sciences 3 divisions participate in the training provided to Clinical Pathology candidates. Regular experiential teaching and microscope tutorials are given to registrars in Haematopathology. Journal Clubs, seminars and group teaching is offered to Haematopathology, Clinical Haematology and general medical registrars. Interdepartmental meetings are held with academic staff from Tygerberg Hospital and Red Cross War Memorial Children’s Hospital. Faculty members from the division also regularly contribute to the teaching programmes of the basic sciences as well as Departments of Internal Medicine and Clinical and Laboratory Sciences.

In addition a University of Cape Town Leukaemia Unit established within the division, has now been reviewed and approved by the University Research Committee and will continue focusing its research work in the area of haemopoietic stem cell biology and stem cell transplant immunology. The research laboratory located at the medical school campus is well equipped to support undergraduate and postgraduate pathology and science students. Dr Shaheen Mowla has joined Dr Karen Shires to expand the molecular and cellular research in the Leukaemia Unit laboratory. The main objective will be to pursue further research into the area normal and malignant haematopoiesis, detection of minimal residual disease in patients with leukaemia, cellular therapies and stem cell transplantation.
Divisional Statistics
Permanent and Long-term Contract Staff

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Research Fields and Staff

**PROFESSOR NICOLAS NOVITZKY**
Haematopoietic stem cell biology; clonogenic assays; haematopoietic stem cell transplantation; immune reconstitution; haematological malignancies

**DR CECILE DU TOIT**
Haematopoietic stem cell transplantation; haematological malignancies; haemophilia

**DR. ESTELLE VERBURGH**
Myelodysplastic syndrome

**DR MAUREEN STEIN**
Haematopoietic stem cell biology

**DR JESSICA OPIE**
Molecular biology of neoplasia: chronic myelogenous leukaemia; coagulation abnormalities

**DR KAREN SHIERES**
Molecular biology and diagnostics

**DR SHAHEEN MOWLA**
Minimal residual disease and flow cytometry.

**MRS RYGANA ABDULLA**
Cellular biology of neoplasia; clonogenic assays

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Web: http://web.uct.ac.za/depts/haem/

Department Of Medicine
Division Of Hepatology

HEAD: ASSOCIATE PROFESSOR WENDY SPEARMAN

Divisional Profile

The Division of Hepatology runs the only dedicated liver clinic as well as the only state liver transplant programme in the country. We also run a Porphyria clinic. The unit is referred patients from all provinces in South Africa as well as from neighbouring countries such as Zimbabwe and Namibia for assessment regarding the aetiology and management of both acute and chronic liver disease and suitability for liver transplantation. These referrals come from both the private and public sector.

We provide a direct call-in service telephonic to primary, secondary and tertiary medical centres regarding management of liver disease. The Liver unit works closely with the Surgical Hepatobiliary unit and collaborates with the Surgical Research laboratory.

The major areas of research include: viral hepatitis, autoimmune liver disease, immune abnormalities in liver disease, HIV and liver disease, porphyria, liver transplantation and development of bioartificial liver support devices.

The unit is actively involved in drawing up national guidelines for the management of Hepatitis B/HIV coinfection Hepatitis B and Hepatitis C.
Divisional Statistics

Permanent and Long-term Contract Staff

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<th>Position</th>
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<tr>
<td>Associate Professors</td>
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<td>Senior Lecturers / Research Officers</td>
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Honorary Staff

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Research Fields and Staff

H.N. HAIRWADZI
Autoimmune liver disease; viral hepatitis, bone disease in chronic liver disease

M.W. SONDERUP
HIV and liver disease; viral hepatitis; porphyria

C.W.N. SPEARMAN
Liver transplantation; viral hepatitis; paediatric liver disease, acute liver failure and bioartificial liver support devices

M. SETSHEDI
Drug-induced liver injury

M. KEW
Hepatitis; liver cancer

Contact Details

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Institute Profile

The Albertina and Walter Sisulu Institute of Ageing in Africa (IAA) is a Cross-Disciplinary Group. The IAA represents a coalescence of institute – wide disciplines with a focus on ageing: specifically Geriatric Medicine; Geriatric Neurology; Geriatric Neuropsychology and Old Age Psychiatry. The International Longevity Centre–South Africa is incorporated in the Institute. The vision of the IAA is to be an academic, clinical, research and policy centre of excellence and relevance in Africa. Its mission is to facilitate the delivery of the highest standard of inter-disciplinary, in-context training for health and allied professionals and evidence-based clinical and social care for older people, whilst undertaking appropriate research and audit upon which policy and planning for older persons may be based. The mission is achieved through inter-disciplinary partnerships and teamwork, and human resources development within current legal, ethical and financial constraints. The IAA is a leader in the area of research on ageing in sub-Saharan Africa, and enjoys international recognition and acclaim.

Institute Statistics

Permanent and Long-term Contract Staff

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Students

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Research Fields and Staff

DR SEBASTIANA KALULA
Epidemiology of dementia; falls; quality of care.

DR LINDA DE VILLIERS
Stroke risk factors and rehabilitation; post-discharge stroke community care.

Department Of Medicine

The Albertina And Walter Sisulu Institute Of Ageing In Africa/ Division Of Geriatric Medicine

HEAD OF DIVISION OF GERIATRIC MEDICINE: PROFESSOR M COMBRINCK

ACTING HEAD OF INSTITUTE OF AGEING IN AFRICA : DR S. KALULA
PROFESSOR MARC COMBRINCK
NRF Research Chair in Clinical Neurosciences: neuro-inflammation and mechanisms of neuro-degeneration with specific reference to cognitive impairment in the elderly and in HIV-associated encephalopathy.

DR KEVIN G.F. THOMAS
Senior Lecturer, Department of Psychology: geriatric neuropsychology; dementia; impact of stress on memory; impact of life stressors on age-related cognitive decline.

ASSOCIATE PROFESSOR JOHN A. JOSKA
Senior Lecturer, Division of Neuropsychiatry, Department of Psychiatry and Mental Health: neurocognitive disorders in HIV infection.

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Fax: +27 21 406 6846
E-mail: iaa-institute@uct.ac.za
Web: http://www.instituteofageing.uct.ac.za

Department Of Medicine
Division Of Nephrology And Hypertension

HEADS OF DIVISION: ASSOCIATE PROFESSOR B.L. RAYNER

Divisional Profile
Currently the new division offers a wide range of clinical services including chronic and acute dialysis, renal transplantation, assessment and treatment of a broad range of kidney disease and resistant hypertension, 24 blood pressure monitoring renal biopsies, prevention of chronic kidney, and cardiovascular risk assessment. The unit is supported by a dedicated team of transplant surgeons. Treatment is offered to both private and indigent patients. It also offers out reach programmes to Khayelitsha Community Health Centre and GF Jooste Hospital locally, and to George Hospital, the Northern and Eastern Cape.

There is active training programme for senior registrars in Nephrology and the unit is currently training 5 nephrology fellows. The division supports the Department of Medicine training of medical students, specialist physicians and professions allied to medicine. The division also supports training of renal technologists and the nephrology course for nurses.

The main academic research activities of the division relate to renal bone disease; systemic lupus erythematos (SLE); genetics of salt sensitive hypertension; diabetic nephropathy; classification, genetics, prevalence and treatment of HIV associated nephropathy; the genetics of ACE inhibitor related angioedema in black and coloured South Africans; treatment of renal artery stenosis due to atherosclerosis; vascular calcification in CKD stage 5 and its effects on central aortic BP; detection of vascular calcification; and the effects of antiviral treatment on BP in patients living with HIV.

Divisional Statistics
Permanent and Long-term Contract Staff and students

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<td>Part-time consultant</td>
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Research Fields and Staff

ASSOCIATE PROFESSOR C.R. SWANEPOEL
HIV and the kidney – worked on the development of a HIV and renal disease classification. Principal researcher is Dr N Wearne.

DR Z BARDAY
Kidney transplantation

DR YVONNE TRINDER
Hypertension

DR IKE OKPECHI
Lupus registry; Quality of life in CAPD patients
ASSOCIATE PROFESSOR BRIAN RAYNER
Cardiovascular outcomes in renal atherosclerotic lesion (CORAL Study): A prospective, multi-center, unblinded, two-arm, randomized trial; Genetics of salt sensitive hypertension (PhD dissertation); PTH and low renin hypertension; The genetics of ACE inhibitor related angioedema in black and coloured South Africa

DR NICOLA WEARNE
Retrospective analysis of all HIV positive renal biopsies between 2004 and 2008 at GSH hospital; Prospective observational study of all HIV positive patients who undergo a renal biopsy at GSH hospital to establish best medical management, mortality and spectrum of disease; HIV related renal disease: Histological Classification; Randomised controlled study: Treatment of HIV +ve patients with confirmed HIVAN on renal biopsy with Corticosteroids; Epidemiology of renal dysfunction and chronic kidney disease in HIV positive HAART naive patients

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E-mail: mmcadl@pgwc.gov.za

Department Of Medicine
Division Of Neurology
HEAD OF DIVISION: ASSOCIATE PROFESSOR A. BRYER

Divisional Profile
A general clinical neurology service is operated at Groote Schuur Hospital. This provides a full range of clinical activities, including in-patients, consultative, and emergency services. Additionally, there is a clinical neurophysiology laboratory, a dedicated acute stroke unit, and specialised clinics for stroke, myasthenia gravis, HIV neurology, neuro-genetic disorder and epilepsy.

Areas of research include:
Stroke: A large cohort of stroke patients were followed up for 6 months post incident stroke to determine survival, disability and functional outcomes following their discharge from an acute stroke unit to community-based health care and rehabilitation. Factors predictive of poor outcome were identified. Data from this study are being used to develop a community based model of stroke care. An in-service training program for health care workers involved in stroke care in under-resourced settings is being developed. The new South African National Guideline for the management of acute ischaemic stroke and TIA has been published with substantial input from the GSH/UCT stroke Unit. A longitudinal study of HIV associated stroke to evaluate the underlying biological mechanisms (specifically endothelial dysfunction and ultrasonographic vascular phenotypes) has been undertaken.

Myasthenia gravis: Clinical and Laboratory-based research projects are focussed on improving therapeutic strategies and increasing understanding of disease pathogenesis.

- A Multi-center, Randomized Study comparing Thymectomy to No Thymectomy in Myasthenia Gravis-International study NIH funded. On advisory committee.
- The psychiatric manifestations in thymomatous MG (Dr Freeman, Psychiatry) Complement regulation in MG subjects with DAF promoter SNP and the effect of therapies. This work done by the Neurology Research Group in partnership with Human Biology laboratory. PI J Heckmann with Dr's Amaal Abrahams and Sharon Prince. MSc student Ms J Auret.
- TGFb polymorphisms and their association with extraocular muscle MG damage- in collaboration with Dr C Dandara, Human Genetics.

HIV/AIDS: Clinical and Laboratory-based research projects studying the risk factors for developing neuropathy in HIV-infected subjects.

- Research collaboration with Endocrine (UCT) and Neurology (Emory University) – longitudinal prevalence study of HIV neuropathy and risk factors at the Crossroads CHC.
- Dr Johan van der Watt, received the CIDRI Post Graduate Scholarship award to study inflammation in HIV- associated toxic neuropathy
- Dr Chad Centner is studying Pyridoxine & NAT – 2 genotypes as risk factors for HIV- associated neuropathy.
- Dr John- Randel Vermaak is studying the incidence of HIV- neuropathy since the cART regimen has changed from d4T to Tenofovir.
- Collaboration with Dr’s Todd Hulgan (Vanderbilt University) and Dr P Sinxadi, Pharmacology, UCT to investigate mitochondrial DNA haplotype and susceptibility to HIV- associated toxic neuropathy by examining mitochondrial haplogroups and association with HIV- associated neuropathy in African subjects on d-drugs.
- Dr Friedrich Thienemann is performing a retrospective analysis of demyelinating CNS disease in HIV- infected subjects.
f. Pilot project examining the efficacy and CSF drug penetration of cART in patient with neurological HIV-associated disease. Drs Thienemann, Vermaak and Decloedt (Pharmacology)

Dementia: A longitudinal study of cognitive impairment in the elderly, with an emphasis on the role of inflammation in the pathogenesis of Alzheimer’s disease. The study includes imaging techniques such as magnetic resonance spectroscopy (MRS) of the brain and volumetric MRI analyses of various brain regions.

Neurogenetics: A clinical and counselling service for patients with Huntington disease and familial spinocerebellar ataxia (SCA) with a study to find an appropriate SNP to target for SCA1 gene silencing and to knock down the expression of mutant Ataxin1.

Multi-media teaching: The use of clinical encounter simulations is being explored.

Drug trials: The division is active in phase 3 drug trials for Parkinson’s disease, epilepsy and multiple sclerosis.

Divisional Statistics

Permanent and Long-term Contract Staff

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Postgraduate Students

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<tr>
<td>MA (Neuropsychology)</td>
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Research Fields and Staff

ASSOCIATE PROFESSOR A. BRYER
Stroke; neuro-genetics.

DR E. LEE PAN
Health systems information technology; multi-media teaching.

ASSOCIATE PROFESSOR J. HECKMANN
Myasthenia gravis; HIV neurological disease, HIV neuropathy, neuro-immunology; neuro-genetics.

DR L. TUCKER
Epilepsy

DR K. BATEMAN
Tuberculous meningitis

Contact Details

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E-mail: alan.bryer@uct.ac.za

Department Of Medicine
Division Of Clinical Pharmacology

HEAD OF DIVISION: PROFESSOR GARY MAARTENS

Divisional Profile

The major research thrusts of the division are focused on drugs for malaria, tuberculosis and HIV. The research in these fields is broad and encompasses drug discovery, pharmacokinetics, pharmacogenomics, clinical trials, pharmacoepidemiology, and pharmacoeconomic evaluation. The analytical laboratory plays a key research role with small animal models for drug discovery and in patient samples for drug concentrations. A large multicentre malaria clinical research group headed by Professor Karen Barnes has secured substantial funding from the Gates Foundation and the Global Fund – this programme is at the forefront of translational malaria research in Africa. The MRC South African Traditional Medicines Research Group is a drug discovery programme: Professor Kelly Chibale, Dept Chemistry, UCT and Professor Peter Smith from our division are co-directors. Compounds with antimalarial, antibacterial (including antitubercular) and antifungal activity are identified and optimised from plants used in traditional medicine. The analytical laboratory has recently been awarded funding from NIH as an International Pharmacology Specialty Laboratory. Professor Helen McIleron heads our clinical pharmacokinetic group, which conducts a series of pharmacokinetic studies evaluating antitubercular drugs, antiretroviral drugs, and the interaction between them in adults and children with funding from the Wellcome Trust, NIH, and MRC. Our collaboration on population pharmacokinetics with Uppsala University is ongoing and we have a pharmacometric laboratory to perform these complex analyses.
Divisional Statistics

Permanent And Long Term Contract Staff

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<td>Administrative and Clerical Staff</td>
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<tr>
<td>Departmental Assistance</td>
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Honorary Staff

<table>
<thead>
<tr>
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Postgraduate Students

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<td>Postdoctoral</td>
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<td>TOTAL</td>
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Research Fields and Staff

BARNES, KI.
Malaria, combination antimalarial therapy – operational and policy research. Antimicrobial pharmacokinetic studies to inform optimal dosing in vulnerable populations

BLOCKMAN, M.
Rational and cost-effective prescribing of medicines; drug utilisation review; adverse drug reaction monitoring; drug policy and regulation; human research ethics.

CAMPBELL, WE.
Phytochemical studies on indigenous Amaryllidaceae species; structural studies on active compounds isolated from traditional medicinal plants

COHEN, K.
Antiretroviral pharmacokinetics and efficacy; pharmacokinetics of antiretrovirals in children; pharmacoepidemiology.

GABRIELS, G.
Analytical chemistry, pharmacokinetics, traditional medicines, drug discovery and development, drugs and sport performance

MAARTENS, G.
Adherence to antiretroviral therapy; immunopathology & diagnosis of HIV-associated tuberculosis; pharmacoeconomic evaluation of antiretroviral therapy; pharmacogenomics of antiretrovirals

MCILLERON, H.
Pharmacokinetic-pharmacodynamic relationships of antitubercular and antiretroviral drugs; pharmacogenomics; population pharmacokinetics; drug interactions between antiretrovirals and rifamycins.

SMITH, PJ.
Mechanisms of antimalarial drug resistance; pharmacokinetics of anti-tuberculosis drugs; isolation of novel drugs from traditional medicines; development of new drug assays.

WIESNER, L.
Pharmacokinetics of antimalarial drugs; drug assay development; metabolite identification; drug formulation.

Contact Details
Postal Address: Division of Clinical Pharmacology, University of Cape Town, K45, Old Main Building, Groote Schuur Hospital, Observatory, 7925
Telephone: (021) 406 6286
Fax: (021) 448 1989
Email: gary.maartens@uct.ac.za

Department Of Medicine
Division Of Rheumatology
HEAD OF DIVISION: PROFESSOR ASGAR ALI KALLA

Divisional Profile
The Division of Rheumatology has several research interests relating to different aspects of the rheumatic diseases. Osteoporosis is an area of interest for many years and there is ongoing collection of longitudinal bone mineral density data in patients with rheumatoid arthritis (RA) and systemic lupus erythematosus (SLE). Age-related bone loss at different skeletal sites is being prospectively studied in collaboration with the Department of Nuclear Medicine and the Endocrine Unit. Recently, collaborative studies with the Division of Hepatology have been carried out to see the relationship between bone mineral density (BMD) and auto-immune hepatitis. Clinical drug trials are in progress.
to study the safety and efficacy of the newer biological DMARDs in RA and SLE. Recently, the trials of coxibs are concentrating on cardiovascular outcomes to a greater extent than their gastr-toxicity. We have also been looking at SLE genetics in collaboration with the Hepatology, with particular reference to the Vitamin D receptor and its role in the pathogenesis of auto-immune diseases. Newer areas of research include the study of chronic tophaceous GOUT; community aspects of diagnosing and treating rheumatic diseases at Community Health Centres; early rheumatoid arthritis; genetics of bone loss in SLE; and functional problems in ankylosing spondylitis.

Divisional Statistics

Permanent and Long-term Contract Staff

<table>
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<th>Position</th>
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<tbody>
<tr>
<td>Professor</td>
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<tr>
<td>Senior Lecturer</td>
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<td>Research Staff</td>
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<tr>
<td>Nurse practitioner</td>
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Honorary Staff

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Students

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Contact Details

Postal Address:
J47 Old Main Building,
Groote Schuur Hospital,
Observatory 7925
Telephone: +27 21 404 5422/2131 or 406 6514
Fax: +27 21 448 3253
E-mail: melanie.burger@uct.ac.za; kallaa@iafrica.com

Department of Medicine

Research output

Chapters in books


Articles in peer-reviewed Journals


Helgadottir, A., Mayosi, B.M. et al. 2012. Apolipoprotein(a) genetic sequence


Herrmann, C., Salas, P.F., O Patrick, B., De Kock, C., Smith, P.J., Adam, M.J. and Orvig, C. 2012. Modular synthesis of 1,2- and 1,1’-disubstituted ferrocenyl carbohydrate chloroquine and mefloquine conjugates as potential antimalarial agents. Organometallics, 31: 5748-5759.


Lotvall, J., Bateman, E.D., Bleeker, E., Busse, W., Woodcock, A., Follas, R., Lim, J., Stone, S., Jacques, L. and Haumann, B. 2012. 24-h duration of the novel LABA vilanterol trifenatate in asthma patients treated with


replacement, presenting with retroperitoneal hematoma and successfully managed by percutaneous embolization and coiling. Catheterization and Cardiovascular Interventions, 80: 1002-1006.


Thelingwani, R.S., Dhansay, K., Smith, P., Chibale, K. and Masimirembwa, C.M. 2012. Potent inhibition of CYP1A2 by frutinone A, an active ingredient of the broad spectrum antimicrobial herbal extract from P. fruticosa. Xenobiotica, 42(10): 989-1000.


care and comprises participation in large, international, collaborative trials, cutting edge national research projects, self-initiated local and collaborative studies, as well as smaller individual projects. Several important clinical databases have been established which provide valuable information in maternal medicine, gynaecology and reproductive medicine. In addition, our Undergraduate Teaching Unit is actively engaged in education research. Research supervision is provided at the level of MMed and MPhil dissertations and PhD theses to registrars, sub-specialist trainees and staff.

Obtaining an MMed has become a compulsory requirement by the HPCSA for specialist registration, which has greatly increased the need for research supervisors. Our Department has 25 funded registrars in specialist training and 13 supernumerary registrars (all self funded), the majority of whom are non-South African from Malawi.

Staff and students

Permanent and long-term contract staff

<table>
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<th>Professors</th>
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<td>Associate Professors (full time)</td>
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<td>Associate Professor (part time)</td>
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<td>Senior Lecturers</td>
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<td>Postdoctoral and Research Staff</td>
<td>20</td>
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<tr>
<td>Technical and Support Staff</td>
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<tr>
<td>Admin and Clerical Staff</td>
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Students

| Doctoral       | 1 |
| Master’s       | 35|
| PG Diploma     | 775|
| Undergraduate  | 811|

Research fields and staff

PROFESSOR LYNETTE DENNY
Cervical cancer: prevention in low-resource settings; natural history; precursors in HIV positive women. Other gynaecological cancers: management of endometrial, ovarian cancer and advanced vulval cancer. HPV: prevalence, types; vaccination, DNA typing.

PROFESSOR SUSAN FAWCUS
Maternal mortality; Perinatal mortality; Intrapartum asphyxia; Magnesium supplementation in pregnancy; Better Birthing Initiative. Calcium and pre-eclampsia trial, co-investigator Associate PROFESSOR JOHN ANTHONY.
Obstetric haemorrhage pilot project. Multicentre collaborative study. Co-investigator Associate Professor J Anthony.

PROFESSOR ZEPHIRNE VAN DER SPUY
Contraceptive and interceptive development; Polycystic ovary syndrome; Reproductive failure; Endocrine dysfunction in pregnancy; Menopause; Nutrition and reproductive health; Genetics of benign gynaecological conditions.

ASSOCIATE PROFESSOR JOHN ANTHONY
Thrombophilia; Eclampsia; Bioethics.

ASSOCIATE PROFESSOR SILKE DYER
Infertility: health-services in low-resource settings, psychosocial consequences, quality of life, HIV.

ASSOCIATE PROFESSOR PETRUS STEYN
Fertility Regulation and Reproductive Health, Development of Sexuality Education.

ASSOCIATE PROFESSOR ATHOL KENT
Medical education: Reproducible assessment procedures.

DR SAADIQA ALLIE
Obstetric hysterectomy; Teenage pregnancy.

DR ANNE HORAK
High risk obstetrics; Fetal cardiac abnormalities.

DR STEPHEN JEFFERY
Refractory overactive bladder syndrome: treatment, epidemiology; HIV and obstetric pelvic floor trauma; surgical repair of posterior compartment prolapse; interdisciplinary patient care.

DR LYNELLE KENNETH
IUCD in HIV pos women

DR MUSHI MATJILA
Fetal Anomalies: Antenatal Pyelectasis; Reproductive endocrinology in normal and abnormal pregnancies. PhD thesis (in process): “The role of Kisspeptin and cognate receptor GPR 54 in placentation”. 

DR NOMONDE MBATANI
Uterine sarcomas: outcome of treatment; Treatment outcome and complications of gynaecological malignancy.
DR VANESSA PERROTT  
Medical education.

DR GREG PETRO  
Clinical epidemiology; Haemorrhage and transfusion in the obstetric patient; Termination of pregnancy.

DR LINDA ROGERS  
Vulval cancer, MRI Imaging in endometrial and cervical cancer, optimal management of early stage cervical cancer, outcome of ovarian cancer in developing countries.

DR LEANN SCHOEMAN  
High-risk obstetrics; Audit of clinical obstetric management; cardiac disease in pregnancy.

DR VALENTIN STEFAN  
Haemorrhage and transfusion in the obstetric patient.

DR CHANTAL STEWART  
Fetal medicine; Women's expectations of and attitudes to fetal anomaly scans; Preterm labour; Ultrasound screening for risk of pregnancy complications.

DR HETTA VAN ZYL  
Pre-eclampsia, eclampsia and complications; High risk obstetrics; Laparoscopic surgery; Caesarian section: prevalence and outcome.

DR LINDA WALMSLEY  
Infertility: Quality of life, HIV

Sub-speciality trainees

DR TRACEY ADAMS: GYNAECOLOGICAL ONCOLOGY (GRADUATED 2012)  
DR CATHERINE ELLIOTT: MATERNAL AND FETAL MEDICINE  
DR MALIKA PATEL: REPRODUCTIVE MEDICINE (GRADUATED 2012)  
DR D RICHARDS: GYNAECOLOGICAL ONCOLOGY

Teaching

Undergraduate

In 2012 there were 1229 students registered in the Faculty of Health Sciences over the 6 years of the MBChB course. The Department of Obstetrics & Gynaecology was responsible for tuition in Years 3, 4, 5 and 6 in both Obstetrics and Gynaecology.

Thus during 2012 approximately 800 students were taught by the O&G Department.

Awards and other major highlights

Professor Lynette Denny was awarded the Fellowship ad eundem of the Royal College of Obstetricians and Gynaecologists, London, UK.

Professor Lynette Denny awarded the South African Medical Association (SAMA) award for Extra-Ordinary service to Medicine.

Professor Lynette Denny President – International Society of Gynecologic Cancer, Chair FIGO Gynaecology Oncology Committee.

Professor Susan Fawcus promoted to Full Professor. Was invited as expert to WHO Maternal Surveillance and Response workshop for Anglophone African countries, Harare, Zimbabwe. Also served as advisor and Vice-Chairman at the Annual meeting of Scientific and Advisory Group of the Reproductive Health Research Unit of World Health Organisation, Geneva, Switzerland.

Professor Zephne van der Spuy appointed Emeritus Professor and Senior Scholar following her retirement as Professor and Head of Postgraduate Education. Awarded Honorary Fellowship from the Royal College of Physicians of Ireland. Part of the National Contraceptive Expert Committee which developed the new SA guidelines.

Dr Catherine Elliott graduated MMed (O&G): “Complications of anticoagulation in pregnant women with mechanical heart valves”. Supervisor: Dr L Schoeman.

Dr Kobby Essel graduated MMed (O&G): “A Study on knowledge of contraception”. Supervisor: Professor Z van der Spuy

Dr Anne Horak graduated MMed (O&G): “An analysis of the Caesarean Section rate at Mowbray Maternity Hospital using Robson’s Ten Group Classification System”. (Awarded with distinction) and supervised by Professor S Fawcus.

Dr Viju Thomas graduated MMed (O&G): “Maternal selenium levels in recurrent pregnancy loss”. Supervisor: Professor Z van der Spuy

Dr Lindi Vollmer was awarded the Daubenton Medal for the College of Medicine Part II FCOG (SA). Graduated MMed (O&G): “Teenage pregnancy: A review of patients accessing obstetric care in the peninsula maternal and neonatal service”. Supervisor: Professor Z van der Spuy.
General

Visitors to the Department included Professor John Guillebaud, Emeritus Professor, London UCL; Jody Steinhauer, University of CA, San Francisco; Professor W Utian; Professor S Lindow; Professor P Steer; Professor J Osborne; Professor C Wright and Professor Rafique Parkar from Kenya who assisted in developing laparoscopic operating skills.

Contact details

Professor Lynette Denny
Head: Department Obstetrics & Gynaecology
H45 Old Main Building
Groote Schuur Hospital
Observatory 7925
Tel: 27 21 404 4485 (secretary Jill Artlett) (w)
Fax: 27 21 448 6921
Email: lynette.denny@uct.ac.za

Research output

Chapters in books


Articles in peer-reviewed Journals


**Peer-reviewed published conference proceedings**


**Department of Paediatrics and Child Health**

The Department of Paediatrics and Child Health is a large department in the Faculty of Health Sciences, encompassing the field of general paediatrics as well as a full spectrum of paediatric medical subspecialties with several affiliated disciplines, comprising the School of Child and Adolescent Health. The Department platform includes Red Cross War Memorial Children’s Hospital, Groote Schuur Hospital, Somerset Hospital, Mowbray Maternity and Victoria Hospital. All paediatric registrars are now required to register for a MMed degree as part of their training.

The department has a wide breadth of research activities with a substantial research output especially in the areas of priority child health problems such as tuberculosis, pneumonia, infectious diseases and HIV. The department has an established clinical research unit at Red Cross War Memorial Children’s Hospital, which includes approximately 30 staff members funded on
grant support, mainly awarded by international funding agencies especially National Institute of Health (NIH) USA, European Developing Country Clinical Trials Partnership (EDCTP), Wellcome Trust UK, Global Alliance for Vaccines and Immunisation (GAVI) and the Bill and Melinda Gates Foundation. Current studies located in this clinical research unit include studies of childhood pneumonia, of paediatric TB and of HIV-associated illness. Other satellite clinical research sites have been established in secondary level and community based facilities, supported by this central unit. A recent highlight was a large 4 year award from the Bill and Melinda Gates Foundation for a birth cohort study, the Drakenstein Child Lung Health study to investigate the antenatal and early life determinants of child health with a focus on pneumonia. This has enabled the establishment of clinical research sites in the Drakenstein area, Paarl, and the undertaking of a multidisciplinary study that involves several departments and divisions in the Faculty of Health Sciences. There are 3 NRF rated researchers in the Department including one A-Rated person.

**Departmental Profile**

Professor and Head of Department and Director of the School of Child and Adolescent Health: Professor Heather Zar

**General Paediatrics**
- Emergency Unit
- Inpatient unit

**Subspecialties:**
- Adolescent Medicine
- Allergy
- Cardiology
- Critical Care
- Endocrine
- GIT
- Haematology/Oncology
- Infectious Diseases
- Neonatology
- Nephrology
- Neurodevelopment
- Neurology
- Pulmonology
- Rheumatology

**Affiliated Disciplines**
- Allied Health Sciences
- Dietetics
- Child & Adolescent Psychiatry
- Child Health Unit
- Children’s Institute
- Dermatology
- Nuclear Medicine
- Paediatric Anaesthesia
- Palliative Care
- Paediatric Pathology
- Paediatric Radiology
- Paediatric Surgery
- Poisons Centre
- South African Tuberculosis Vaccine Initiative (SATVI)-IIDMM

**Department of Paediatrics and Child Health**

**Departmental Statistics**

**Permanent and long-term contract staff**

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**Students**

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<td>MPhil</td>
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<td>PG Diploma (Child Nurse Practice)</td>
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<tr>
<td>Undergraduate</td>
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**Research Fields and Staff**

A.C. ARGENT
Respiratory mechanics in croup; respiratory mechanics and endotracheal suctioning; electrical impedance tomography
and respiratory disease in the PICU; care practices and interpersonal relationships in ICU; quality of care and safety in the PICU; management of traumatic brain injury in PICU; HIV in the PICU; fluids in the critically ill; prevention of nosocomial infections including ventilator associated pneumonia and central line sepsis; viral infections in the PICU; cardiomyopathy/myocarditis in children; ethical issues in resource allocation in the PICU; severe sepsis and septic shock; “Pathways to care” for critically ill children; training and simulation training for healthcare workers working with critically ill or injured children.

D.W. BEATTY
Primary immune deficiency disorders; tuberculosis in childhood; paediatric infectious disease.

H. BUYS
Ambulatory, emergency and outreach care; paediatric HIV disease and nutrition; diarrheal disease.

M. CARRIHIll
Type 1 diabetes in the South African youth; Neonatal screening programmes; Disorders of sex development.

A. DAVIDSON
HIV-related malignancy; Brain tumours; the impact of ethnicity on ALL outcomes; Stem Cell Transplantation for Immunodeficiency.

R. DE DECKER
The 22q11.2 deletion syndrome; Warfarin: implementation and impact; Genetic associations of congenital heart disease.

R. DE LACY
Cystic fibrosis; gastroenterology.

S. DELPORT
Paediatric endocrinology; advance diabetes.

F. DESAI
Paediatric oncology.

R. DIEDERICKS
Emergency paediatrics; Infectious Diseases.

K. DONALD
Developmental disabilities as they manifest and are managed in resource limited settings such as South Africa (including Cerebral palsy, Autism, Intellectual disability, genetic syndromes). Specific interests include the preventable causes of neurodisability such as alcohol and methamphetamine exposure, organophosphate poisoning and the neurological and neurocognitive complications of HIV.

B.S. ELEY
Primary immune deficiency disorders; paediatric tuberculosis; paediatric HIV/AIDS; paediatric infectious disease.

P. GAJJAR
Renal disease; paediatric organ transplantation especially infectious complications; paediatric hypertension including Takayasu’s Arteritis; acute renal failure and peritoneal dialysis; paediatric HIV nephropathy; adolescent medicine.

E. GODDARD
Paediatric liver disease; transplantation in children; immunology; paediatric infectious disease; paediatric gastroenterology and nutrition.

M. HARRISON
Neonatal epidemiology; infection control; neonatal outcomes.

M. HENDRICKS
Clinical Outcomes in children with rhabdomyosarcoma at Red Cross Children’s Hospital.

M.K. HENDRICKS
Child health, public health nutrition and child rights and nutrition.

L. HENLEY
Research ethics in general. Ethical and legal issues in research with children.

J. HEWITSON
Resource allocation and cardiovascular disease; Trisomy 21 and cardiovascular disease; surgical management of patients with a single ventricle.

A. HORN
Assessment and Management of Hypoxic Ischaemic Encephalopathy.

S.M. KROON
Mother-to-child transmission of HIV.

M. LEVIN
Genotypic and phenotypic features of allergic Xhosa children; Prevalence and associations of food allergy in unselected children in Cape Town and in the Eastern Cape; relationship between food allergy and atopic dermatitis; the impact of demographic, environmental, nutritional and infectious influences on the expression of allergy and atopy within the Drakenstein birth-cohort study; communication issues in management of asthma and allergy in indigenous people in South Africa.
J. LAWRENSON
Developing standards for echocardiographic screening of individuals to detect subclinical rheumatic heart disease; Thoracopagus conjoined twins; Cardiovascular disease in patients with HIV disease.

L. LINLEY
Kangaroo mother care; HIE and the effect of head cooling; ethical issues in neonatal care.

G. MOLLER
Neonatal jaundice

B. MORROW
Paediatric respiratory infections; nosocomial infections in the PICU; distribution of ventilation in children with and without lung disease; respiratory mechanics; cystic fibrosis; resource allocation in PICU; paediatric cardiopulmonary physiotherapy.

R. MULIOWA
Pertussis in children hospitalised with Lower Respiratory Tract Infection (LRTI).

S. NAIDOO
Aeroallergen sensitisation and the prevalence of asthma, allergic rhinitis, and eczema in children with Vernal Keratoconjunctivitis.

A. NDONGO
Hydatid disease of the spine; epilepsies in childhood; neurometabolic disorders; the ketogenic diet in the African context; Rett syndrome; optimal management of refractory status; non-polio enterovirus infections.

J. NUTTALL
Paediatric HIV/AIDS and tuberculosis; pharmacokinetics & dosing of antiretroviral and antitubercular drugs; performance of HIV rapid tests in children.

R. PETERSEN
Cerebral Palsy.

V. RAMANJAM
Phenotype, neuroimaging and neurocognitive characteristics of children with neurofibromatosis type 1; DAX1 mutation; investigating the prevalence, comorbidities and responses to different forms of medical therapy for children and adolescents with ADHD.

N. RHODA
Neonatal care in rural communities / third world countries; Outreach; Distance learning; Care of the ELBW in resource limited settings; neonatal planning to existing research interest.

M. RICHARDS
Developmental medicine

G. RIORDAN
Mitochondrial disease; ADHD.

P. ROUX
Paediatric HIV/AIDS; ethics; palliative care; early childhood development.

S. SALIE
Sepsis, HIV and fluid resuscitation.

B. SCHLEGEL
Tuberous sclerosis.

C. SCOTT
Paediatric Systemic Lupus Erythematosus; Juvenile Idiopathic Arthritis; Fibrodysplasia Ossificans Progressiva; HIV Arthropathy

A. SPIITAELS
Paediatric endocrinology, metabolism and diabetes; social circumstances, diabetes control, intersex.

P. SPRINGER
Management and outcome in tuberculous meningitis; neurodevelopment in children with HIV/Aids (with Stellenbosch University).

A. V. (NIKI) VAN NIEKERK
Neonatology and Neonatal cardiology.

A. VANKER
Indoor air pollution and tobacco smoke exposure and the effects on lung health. Determinants of childhood pneumonia.

K. WALKER
and HIV associated neurocognitive deficits in children. Use of Methylphenidate and management of ADHD in HIV.

A.T. WESTWOOD
Epidemiology, diagnosis and management of cystic fibrosis in South Africa; management of acute diarrhoea; causes of death among children; epidemiology of chronic illness in South Africa; health systems for children with long-term health conditions; policy perspectives on children with long term health conditions; adolescent health.

J. WILMSHURST
Spinal muscular atrophy; limb girdle muscular dystrophy; peripheral neuropathies; congenital myopathies; complex epilepsies in childhood; role of video telemetry in paediatric neurology practice; neurofibromatosis; paediatric spinal pathologies; neuroradiological diagnostic and prognostic indicators of TBM, neurological manifestations of HIV; rare neuromuscular disorders; tuberous sclerosis; ketogenic diet in epilepsy; child neurology training in Africa; child neurology service capacity in Africa; guidelines for management of epilepsy disorders (for the ILAE).

D. WOODS
Perinatal distance education; wind up monitoring technology

M. ZAMPOLI
Childhood respiratory infections; HIV-associated lung disease; Cystic fibrosis.

H. ZAR
Childhood TB (specifically new diagnostic strategies), childhood pneumonia, HIV-associated lung disease; low cost spacer devices for asthma; epidemiology of childhood asthma. Drakenstein child lung health study (a birth cohort study to investigate the antenatal and early life determinants of child health)

Contact Details
Postal Address: Department of Paediatric Medicine and Child Health, University of Cape Town, Red Cross Children’s Hospital, Rondebosch, 7700
Tel: +27 21 658 5324
Fax: +27 21 689 1287
Web: http://www.scah.uct.ac.za
UCT General enquiries: +27 21 650 9111
UCT web: http://www.uct.ac.za
Research coordinator: Geanine Hopley @ 021-6860086
Email: geanine.hopley@uct.ac.za

Department Of Paediatrics And Child Health

Affiliated Disciplines
Allied Health Sciences
HEAD OF UNIT: SAMEER RAHIM

Unit Profile
The Unit of Associated Paediatric Disciplines is multi-disciplinary, including all the paediatric therapy professions of Physiotherapy, Occupational Therapy, Dietetics/Nutrition, Speech Therapy, Audiology and Social Work. The Division undertakes undergraduate and postgraduate teaching and training in all aspects of paediatric care, both acute and chronic. The Division is active in conducting research in Paediatric fields, often collaborating with members of other Divisions. The individual departments also run departmental weekly and monthly CPD programs accredited by UCT.

Unit Statistics

Students

<table>
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Permanent and long-term contract staff (PGWC)

<table>
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<th>Category</th>
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<tbody>
<tr>
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<td>Permanent staff (Part time)</td>
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<td>Community service</td>
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<td><strong>Total</strong></td>
<td><strong>39</strong></td>
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Undergraduate students: 66
Elective registered via UCT: 10
Postgraduate students (nursing and allied health): 107
**Total: 183**

Research Fields and Staff

Lezanne le Roux (Speech Therapy)
The Nature of Feeding and Swallowing Difficulties in the Paediatric Cerebral Palsy Population Who Have Had Videofluoroscopic Swallow Studies.

Social Work Department
- Collaboration between Child Safe social worker and UCT academics and students who undertake research projects and utilises the Childsafe Trauma Database.
• Child Abuse Data base development commenced in 2012.
• Extensive pain management related research undertaken by Rene Albertyn.
• Post Graduate studies 2013, X2 social work staff members registered for Master’s in social work Shihaaam Cader and Bernadette Saayman [Dietitians] Case Series report of all patients receiving SMOF IV lipid at RCWMCH

Department of Paediatrics and Child Health
Affiliated Disciplines
Child And Adolescent Psychiatry
HEAD OF UNIT: DR WENDY VOGEL

Unit Profile
The clinical services associated with the Division of Child and Adolescent Psychiatry are offered in the following units: Outpatient Unit; Consultation-Liaison Unit; Parent-infant Mental Health Service; and Therapeutic Learning Centre (an in-patient unit for children under 13 years.) Training is provided for psychiatric registrars and clinical psychology interns. In addition, the Division offers a two-year M. Phil. (Child and Adolescent Psychiatry) degree, which leads to registration as a sub-specialist in Child and Adolescent Psychiatry with the Health Professions Council of SA. In addition, staff members in the Division supervise candidates for postgraduate degrees such as Master’s and Doctoral degrees. Research interests include adolescent and infant mental health, autism and ADHD, community mental health services research and behavioural manifestations of HIV infection.

Unit Statistics
Permanent and long-term contract staff

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Associate Professor</td>
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<tr>
<td>Senior Lecturers</td>
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<tr>
<td>Lecturers</td>
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<tr>
<td>Emeritus Professor</td>
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Students

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<td>Registrars Senior</td>
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*MBChB students rotate through the Division

Research Fields and Staff

DR WENDY VOGEL:
Lecturer; ADHD and autism and service delivery.

BRIAN ROBERTSON
Emeritus Professor; child and adolescent psychiatric epidemiology; impact of violence on children; development of community mental health services; integration of mental health services at primary care level; youthful perpetrators of violent crime; cultural psychiatry and indigenous healers.

ASTRID BERG
Associate Professor; Senior lecturer and consultant, analytic psychotherapy; infant mental health; culture and mental health.

ROD ANDERSON
Senior Lecturer; analytic psychotherapy.

WILLEM DE JAGER
Senior Lecturer. Parent-child relational problems

NIC SHORTALL
Senior Lecturer; psycho social sequelae of chronic physical illness and medical student training / assessment.

JON YAKO
Senior lecturer; Cross-Cultural Child Development; Personality & Identity; Family Intervention Research, Social Psychology

MARIAN CAMPBELL
Senior Lecturer: The relationship between developmental and attachment theories and theory of mind leading to the ability in children and adolescents to symbolize and develop reflective functions.

PROFESSOR PETRUS DE VRIES
Sue Struengmann Professor of Child and Adolescent Psychiatry
Contact Details
Postal Address: Division of Child and Adolescent Psychiatry, School of Child and Adolescent Health, Red Cross Children's Hospital, 46 Sawkins Road, Mowbray, 7700
Tel: +27 21 685 4103
Fax: +27 21 685 4107
Web: http://web.uct.ac.za/depts/ich
UCT General enquiries: +27 21 650 9111
UCT web: http://www.uct.ac.za

Please refer to the Psychiatry and Mental Health Research Report for publications by members of the Division: Child and Adolescent Psychiatry.

Department of Paediatrics and Child Health

Affiliated Disciplines

Child Health Unit
DIRECTOR: ROTATING ACTING HEAD

Unit Profile
The Child Health Unit’s mission is to contribute to promoting equity in child health. The core business of the Unit is directed at children’s public health and community-oriented child health promotion, protection, care and rehabilitation.

The target of the Unit’s endeavours is those areas, which have a strong children’s public health and interdisciplinary focus, viz. child development and disability, community nutrition, infectious diseases and health policy and service development. The Unit has close links with the Children’s Institute.

Unit Statistics

Permanent and long-term contract staff

<table>
<thead>
<tr>
<th>Role</th>
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<tr>
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<tr>
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<td>Specialist</td>
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<tr>
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<td>16</td>
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</table>

Research Fields and Staff

J. SHEA
Health promotion and education; the adaptation and piloting of a behavioural intervention to support HIV+ women in the core domains of health, mental health, parenting and HIV prevention for use by non-governmental organizations; an assessment of the feasibility of intervention trials on tuberculosis prevention in schools in the Western Cape Province; development of a certificate course in clinical research.

Department of Paediatrics and Child Health

Affiliated disciplines

Children’s Institute
DIRECTOR: ASSOCIATE PROFESSOR SHANAAZ MATHEWS

Institute Profile
The Children’s Institute aims to contribute knowledge and understanding to promotion of policies which govern improvement of child well-being, and fulfillment of the rights of all South Africa’s children, with special emphasis on children rendered vulnerable by a range of difficult circumstances. It addresses the needs and rights of South Africa’s children through policy research, advocacy and education and other academic activities that contribute to improvement in the policy analysis, formulation, implementation and evaluation processes.

Institute Statistics

Permanent and long-term contract staff

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<thead>
<tr>
<th>Role</th>
<th>Count</th>
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<tr>
<td>Professors</td>
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<td>Senior Lecturers (Snr Researchers)</td>
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<td>Lecturers (Researchers)</td>
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<tr>
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<td>PASS (Scientific and Technical)</td>
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Students

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<td>Master’s</td>
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<tr>
<td>Total</td>
<td>8</td>
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</table>
Research Fields and Staff

ASSOCIATE PROFESSOR SHANAAZ MATHEWS
Director; Children & violence, child protection, child abuse, gender policy, gender-based violence, evidence-based programming.

LIZETTE BERRY
Senior researcher; Child socio-economic rights indicators; child poverty.

DR ARIANE DE LANNYOY
Senior researcher; Youth and youth identity in rapidly changing, urban environments; Perceptions of opportunity structure; Education, identity and educational decision-making.

KATHARINE HALL
Senior researcher; Child poverty; socio-economic rights.

LUCY JAMIESON
Senior advocacy co-ordinator; Child rights; participatory democracy; governance; law reform & policy development.

HELEN MEINTJES
Senior Researcher, HIV/AIDS & children; alternative care; social policy; children’s participation; media

DR TENDAI NHENGA-CHAKARISA
Senior researcher; International law; human rights law; child rights; child labour; applying international children’s rights law in African cultural contexts; curriculum design & legal drafting.

PAULA PROUDLOCK
Senior Legal Researcher; Child rights; legislative review; law reform; democracy & governance; socio-economic rights for children.

Contact Details
Postal Address: Children’s Institute, University of Cape Town, 46 Sawkins Road, Rondebosch, 7700
Tel: +27 21 689 5404
Fax: +27 21 689 8330/1287
E-mail: info@ci.org.za
Web: www.ci.org.za
UCT General enquiries: +27 21 650 9111
UCT web: http://www.uct.ac.za

Department Of Paediatrics And Child Health

Affiliated Disciplines

Paediatric Anaesthesia

HEAD OF UNIT: ASSOCIATE PROFESSOR JENNY THOMAS

Unit profile

The Unit of Paediatric Anaesthesia, a division of the Department of Anaesthesia (UCT) and SCAH, is responsible for the provision anaesthesia for all children, infants and neonates undergoing surgery or procedures at the Red Cross War Memorial Children’s Hospital (RCWMCH) and Maitland Cottage Children’s Home. This department also provides acute, chronic and palliative care services for the children at this hospital, as well as providing input into the Paediatric Intensive Care services. The Paediatric Pain Team is a multidisciplinary group which falls under Paediatric Anaesthesia, run by Professor Thomas. These include SRN Angeline Schrikker (nurse practitioner in pain) and a number of other volunteers from nursing, child and family psychotherapists, child life specialists, aroma therapy, physiotherapy and art therapy.

Staffing

The head of this clinical unit is Associate Professor Jenny Thomas, with the following fulltime paediatric anaesthesia specialists: Dr Graeme Wilson, Dr Rebecca Gray, Dr Carmen Kemp and Dr Kotie Bester. The other three specialists rotate on a regular basis between GSH, Maitland Cottage and RCWMCH. There are 5 positions for registrars in training at RCWMCH.

In addition to teaching, training and lecturing at both under graduate and postgraduate levels, members of the department have lectured nationally and internationally. They also teach and train members of other disciplines which include paramedics, nurses, surgeons, pharmacists, emergency medicine trainees and family medicine practitioners. Professor Thomas and Dr Myburgh also teach on APLS courses.

In this past year, Ms Melissa Williams has joined the staff to provide much-needed administrative assistance. This has made a considerable difference to the efficient functioning of our paediatric anaesthetic department.
Unit statistics

Permanent and long term contract staff

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<thead>
<tr>
<th>Position</th>
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<td>Associate Professor</td>
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<td>Specialists</td>
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<td>Registrars</td>
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<td><strong>Total</strong></td>
<td><strong>13</strong></td>
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Research fields and staff

ASSOCIATE PROFESSOR JENNY THOMAS
Acute and chronic pain management, palliative care, analgesia and sedation, burns, conjoined twins, paediatric trauma and orthopaedics, HIV and Aids, transplantation, neonatal anaesthesia and pain, general paediatric surgery, peri-operative behavioural disorders, paediatric peri-operative audits of deaths and critical adverse event reporting.

GRAEME WILSON
Paediatric pharmacology, total intravenous anaesthesia techniques, target-controlled anaesthesia, cardiothoracic anaesthesia.

REBECCA GRAY
Transfusion medicine, vascular access, premature infants, ultrasound application, cardics, general paediatric surgery and burns.

KARMEN KEMP
Cardiac anaesthesia, childhood malignancies, teaching.

KOTIE BESTER
Ultrasound and echocardiography applications in paediatric anaesthesia, modalities for analgesia and sedation, interventional radiology and MRI.

Supernumerary fellowships in paediatric anaesthesia have been running for a number of years and two Kenyan anaesthetists have trained here as well as numerous South Africans. The plan is to find funding for these to ensure sustainability for this training in paediatric anaesthesia.

A number of paediatric anaesthetists do sessions at RCWMCH, and these include Drs Owen Hodges (research in Burns blood transfusion techniques), Tony Butt, and David Kirsch.

Contact Details

Postal address: Division of Paediatric Anaesthesia, School of Child and Adolescent Health, University of Cape Town, Red Cross War Memorial Children’s Hospital, Klipfontein Road, Rondebosch, 7700, Cape Town, South Africa.

Tel: +27 21 6585003 / 6585105
Fax: +27 21 6585183
Web: http://web.uct.ac.za/depts/ich
UCT General enquiries: +27 21 650 9111
UCT web: http://www.uct.ac.za

Department Of Paediatrics And Child Health

Affiliated Disciplines

Paediatric Dermatology

HEAD OF UNIT: ASSOCIATE PROFESSOR N. KHUMALO

Unit profile

The division’s only consultant runs the clinical service and is assisted by dermatology registrars from Groote Schuur Hospital for two clinics a week.

Professor Nonhlanhla Khumalo is NRF-rated and runs the only academic hair research clinic in the country (with Groote Schuur Hospital’s Dr Ngwanya). Her research interests include the epidemiology and treatment of hair and scalp disorders that uniquely affect individuals with afro-textured hair. Her international collaboration studies use various research tools - scanning (and transmission) electron microscopy and amino acid analysis of hair. Current studies are investigating the link between folliculitis keloidalis nuchae and HIV transmission. She is also developing a hair classification tool that will be useful for elucidating the relationship between the pathogenesis of alopecia and hair phynotype.

Permanent staff

<table>
<thead>
<tr>
<th>Position</th>
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<td>Associate Professor</td>
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Department Of Paediatrics And Child Health

Affiliated Disciplines

Paediatric Nuclear Medicine

HEAD OF UNIT: DR A. BRINK

Unit profile

The Paediatric Nuclear Medicine Service is part of the Department of Paediatric and Child Health. It provides the Nuclear Medicine investigations and therapy for all neonates and children being treated in facilities associated
with UCT and supports State and Private Health Care facilities in the Western Cape and other provinces which do not have a dedicated Paediatric Nuclear Medicine Service. In addition, staff actively participate in the Division of Nuclear Medicine at Groote Schuur Hospital. Registrars from a number of institutions spend time at the Children’s Hospital as part of their training, as do radiography students from Groote Schuur Hospital. Other activities include participation in International Congresses and the College of Nuclear Physicians.

Statistics
Permanent and long term contract staff

| Senior specialist                  | 1 |
| Part-time specialist / Emeritus Associate Professor | 1 |
| Total                              | 2 |

Students

| Registrars | 1 |
| Total      | 1 |

Research fields
Renal scintigraphy, “milk” scans in gastro-intestinal motility disorders, limb perfusion in children with vascular compromise due to infection or burns, PET/CT applications in children, and brain perfusion scintigraphy.

Contact Details
Postal address: Paediatric Nuclear Medicine, School of Child and Adolescent Health, University of Cape Town, Red Cross War Memorial Children’s Hospital, Klipfontein Road, Rondebosch, 7700, Cape Town, South Africa.
Tel: +27 21 6585367
Web: http://web.uct.ac.za/depts/ich
UCT General enquiries: +27 21 650 9111
UCT web: http://www.uct.ac.za

Department Of Paediatrics And Child Health

Affiliated Disciplines
Paediatric Pathology

HEAD OF HISTOPATHOLOGY UNIT: DR K. PILLAY

Unit profile
The Unit of Paediatric Pathology is primarily an NHLS laboratory service unit to Red Cross Children’s Hospital and provides paediatric and neonatal services to other Western Cape Health Care Institutions. The pathology service functions as an amalgam of three sub units comprising: Anatomical Pathology, Chemical Pathology and Haematology. Undergraduate teaching activities are largely undertaken through equivalent disciplines at Groote Schuur Hospital and the Medical School of the University of Cape Town to medical and physiotherapy students. Postgraduate teaching is undertaken to MPhil (Paediatric Pathology), MMed (in all the pathology disciplines), and MSc and PhD students at UCT. Research activities are related to laboratory aspects of child health and molecular mechanisms underlying paediatric disease. Research also undertaken through collaborative projects with clinical colleagues, mainly in paediatrics and paediatric surgery.

Unit Statistics
Permanent and long-term contract staff

| Senior Lecturers | 3 |
| NHLS Staff       | 40 |
| Total            | 43 |

Students

| Registrars | 3 |
| Total      | 3 |

Research Fields and Staff

DR MARGARET H.G. SHUTTLEWORTH
Molecular genetics of paediatric leukaemias and neuroblastomas; paediatric myelodysplastic syndromes.

DR KOMALA PILLAY
Pathology of muscle; pathology of placentas from HIV positive patients; lymphomas.

DR GEORGE VAN DER WATT
Inherited metabolic disorders.
Contact Details
Postal Address: Paediatric Pathology, School of Child and
Adolescent Health,
University of Cape Town, Red Cross Children’s Hospital,
Klipfontein Rd, Rondebosch, 7700
Tel: +27 21 658 5209
Fax: +27 21 658 5206
Web: http://web.uct.ac.za/depts/ich/
UCT General enquiries: +27 21 650 9111
UCT web: http://www.uct.ac.za

Department Of Paediatrics
And Child Health
Affiliated Disciplines
Paediatric Radiology
HEAD OF UNIT: DR. T. KILBORN

Unit profile
A clinical radiology department providing imaging to all
divisions in the School, performing a total of approximately
42,000 examinations per annum. Imaging modalities include
plain-film radiography, computed and digital radiography,
digital fluoroscopy, ultrasound (including Doppler),
computerised tomography (CT), magnetic resonance
imaging (MRI), angiography and interventional radiology.
The Division conducts a Postgraduate teaching program
for three registrars registered for the M.Med (Diagnostic
Radiology) at the University of Cape Town on an ongoing
rotational basis and for one registrar registered at the
University of Stellenbosch. An undergraduate lecture series
in paediatric radiology is provided at 5th year level. Training in
paediatric sonography is conducted for B.Tech (Ultrasound)
students of the Cape Peninsula University of Technology.

In addition, the Division offers an annual Paediatric
Radiology Fellowship, providing further training in the
discipline for qualified radiologists. Fellows are registered
for the University’s Postgraduate Diploma in Paediatric
Radiology.

Unit Statistics
Permanent and Long-term Contract Staff

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<td>Harry Crossley Fellow</td>
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</table>

Research Fields and Staff
T. KILBORN
Oncology, HIV and TB, Pulmonary Imaging, Gastrointestinal,
Neonatal Imaging

N. WIESELTHALER
Neuro-imaging; orthopaedic imaging; interventional
radiology

E. BANDERKER
Cardiac and Chest imaging, Orthopaedics, Imaging in Trauma

Contact Details
Postal Address: Paediatric Radiology, School of Child and
Adolescent Health, University of Cape Town, Red Cross
Children’s Hospital, Klipfontein Rd, Rondebosch, 7700
Tel: +27 21 658 5104
Fax: +27 21 658 5101
Web: http://web.uct.ac.za/depts/ich/
UCT General enquiries: +27 21 650 9111
UCT web: http://www.uct.ac.za

Department Of Paediatrics
And Child Health
Affiliated Disciplines
Paediatric Surgery
HEAD OF UNIT: PROFESSOR A.J.W. MILLAR

Unit profile
The department functions as a tertiary health care centre
for paediatric surgery for the University of Cape Town
and the Red Cross War memorial Children’s Hospital.
The department is a national/international centre for
postgraduate paediatric surgical career development and
is accredited with the HPCSA.
An extensive surgical outreach programme is in existence primarily to improve the surgical care of children at secondary and primary health care levels. The division is regarded as a national centre for minimally invasive surgery, surgical skills training, organ transplantation, specialized hepatobiliary surgery, neurosurgery, cardiothoracic surgery, oncology and burn care in children and for the separation of conjoined twins.

Research is being conducted in the department into a wide variety of aspects of paediatric surgical practice including gastrointestinal surgery, minimal invasive surgery, trauma care and prevention, liver and renal transplantation, renovascular hypertension, burn therapy, pain assessment and management, conjoined twins and common diseases of Africa including tuberculosis and HIV/AIDS. Financial support is received from the MRC, Pharmaceutical companies, private donations and from the Lombardi Government in Italy.

Unit Statistics

Permanent and long-term contract staff

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<th>Position</th>
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<td>Career Paediatric Surgical Registrars</td>
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<tr>
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<tr>
<td>Karl Storz Fellowship Programme</td>
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<tr>
<td>Research Technologists / Social Worker</td>
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Students

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</table>

Research Fields and Staff

**PROFESSOR A.J.W. MILLAR**
Biliary atresia, choledochal cysts, liver transplantation, renovascular hypertension, non-transplant surgery for short bowel syndrome, oesophageal replacement with colon, hepatoblastoma, bilateral Wilms’ tumour, surgical management of intestinal failure

**EMERITUS PROFESSOR H. RÖDE**
Burn and nutrition research; short bowel syndrome; HIV/AIDS; oncology and trauma.

**EMERITUS PROFESSOR M.R.Q. DAVIES**
General paediatric surgical conditions.

**ADJUNCT PROFESSOR R.A. BROWN**
Gastrointestinal surgery; surgical endoscopy; constipation and gastro-intestinal polyposis.

**PROFESSOR A.B. VAN AS**
Traumatology; child accident prevention; vascular injuries; gastro-intestinal diseases.

**ASSOCIATE PROFESSOR A. NUMANOGLU**
Minimal invasive surgery; transplantation; HIV/AIDS and diseases of the gastro-intestinal tract, teaching with technology, web based outreach, neonatal surgery

**S. COX**
The child sexual assault ‘epidemic’, Neonatal burns, surgical aspects of necrotising enterocolitis and other childhood general surgical conditions.

**DR A. ALEXANDER**
HIV/AIDS and surgical implications, surgical curriculum development, surgical research, urology, minimally invasive surgery.

**DR R. ALBERTYN**
Paediatric pain; rehabilitation and HIV/AIDS; web-based education

**J. RAAD**
Manometry and gastro-enterology.

Director: ChildSafe (post vacant)
Child accident prevention.

Contact Details

Postal Address: Division of Paediatric Surgery, School of Child and Adolescent Health, University of Cape Town, Red Cross War Memorial Children’s Hospital, Rondebosch, 7700
Tel: +27 21 658 5012
Fax: +27 21 685 6632
Web: http://www.surgicalskills.co.za; http://www.scah.uct.ac.za/clinicalservices/surgery.html
UCT General enquiries: +27 21 650 9111
UCT web: http://www.uct.ac.za
Department Of Paediatrics And Child Health

Affiliated Disciplines

Poisons Centre

HEAD OF UNIT: DR C. ROBERTS

Unit profile

The Poisons Information Centre maintains and distributes the AfriTox poisons information database designed to help clinicians in Southern Africa treat poisoned adults and children. All types of potentially toxic substances are included with a particular accent on local South African trade names and natural toxins. The treatment protocols are tailored for the South African situation. The database is used at over 30 treatment centres countrywide and by both the other Poisons Centres, to underpin poisons advice given to health workers and the public. It is also distributed to centres in Botswana, Kenya, Mozambique, Nigeria and Zimbabwe.

The Poisons Emergency Telephone line is answered by the staff of the Poisons Information Centre during office hours on weekdays, and after hours in the Emergency Department of the hospital, using the AfriTox database.

The Centre collects data on all children seen at Red Cross Children’s Hospital with known or suspected poisoning.

Statistics

Permanenent and Sessional Staff

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Medical officers</td>
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<tr>
<td>Pharmacists</td>
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<tr>
<td>Total</td>
<td>4</td>
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</tbody>
</table>

Research Fields and Staff

All staff members are involved in data collection

Dr Kate Balme is responsible for case data on poisoning.

Contact Details

Postal Address: Poisons Information Centre, School of Child and Adolescent Health, University of Cape Town, Red Cross Children's Hospital, Klipfontein Rd, Rondebosch, 7700
Tel: +27 21 658 5308
Fax: +27 21 658 5331
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Department Of Paediatrics And Child Health

Affiliated Disciplines

SOUTH AFRICAN TUBERCULOSIS VACCINE INITIATIVE (SATVI)

HEAD OF UNIT: PROFESSOR WILLEM HANEKOM

Unit profile

SATVI’s vision is “A World Without TB”, while our mission is “Innovative And High-Quality TB Vaccine Research In Africa, To Impact The Global Epidemic”. To achieve its mission, SATVI has been testing 6 new TB vaccine candidates in 15 completed or ongoing clinical trials. SATVI also addresses other critical clinical, epidemiological, immunological and human genetic questions in TB vaccine development. A large focus of this research is on identification of markers in blood to indicate whether a person is at risk of developing, or protected against, TB disease (correlates or risk or of protection).

SATVI is the largest dedicated TB vaccine research group on the African continent, with a personnel complement of >100 and an annual budget of ~R70 million. Its success is evident from manuscripts published in high impact journals, funding support from multiple international funding agencies, invited presentations at international conferences and representation on multiple international policy bodies.

SATVI also has an active postgraduate academic training programme, with multiple PhD and Master’s students.

Particular highlights from 2012 included the first successful completion of an efficacy trial of a new TB vaccine, MVA85A, in nearly 50 years has been a prominent achievement. The group was also awarded a R41.6m grant from the Bill and Melinda Gates Foundation to identify correlates of risk of TB disease.

Divisional Statistics

Students and Postdoctoral Fellows

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</table>
**Research Fields and Staff**

### Research Staff

**WILLEM HANEKOM – DIRECTOR**

TB vaccine development and testing; Correlates of risk of TB disease in infants, adolescents and adults; Immunopathogenesis of TB and of TB/BCG/IRIS in infants, adolescents and adults.

**MARK HATHERILL – DEPUTY DIRECTOR FOR CLINICAL TRIALS AND EPIEMIOLOGY**

TB vaccine development and testing; Epidemiology and diagnosis of TB in infants, adolescents and adults.

**THOMAS SCRIBA – DEPUTY DIRECTOR FOR IMMUNOLOGY**

TB vaccine development and testing; Correlates of risk of TB in infants and adolescents; Immunopathogenesis of TB in infants, adolescents and adults; Assay development.

**HENNIE GELDENHUYS**

TB vaccine development and testing, including novel administration of vaccines; Epidemiology and diagnosis of TB in infants, adolescents and adults.

**BENJAMIN KAGINA**

TB vaccine development and testing; Assay development.

**ANGELIQUE KANY KANY LUABEYA**

TB vaccine development and testing; Epidemiology and diagnosis of TB in infants, adolescents and adults.

**EDWARD MAKGOTHLO**

Correlates of risk of TB disease in adolescents.

**ELISA NEMES**

TB vaccine development and testing; Correlates of risk of TB disease in infants; Immunopathogenesis of TB and of TB/BCG/IRIS in infants, adolescents and adults.

Adam Penn-Nicholson

**TB VACCINE DEVELOPMENT AND TESTING; CORRELATES OF RISK OF TB disease in adolescents; Assay development.**

**MICHELE TAMERIS**

TB vaccine development and testing; Epidemiology and diagnosis of TB in infants and adolescents; Drama as a vehicle for communicating research technology.

### Contact Details

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UCT web: http://www.uct.ac.za

### Department Of Paediatrics And Child Health

#### Research output

**Edited Books**


**Chapters in books**


**Articles in peer-reviewed Journals**


Argent, A.C. and Morrow, B. 2012. Chest physiotherapy: how does it work (if it does)? Pediatric Critical Care Medicine, 13(2): 238-239.

Argent, A.C. and Morrow, B. 2012. Infants with human immunodeficiency virus exposure or infection in the pediatric intensive care unit. Pediatric Critical Care Medicine, 13(5): 597-598.


Levin, M. 2012. Combination of inhaled steroid and long-acting beta-2-agonist therapy - use and limitations. Current Allergy & Clinical Immunology, 25(2): 72-75.


Primary Health Care Directorate

DIRECTOR/CHAIR: PROFESSOR STEVE REID

Vision

A Health Science Faculty that promotes equity and quality in health care, guided by the Primary Health Care Approach

Aim

To promote the primary health care approach in teaching, research, policy, health services and community engagement by the Faculty of Health Sciences

Objectives

- To integrate a Primary Health Care Approach into the Faculty of Health Sciences undergraduate and postgraduate curricula
- To extend and develop the Faculty of Health Sciences clinical teaching platform in rural and primary care sites
- To deepen community engagement within the health service and the Faculty of Health Sciences curriculae
- To enhance the recruitment and support of students of rural origin in the Faculty of Health Sciences
- To increase inter-disciplinary research in health sciences

Mission

To promote equitable, comprehensive, compassionate and quality care at all levels of the health system by means of:
- the recognition of diversity and culture
- evidence-based practice and policy
- active health promotion
- community-based education
- strategic partnerships

Directorate Statistics

Permanent and long-term contract staff

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Research and Teaching Focus of Academic Staff

PROFESSOR STEVE REID
Chair & Director: primary health care; Collaboration for Health Equity through Education and Research; compulsory community service; family medicine; rural health; district health systems; community based services support & intermediate care policy; community oriented primary care; population based approaches to health; community based education; medical education; human resources for health; global consensus on social accountability; creativity and health; arts and healthcare

MR JAMES IRLAM
Senior Lecturer: primary health care; evidence-based practice; climate change and health
**DR LAURAINE VIVIAN**
Senior Lecturer: primary health care; medical anthropology; culture, psyche and illness; medical education; electromagnetic radiation health implications from cell phone technology

**MRS JOHANNAH KEIKELAME**
Lecturer: primary health care; health promotion; community needs assessment; patient and carers perspectives on epilepsy

**MRS SARAH CRAWFORD-BROWNE**
Lecturer: primary health care; culture, psyche and illness; psychological trauma; community based mental health programming

**DR DES MICHAELS**
Lecturer: primary health care; health promotion; integrated clinical practice; Collaboration for Health Equity through Education and Research; social accountability

**MRS CLAUDIA NAIDU**
Junior Research Officer: Collaboration for Health Equity through Education and Research; social accountability

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**Contact Details**
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**Research output**

**Chapters in books**


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**Articles in peer-reviewed Journals**


Vivian, L.M.H. 2012. We didn’t do anything wrong, we tried our best, but they just died… we tried, we really tried: child deaths in the paediatric intensive care unit, Red Cross Children’s Hospital, Cape Town, South Africa. African Studies, 71(2): 287-303.


The Brain-Behaviour Initiative (BBI) is one of UCT’s signature themes. The initial focus of the BBI was on trauma, but it has extended to include neuroHIV and substance use disorders. More details of the aims, methods, and partners, are available at - http://www.health.uct.ac.za/research/groupings/bbi/overview/

The Adolescent Health Research Unit is examining adolescent risk-taking behaviour, predictors of school dropout, and violence in intimate adolescent relationships. Data analysis is in progress for two large school-based cluster randomised control trials of AIDS prevention.

The Alan J Flisher Centre for Public Mental Health addresses a range of questions in mental health policy and implementation science, and offers advanced training in public mental health. The Centre currently conducts research in 8 low and middle-income countries in Africa and south Asia, including the Programme for Improving Mental health care (PRIME) (www.prime.uct.ac.za) and the Africa Focus on Intervention Research for Mental health (AFFIRM) (www.affirm.uct.ac.za) research and capacity building initiatives. Within the Centre, The Perinatal Mental Health Project (PMHP) contributes research on maternal mental health from its own service and training initiatives as well as in collaboration with other partners.

Departmental Statistics

Permanent and long-term contract staff

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Honorary Staff

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Students

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Research Fields and Staff

Addiction Psychiatry/Psychology

Substance use in psychosis (Henk Temmingh), Substance use and anxiety disorders (Don Wilson); Interventions (Katherine Sorsdahl)

Child and Adolescent Psychiatry/Psychology Adolescents. Adolescent risk behaviour (Cathy Mathews), infant mental health (Astrid Berg), evaluation of peer education interventions among adolescents (Sandra de Jager, Kathryn Pahl), partner violence prevention among adolescents (Chantel LeFleur-Bellerose, Anik Gevers), autism and pervasive development disorders (Petrus de Vries).

Consultation-Liaison Psychiatry/Psychology Women’s mental health, stress and pregnancy (Bavanisha Vythilingum), liaison psychiatry and HIV (Jackie Hoare and Kerry Louw)

Forensic Psychiatry/Psychology Mentally ill offenders and femicide (Sean Kaliski and Tania Swart).

General Psychiatry / Psychiatric Intensive Care Social inclusion (Pete Milligan), bipolar disorder (Neil Horn), phenomenology of psychosis (Henk Temmingh).

Intellectual Disability Fetal alcohol spectrum disorder (FASD) neurobehaviour and brain imaging (Colleen Adnams) Psychotherapy Intimate partner violence (Adele Marais)

Neuropsychiatry Neurocognitive disorders and neuropsychiatry of HIV, brain imaging and HIV (John Joska; Carla Freeman), ARV initiation and adherence (John Joska and Kevin Stoloff)

Psychopharmacology Pharmacological MRI, Evidence-based psychopharmacology (Dan Stein, Taryn Amos)

Public and Community Mental Health Mental health policy and services (Crick Lund), Green psychiatry (John Parker)

Contact Details

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UCT web: http://www.uct.ac.za

Research output

Authored books


Edited books


Chapters in books


Articles in peer-reviewed Journals


Harker Burnhams, N., Dada, S. and Myers, B.J. 2012. Social service offices as a point of entry into substance abuse treatment for poor South Africans. Substance Abuse Treatment Prevention and Policy, 7(22):


Thelingwani, R.S., Dhansay, K., Smith, P., Chibale, K. and Masimirembwa, C.M. 2012. Potent inhibition of CYP1A2 by frutinone A, an active ingredient of the broad spectrum antimicrobial herbal extract from Pfruticosa. Xenobiotica, 42(10): 989-1000.

discrimination and psychological well-being in the USA and South Africa. Ethnicity and Health, 17(1-2): 111-133.


Peer-reviewed published conference proceedings


School of Public Health and Family Medicine

Director

Professor Leslie London (until September 2012)
Professor Mohamed Jeebhay (incoming since October 2012)

Deputy Director: Associate Professor Derek Hellenberg (until September 2012)
Deputy Head for Public Health: Professor Mohamed Jeebhay (until September 2012)

School Profile

The School of Public Health and Family Medicine is a strong multidisciplinary department in the Faculty of Health Sciences. Its teaching, research and service extend to a wide range of settings and content areas consistent with the evolving disciplines of Public Health and Family Medicine.

The School celebrated its 40th birthday since the creation and filling of an Inaugural Chair in what was then called the Unit for “Comprehensive and Community Medicine” in the Department of Medicine in 1972, with a handful of staff complement compared to its growing staff complement currently standing at 186.

The School is currently comprised of two Divisions – the Division of Public Health and the Division of Family Medicine, but initiatives are underway following a response to its 2009 departmental review to re-align its organisational design to encompass the broadening scope of its teaching and research activities.

The Division of Public Health has a wide variety of service, policy, research and training activities. A focus continues to be the training of master’s and doctoral students in public health, as well as public health medicine and occupational medicine specialists. Along with a postgraduate diploma in health management, and postgraduate qualifications in Health Economics, these programmes train a wide range of public health professionals for leadership roles in the public sector. For example, Public Health Medicine registrars are placed at the Provincial Health Department Head Office, in its programmes directorate and in the various districts as well as providing support to the Chief Directorate for Strategy and Health Support, while Occupational Medicine registrars provide services in a range of tertiary clinics. The Occupational Medicine Clinic at GSH is the only public sector occupational diseases referral clinic in the Western Cape and one of three in the country.

The Division of Family Medicine has as its focus the training of primary level medical practitioners (family physicians) for the public sector. It also houses the pioneering South African programme in Palliative Medicine. The Division has staff on the joint establishment (with the PGWC Health Department) who have clinical, teaching and clinical governance responsibilities at a number of Community Health Centres and District Hospitals around the city. The Division began training Family Medicine registrars in February 2008 after family medicine was recognized as a specialty by the Health Professions Council of South Africa (HPCSA) in August 2007.

Teaching

The School runs a large postgraduate programme, including 7 postgraduate diplomas, 6 Master’s programmes, 3 professional Master’s programmes and a PhD programme. In 2012, there were 347 postgraduate students in the School including 27 PhD students. A total of 129 postgraduate students graduated in 2012, including 4 PhDs, 37 Master’s and 88 postgraduate diploma students. The Master’s in Public Health (MPh) is the School’s flagship public health
programme and the largest taught master's in the Faculty, with 171 students graduated over the past decade.

The MPH continues to attract widespread interest from potential applicants, particularly from other African countries. There were 237 applicants for 70 places in 2012, of which 71 were accepted. A record number of 30 students graduated in 2012 out of a total registration of 141. With appropriate resourcing, there is scope for an increased intake and increased throughput on this flagship programme. The Diploma in Health Management, also known as the Oliver Tambo Fellowship Programme, continued to graduate senior health managers from around the country under its new configuration as a joint programme offered with the Graduate School of Business. As the only Master programme in palliative medicine in Africa, the MPhil Palliative Medicine continues to attract students from South Africa and other countries in Africa.

The School is also playing an increasing role in the new undergraduate medical curriculum with the aim of producing medical professionals able to function effectively at the primary care level and imbued with an understanding of public health. Public Health and Health Promotion training to undergraduates take place in community-based settings and has been instrumental in pioneering community-placements for MBChB students at UCT. A number of initiatives are underway to develop off-campus teaching sites linked to Community Health Centres and district hospitals. The Family Medicine division has been closely involved in developing and supporting the new student learning centre at Vanguard Community Health Centre and the rural teaching venue at Vredenburg.

Research – overview

There are four URC-accredited research entities within the School, residing under the Public Health Division: Health Economics, Infectious Disease Epidemiology, Women’s Health Research and Occupational and Environmental Health Research, as well as growing activities in Health Policy and Health Systems Studies and in Health and Human Rights. Research outputs in 2012 included 179 peer-reviewed journal publications (a 25% increase from 2011) and 10 book chapters. Total research grant and contract income to the School was R38 997 179 in 2012, a 40% increase from 2011 research income.

Furthermore, in addition to subsidy-attracting publications, academic staff participate in a range of provincial, national and international policy and produce a number of technical and policy papers. These contributions do not always find their way into peer-reviewed scientific journals, but which are integral to the department’s service mission, reflecting the School’s strong social responsiveness profile in applying research and scholarly activity as part of advocacy to promote the public’s health.

The School’s research mission is reflected in the wide range of research activities and the associated research outputs are notable for their multidisciplinary perspective. In infectious diseases and women’s health, publications cover childhood and adult tuberculosis prevention, diagnosis and treatment; HIV epidemiology, transmission and treatment (including treatment outcomes, adherence and mortality); adolescent risk-taking behaviour and educational interventions; prevention of mother-to-child transmission of HIV infection; contraceptive services and women’s reproductive health more broadly; economic analyses of tuberculosis and HIV services; HPV vaccination and cervical cancer prevention and health systems aspects of care related to TB and HIV. The integration of human rights considerations into public health policy and health systems practice receives attention in a number of publications. The department continues its role as a national leader in occupational and environmental health research with investigations into occupational allergy, pesticides, hazardous metals and lung disease due to mineral dust. Finally, the question of equity of resource allocation in health, and particularly in primary health care, continues to occupy researchers in health economics, who remain the leading South African source of peer-reviewed publications in this field.

The School has six NRF-rated researchers, including Dr Chris Colvin (Promising Young Researcher), Professor Aqiel Dalvie (Established Researcher), Professor Lucy Gilson (Internationally Acclaimed Researcher), Professor Mohamed Jeebhay (Internationally Acclaimed Researcher), Professor Leslie London (Internationally Acclaimed Researcher) and Professor Di McIntyre (Internationally Acclaimed Researcher).

Associate Professor Landon Myer was awarded the Southern African Association for the Advancement of Science (S2A3) British Association Silver Medal for 2012. The School also made its second award of the David Bourne prize for the best student in the MPH programme to Brian Allwood. The prize commemorates David Bourne, a demographer in the School who died in 2009, and whose death left a huge gap in the HIV research world. Henk Temmingh was awarded the Ethne Jacka prize for the top MPH dissertation by a graduating candidate in 2012.

Dr Brynt Cloete was awarded the Geoff Campbell award for best DOH student passing with distinction. Dr Amy Burdzik was awarded the SASOM medal of excellence for best DOH student passing with distinction. Dr Amy Burdzik was awarded the SASOM medal of excellence for best DOH student passing with distinction. Dr Amy Burdzik was awarded the SASOM medal of excellence for best DOH student passing with distinction.
Centre for Occupational and Environmental Health Research (COEHR)

The Centre's aim is to be a principal centre of OEH research, teaching and training, occupational medical clinical services, policy advisory, technical consultancy services, advocacy and a source of supportive outreach activities in South Africa, in the Southern and Eastern regions of Africa, Africa more generally, and internationally.

The major objectives of the Centre are firstly, to conduct multidisciplinary research, teaching and service provision of high priority in Southern Africa. Integrating laboratory, clinical, epidemiological and policy skills. Another key objective is to explore and develop means of maintaining the health of workers and environmentally exposed communities. A third objective is to conduct policy research into issues ranging from toxic or injurious exposures through to health surveillance. Fostering inter-institutional research, teaching and service (including outreach) collaboration and capacity development constitutes another major objective. Finally, another aim is to foster local and global networks for occupational and environmental health promotion through collaboration with United Nations and other agencies.

Key research projects

Key research areas for the Centre currently include the identification of risk factors and evaluating preventive approaches for allergens and asthma in the workplace, health hazards of chemicals (such as pesticides and endocrine disruptors) and silicosis elimination in gold miners. Workforces that are of particular relevance for the Centre's work include health care workers, with a specific focus on studying the determinants of TB infection and diagnostic approaches in order to prevent the spread of TB related to the HIV epidemic. Other vulnerable groups include agricultural workers (for whom injuries and pesticide-related asthma and neurotoxicity are a problem) and mine workers (at high risk of developing pneumoconioses and TB). Environmental risks for workers and communities exposed to metals, such as manganese and arsenic, and other chemicals in the working and residential environments are assessed and monitored. Climate change and its impact on occupational and general health has become a focus linked to the UCT African Climate and Development Initiative. These areas are supplemented by a broader focus on research to address occupational and environmental health systems and worker's compensation, as well as developing programmes to build OHS capacity through research and training in the SADC region. Through the Fogarty International Centre International Training and Research in Environmental and Occupational Health (ITREOH) and the Millemium Promise Programme (MPP) for non communicable chronic diseases.

Major highlights for 2012 included the following

- Professor Aqiel Dalvie was appointed Director of Centre for the period 2013-2015.
- Professor Mohamed Jeebhay was elected as a fellow of the Collegium Ramazzini, an international academy of 180 fellows whose mission is to advance the study of occupational and environmental health issues. He was honoured by the Allergy Society of South Africa (ALLSA) on receiving the distinguished service award for his efforts over a decade in promoting allergy research in his capacity as head of the research portfolio on the ALLSA executive for the period 2003-2012.
- Professor Leslie London was appointed to an Advisory Committee for a Wellcome Trust-funded cluster randomised controlled trial to determine whether safe storage containers can reduce the incidence of intentional and unintentional pesticide poisoning in rural Sri Lanka, 2010-2015. He served as a member of a Technical workgroup providing technical support to the UN Special Rapporteur on the Right to Health for the report on Occupational Health as a Human Right. He convened an Africa Workgroup for the International Commission on Occupational Health (ICOH) contributing to a revision of the ICOH Ethical Guideline. Professor London's NRF rating was upgraded to B3.
- Dr. Hanna-Andrea Rother represented the COEHR at the third session of the International Conference on Chemicals Management (ICCM3) in Nairobi, Kenya. She was elected to UCT Senate by UCT's academic staff and appointed a member of the editorial board for the Journal of Public Health and Health Policy. Dr Rother was awarded the Green Campus Initiative Backsberg Sustainability Award for her contribution to pesticide policy and management on UCT campuses. Finally, she was awarded a Visiting Scholars Fund Award to host Professor Thomas Arcury and Professor Sara Quandt from Wake Forest University School of Medicine, USA.
- Professor Rodney Ehrlich and Dr Jim te Water Naude joined the newly formed South Africa-Yale University Collaboration, a network of health science, social science and legal researchers and practitioners. The Collaboration is aimed at documenting the health burden among current
and former workers on South African mines, with an emphasis on silicosis, HIV and tuberculosis, and promoting an appropriate health systems response in Southern Africa.

Health Risk Management Programme

The Health Risk Management Programme conducts research, capacity building (teaching and networking), social responsiveness, policy analysis and develops interventions/risk communication materials in the area of environmental health, public health, pesticides and chemical, health and safety, and risk reduction. Research in 2012 focused on the silent public and environmental health problem of informal vendors selling agricultural pesticides for domestic use in low-socio economic communities of Cape Town; child poisonings from street pesticides; occupational herbicide exposures of community workers removing alien vegetation in the Working for Water programme. These research projects involve engagement with NGOs, community leaders/members, national, provincial and municipal government departments (health, agriculture and water affairs). Capacity building is through information sharing of research findings and policy information through UCT established electronic list servers, an on-line discussion forums with African Pesticide regulators, and a the Post Graduate Diploma in Pesticide Risk Management (DPRM). An innovative bi-monthly discussion forum is conducted as a virtual seminar through vula for students with global experts in the field of pesticides and health. The Post Graduate Diploma in Pesticide Risk Management (DPRM) is structured around the United Nations Code of Conduct on the Distribution and Use of Pesticides and has been developed in conjunction with the United Nations Food and Agricultural Organization (FAO), and the Swedish Chemical Agency (Kemi). In 2012 the first 15 DPRM students graduated, two with distinctions. There are currently 19 students registered in the programme.

A broad range of students have actively participated in research projects in the Health Risk Management Programme both MPH students and anthropology students (undergraduate, honours and master’s). Students have conducted household survey, case reviews and interviews, as well as developed risk communication tools, presented findings at conferences and to health professionals (e.g., Environmental Health Professionals and Community Health Promoters), and participated in training for workers.

The Health Risk Management programme also develops a range of risk communication materials and health interventions, algorithm, and policy briefs based on research findings. These mediums are used in order to disseminate and translate research findings for a broad range of stakeholders and continue to be widely distributed in printed form and as Creative Commons licensed electronic material posted on UCTs Open UCT site. The programme also conducts policy analysis and inputs to national, regional and international policies on chemical risk management and environmental health.

Industrial Health Resource Group (IHRG)

Within the COEHR, the Industrial Health Resource Group (IHRG) operates as an action research and socially responsive development group, providing occupational health and safety research, curriculum development, training, advice, and resource development services for trade unions and their members. The work of IHRG is guided by a vision of building the capacity of trade unions and their members to independently monitor, enforce and advance the workplace health and safety rights of workers.

IHRG assists with 75 cases of occupational injury and disease involving more than 250 workers in 2012. Most of the cases were individual workers from breweries, retail, manufacturing, clothing, communications, engineering, motor, municipal, road freight transport, public health, printing, prisons, public transport, farming, furniture making and security sectors. There were also two large groups of organised unemployed workers – ex-Everite workers and ex-mine mine workers. Two of the cases involved groups of workers from single workplaces – the family members of the 13 workers killed in a fire at Paarl Print, and three labour broker workers who were injured in a fire at the Engen petrochemical plant in Cape Town.

In December 2012 IHRG convened a discussion with a group of trade unionists and occupational medicine specialists to discuss IHRG’s first draft of its forthcoming revised Pilot COIDA booklet. The group included representatives from COSATU, NUM, NUMSA, SAMWU and Solidarity, occupational medicine specialists from the University of Cape Town, as well as Dr. Sophia Kisting, former Director of the ILO HIV/AIDS Program. IHRG intends consulting with this Reference Group during 2013 on the further development of training material around case management and compensation.
IHRG also plays an advocacy role within a national, regional and global context of deregulation, outsourcing and casualisation of labour - trends which enable public and private sector employers to shed responsibility for workplace health and safety. In this regard, IHRG is collaborating with the Federatie Nederlandse Vakbeweging and its South African partners in a campaign for decent work that is directed particularly at vulnerable workers. Our work with vulnerable workers includes contract cleaning workers, community care workers, labour broker workers and farm workers. Our advocacy work included issues relating to the administration, enforcement and the amendment of the health and safety legislation.

In November 2012 IHRG convened an indaba for 43 community health care workers from four provinces. The group included home-based carers, HIV/AIDS counsellors and Patient Care Assistants. The objective of the gathering was to convene a networking forum where these workers could share their experiences of work, conditions of employment and health and safety concerns.

IHRG works in partnership with trade unions in a variety of programmes. During 2012 IHRG was involved with Naledi and Satawu in a project that looks at the working conditions, organisational rights and health and safety issues in the contract cleaning sector. Training workshops and participatory action research projects have been carried out with contract cleaning workers at OR Tambo airport. IHRG is also involved in a programme with Numsa and the German trade union confederation DGB, to build the capacity of Numsa shop stewards and organisers to engage with German multi-national companies in the negotiation of workplace level agreements.

IHRG collaborates locally, nationally, regionally and globally with other labour service organisations, non-governmental organisations, adult educationists, occupational health experts, various academic programmes, and health research institutions. During 2012, IHRG collaborated with - amongst others – Hesperian Foundation, Federatie Nederlandse Beweging, Deutscher Gewerkschaftsbund, Naledi, Ditsela, Workers World Media Productions, Legal Resources Centre, Labour and Enterprise Policy Research Group and the Department of Occupational and Environmental Health at UKZN. IHRG attended a health and safety conference convened by the Department of Labour in March 2012. IHRG attended the NUMSA National Congress in June and the COSATU Provincial Congress in the Western Cape in September 2012. IHRG also began networking with organisations and institutions conducting research into climate change and its impact on health.

Research activity of IHRG contributes towards the production and distribution of a variety of popular and accessible resources (including posters, newsletters, research reports, workshop materials, and handbooks) for trade unions and their members on issues of occupational health and safety. It also produced Edition 2 of Organising for Health and Safety – A guide for trade unions. In 2012 IHRG produced issue 8 of the Health and Safety Networker and drafts of two DVD’s. IHRG further developed its website www.ihrg@org.za (established in 2011) and contributed to labour shows on community radio and television.

Centre for Infectious Disease Epidemiology and Research (CIDER)

The Centre for Infectious Disease Epidemiology and Research (CIDER) is a multi-disciplinary research group with the following objectives:

- To conduct public health research integrating laboratory, clinical, epidemiological, social science and health systems research into infectious diseases that have high priority in southern Africa (in particular HIV, tuberculosis and sexually transmitted infections) in order to improve the prevention and management of these diseases.
- To be a service-led research entity, maintaining very strong links with health services at all levels, and to assist policy makers, programme and services managers with the implementation of the results of research.
- To be a centre of expertise in the surveillance and monitoring of infectious diseases and infectious disease programmes and services, and in the conduct of robust observational research based on routine data sources.
- To provide postgraduate teaching and supervision in epidemiology.

The Centre has a strong track record in researching strategies for HIV prevention. Historically the Centre ran field sites for two large multicentre HIV prevention trials, one for a candidate vaginal microbicide, and the other testing the efficacy of twice daily acyclovir suppressive therapy in preventing HIV transmission among heterosexual HIV-discordant couples in which the HIV-infected partner is Herpes Simplex Virus-2 seropositive. Furthering the focus on HIV prevention the Centre is developing tools and indicators for measuring and evaluating PMTCT programmes in resource limited settings, and is testing novel service strategies for further improving the effectiveness of PMTCT interventions.

A further focus of the work of the Centre is in the area of treatment and service delivery for HIV and tuberculosis. This encompasses an expanding portfolio of health systems research as well as the clinical epidemiology of treatment.
interventions in individual cohorts. Health system projects have focussed on the use of lay health workers and community-based care, and the integration of TB and HIV services in the Western Cape, Free State and Gauteng. A major strength of the Centre is cohort studies of patients receiving antiretroviral therapy. This includes work with individual cohorts in Khayelitsha and Gugulethu, through to running an NIH-funded data centre for collaborative cohort research combining data from 14 cohorts in South Africa.

The Centre has an excellent working relationship with the Provincial Department of Health, with staff supporting the conduct and analysis of the annual antenatal HIV seroprevalence survey, the development and maintenance of information systems to monitor HIV programmes, and assistance with infectious disease surveillance and outbreak investigations. The work on context-appropriate information systems for HIV programmes has led to further collaborations nationally, regionally and with the World Health Organization.

The Centre has a strong multidisciplinary team of PhD scientists and continues to be a significant resource for epidemiology, biostatistics, infectious disease modelling and qualitative research support within the Faculty. There are active collaborations with a range of clinical and laboratory departments, including with the Departments of Psychiatry and Mental Health, Virology, Obstetrics and Gynaecology, Child and Adolescent Health, and Medicine.

The major highlights for 2012 include:

- Associate Professor Landon Myer received the British Association Medal (Silver). This medal is awarded to a scientist, under the age of 40 years, who has displayed “outstanding capability and achievements by way of publications, discoveries or special skills”.
- Morna Cornell and Anna Grimsrud received PhD Bursary awards from SACEMA
- Dr Leigh Johnson received 3 awards at the Actuarial Society Conference: best presentation on risk, best overall presentation and with together with Rob Dorrington, the award for the best actuarial paper published in a peer review journal. In addition he received the South African Black Actuarial Professionals award for contribution towards AIDS research in South Africa
- A number of staff were invited to participate in policy and scientific committees:
  - WHO Guidelines Committee for paediatric HIV treatment (Davies/Schomaker)
  - Review of EMOD, an infectious disease modelling tool funded by the Gates Foundation (Johnson)
  - South African National AIDS Council HIV Prevention Technical Task Team and the Costing, Budgeting and Health Financing Technical Task Team (Johnson/Bouler)
  - WHO consultation on hormonal contraception (Myer)
  - PMTCT Technical Working Group & National Steering Committee, National Department of Health (Myer)
  - National PMTCT guidelines review committee, 2012-present (Myer)
  - Board of the Centre for Medical Ethics & Law at the University of Stellenbosch (Myer)
  - Organizing committee for the HIV Prevention and Epidemiology Track of the 2013 South African AIDS Conference (Johnson)
  - Chair of the 16th International Workshop on HIV Observational Databases in Athens (Boule)
  - Organising committee for the 1st SA HIV Clinicians Society Conference in Cape Town (Boule)
  - Working group on the Methodological Investigation of Cochrane reviews of Complex Interventions (MICCI) Project (Colvin)

Health Economics Unit

The Health Economics Unit (HEU) conducts research in health economics and health system issues. The HEU maintains a balance between conceptual and applied research as well as between topics of local and international relevance and focuses on three thematic areas of research, namely health systems and health equity research; health financing and the economic evaluation of disease-priority areas.

There are currently a number of projects relating to issues of health financing and the achievement of universal coverage. In addition to this research work, the HEU is active in knowledge translation through the provision of input into the Ministerial Advisory Committee on National Health Insurance and its various sub-committees in South Africa. Other key policy work includes participation in the Economics and Financing Group for the government’s new “National Strategic Plan for HIV and AIDS, STIs and TB” and the provision of scientific advice to the World Health Organisation to look at health economics issues related to vaccines in low- and middle-income countries.

A five-year research project (UNITAS – Universal coverage in Tanzania and South Africa: Monitoring and evaluating progress) entered its second year of operation in 2012. The UNITAS project will focus on monitoring and evaluating policy formulation and implementation processes aimed...
at achieving universal health coverage in South Africa and Tanzania. The project will undertake monitoring mainly at the district level, with some monitoring and evaluation at the national level. It aims to support implementation processes and will establish an ‘early warning system’ of implementation difficulties. It is a collaborative, EU-funded project with 2 other South African institutions, a Tanzanian institution and 2 European institutions.

The Global Network for Health Equity (GHNE) continued in 2012 and will enable comparative and collaborative work across three continents to advance equitable universal health coverage. It draws on 3 existing networks: EQUITAP (Equity in Asia-Pacific Health systems, an Asia-Pacific Research Partnership); LANET (The Latin American and Caribbean Research Network on Financial Protection and Health Observatory); SHIELD (Strategies for Health Insurance for Equity in Less Developed Countries, an African network that the HEU co-ordinates). It is funded by the IDRC.

The HEU completed work undertaken in Kenya, Uganda and Zambia that critically evaluated patterns of health care financing and benefits from the use of health services, to provide an evidence base for promoting equitable health systems in these countries. The project was funded by the International Development Research Centre (IDRC) for Uganda and Zambia; and funding for Kenya came from the Wellcome Trust. The HEU worked with the following partners on this project: the Kenyan Medical Research Institute, HealthNet Consult in Uganda and the Department of Economics at the University of Zambia.

The main role of the HEU is to provide research and technical support.

The DST/National Research Foundation South African Research Chairholder in Health and Wealth focuses on the inter-play of health and wealth in the South African context and the impact of a range of government policies on health. Researchers contextualised the social determinants of health within an African context to increase awareness about this issue and to take into account health equity issues to address the root causes of socioeconomic health inequalities. Another key area of research relates to providing a strong evidence base to contribute to current policy debates on health care financing reform.

The Researching Equity in Access to Health Care (REACH) project ended in 2012. It focused on how health systems could contribute more effectively to achieving development goals by actively promoting equitable access to health care. This was explored through the case of South Africa’s health system, focusing on three tracer health interventions of particular relevance to the Millennium Development Goals (MDGs) and which were crucial to addressing the burden of ill-health in South Africa. The tracers were maternal health services, tuberculosis and HIV care. The HEU collaborated with the Centre for Health Policy at the University of Witwatersrand, the Africa Centre at the University of KwaZulu-Natal and McMaster University in Canada.

The XTEND study evaluates the impact and cost-effectiveness of Xpert MTB/RIF in the investigation of TB and its impact on patient and programme outcomes and transmission at a population level, and thus informs policy on the scale up of Xpert MTB/RIF in low- and middle-income countries. The XPHACTER project focuses on the Xpert MTB/RIF for people attending HIV clinics. It will identify an evidence-based algorithm, which is feasible to implement within HIV clinics, to guide the utilisation of TB investigations. The results will complement the XTEND study, and provide evidence to guide the rational use of Xpert MTB/RIF in national roll-out in South Africa and other settings where HIV and TB are both prevalent. The project runs until 2014 and the HEU is partnering with the London School of Hygiene and Tropical Medicine, the Aurum Institute, the World Health Organisation, and the National Health Laboratory Services. The Gates Foundation is funding this project.

The HEU also worked on four short-term research projects in 2012. First, a cost-effectiveness analysis of the MVA85A vaccine. This project focuses on estimating the potential cost-effectiveness of adding the MVA85A vaccine to the BCG vaccine in HIV negative children from the perspective of the South African government. It is funded by the Oxford- Emergent Tuberculosis Consortium (OETC). Second, a cost analysis of an integrated community-based approach for drug-resistant tuberculosis care. This study aims to estimate the cost of decentralized drug-resistant TB management model developed by the MSF in partnership with the City of Cape Town and the Provincial Government of the Western Cape. Costs will be estimated from both the health services perspective and a societal perspective. The study is funded by the MSF. Third, an implementing and scaling up a community health policy in Kenya project focuses on community health policy in Kenya; the HEU is working with Japanese Aid and the Kenyan Ministry of Health to analyse issues related to implementing a health promotion programme with Community Health Workers. The project will run until the end of January 2014. Finally, the retaining health professionals in Mozambique’s public health sector project. The HEU is working on a multi-partner project funded by the EU that is using Discrete Choice Experiment methodologies to elicit health professionals’ preferences for staying on in the public health sector of Mozambique. The project runs until the end of March 2013.
Resilient and Responsive Health Systems (RESYST) is a consortium that is undertaking health policy and systems research (with a focus on financing, health workers and governance) in a set of African and Asian settings, including India, Kenya, Nigeria, South Africa, Thailand, Tanzania and Vietnam. Funded by DfID, the consortium began in 2011 and will run until 2016.

Coordination work for EQUINET (Regional Network for Equity in Health in East and Southern Africa) continued in 2012 around equitable financing of health systems and equitable allocation of health care resources in a range of East and Southern African countries.

During this year, Dr Edina Sinanovic was appointed Director of the Unit. John Ataguba won the Young Investigators Best Publication Award 2011 for Public Health and Rehabilitation Sciences. Professor Di McIntyre attained an NRF B–rating and was elected as a foreign associate to the National Academy of Sciences’ Institute of Medicine (IOM) in Washington. Marsha Orgill and Judy Daire were selected to attend the Emerging Voices 2012 venture in Beijing.

Women’s Health Research Unit (WHRU)

The WHRU enjoys local, national and international research standing especially in the areas of sexual and reproductive health and gender issues. The Unit is involved in research, teaching, technical health service support, and advocacy in the area of women’s health. It is made up of a multidisciplinary team of researchers with expertise in public health, epidemiology, psychology, sociology and anthropology. Focus on women’s health and on gender and health is aligned with local and global challenges in addressing the health needs of women.

The Unit’s research focus can be summarised into three thematic areas: Socio-behavioural research; health services operational research and quantitative/epidemiological research.

The major highlights for 2012 include:

- The WHRU implemented its Mellon award to mentor staff towards completion of their PhDs in 2010 and has continued the mentorship process with another PhD mentorship continuing for 2012 and 2013. Deborah Constant was awarded a Harry Crossley bursary from the Health Sciences Faculty to enable her to progress with her PhD.

- A wide range of research collaborators and other visitors visited the Unit and included, Dr Grossman from Ibis Reproductive Health, USA, Dr My Huong Nguyen from the WHO Geneva, Dr Joanne Mantell, HIV Center, Columbia University, USA, Professor Kathleen Goggin, Director, HIV Research Unit, Department of Psychology, University of Missouri, USA and Mary Fjerstad Director of WomanHealth Global.

- The Unit also continued to host a study abroad programme from New York University in collaboration with Professor Sally Guttmacher, Professor of Public Health and Director of Master’s in Public Health Program in Community Health, New York University

- WHRU hosted Dr Rachelle Chadwick in the second year of a 2 year postdoctoral fellowship

- Unit members received numerous awards which included: a 2-month visiting fellowship at the Population Training and Study Centre at Brown University in the U.S.

- UCT PERC Africa Knowledge grant to set up a network of research collaborations with University of Namibia, University of Lesotho and Eduardo Mondlane University in Mozambique

- The Unit co-hosted and taught on Men Engage Africa Training course with Sonke Gender Justice and on the Stanford University Bing Overseas Study Program: Public and Community Health in Sub-Saharan Africa and a MACAIDS course run by the HSRC, UCLA and UKZN.

- Dr Jennifer Moodley was appointed as a member of the Ministerial Committee on the prevention and control of cancer.

- The Unit continues to disseminate our research at International Meetings including the FIGO conference in Rome, October 2012.

Health Policy and Systems Programme

The Health Policy and Systems Programme encompasses a range of activities aiming to build this area of work through research, teaching, and networking within and outside the SOPHFM. The particular focus of our work is health policy analysis and health systems research.

In 2012, work continued under the umbrella of the Consortium for Health Policy and Systems Analysis (CHEPSAA) an 11-partner consortium funded by the European Commission (see www.hpsa-africa.org). This
work built on the initial assets and needs assessment of health policy and systems research in UCT and South Africa— for example, by organizing a networking workshop on HPSR in South Africa at the Public Health Association Conference (PHASA), by developing teaching curriculae for relevant courses, and supporting skills development of staff. Dissemination of the initial needs assessment was also undertaken, including through writing a chapter for the annual Health Systems’ Trust Annual Health Review.

Continued implementation of work within the District Innovation, Action and Learning for Health Systems development (DIALHS) project. This project is being implemented in collaboration with the SOPH at UWC, and colleagues from the Western Cape health department and City of Cape Town, within the Mitchell’s Plain sub-district of the Metro District Health System. In 2012 a set of processes of action learning were implemented in collaboration with local officials focused on: following up a community profiling activity bringing together a range of local actors from local communities and different government sectors better to understand the locally available health assets and needs; better understanding the challenges and support needs of those working as primary health care facility managers; and better understanding the roles of sub-district managers. A series of presentations were made on this work at the South African Public Health Association Conference, and the second international Health Systems Symposium, Beijing. Funding is sourced from Atlantic Philanthropies.

The Collaboration for Health Systems Analysis and Innovation (CHESAI) was significantly strengthened during 2012. CHESAI is a collaborative of health policy and systems researchers based in the Western Cape, South Africa—with a focus on strengthening the health policy and systems research field through conceptual and methodological development, as well as interdisciplinary and multi-sectoral engagement. CHESAI aims to contribute to expanding and strengthening the health policy and systems research field through conceptual and methodological development, as well as interdisciplinary and multi-sectoral engagement. CHESAI aims to contribute to expanding and strengthening the health policy and systems research field through conceptual and methodological development, as well as interdisciplinary and multi-sectoral engagement. CHESAI aims to contribute to expanding and strengthening the health policy and systems research field through conceptual and methodological development, as well as interdisciplinary and multi-sectoral engagement. CHESAI aims to contribute to expanding and strengthening the health policy and systems research field through conceptual and methodological development, as well as interdisciplinary and multi-sectoral engagement. CHESAI aims to contribute to expanding and strengthening the health policy and systems research field through conceptual and methodological development, as well as interdisciplinary and multi-sectoral engagement.

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The Health and Human Rights Programme undertakes a range of teaching, research and advocacy aimed at helping to build a culture of human rights in South Africa. Its work extends into East and Southern Africa. Research areas include the role of civil society organisations (CSOs) in the realisation of the right to health, community participation in the realisation of the right to health, the rights of the Deaf in the health care system and how health care providers can be involved in the realisation of the right to health.

The Learning Network for Health & Human Rights (LN) with 6 Western Cape CSOs in partnership with Universities of Maastricht, Warwick and Western Cape continues to provide opportunities to identify best practice for realising health rights. This network draws on a multidisciplinary team of researchers in partnership with CSOs to develop...
best practice for realising the right to health. CSOs in the Learning Network have been utilising a toolkit for training on the Right to Health to raise awareness and to empower community members to claim their health rights.

A key part of the programme in 2012 focused on community participation as a strategy for the realisation of the right to health. This work followed the release of the results of a two year research project by the Learning Network in the Cape Town Metropole focusing on the challenges faced by health committees as the formal structures for community participation in health. The project secured two large grants for continued work with Health Committees to enhance community participation as a vehicle for the realisation of the Right to Health. One grant was secured from the European Union as part of a call for projects that support primary health care and aims to look at health care users experiences as a focus for unlocking opportunities to access quality health services in the Eastern and Western Cape. An additional grant was secured from the International Development Research Centre in Canada to work with collaborators in Uganda on governance in the health system, specifically focusing on community participation as a key strategy for the realisation of the right to health.

**Family Medicine Division**

The mission of the Division of Family Medicine is to graduate doctors who are able to enter their internship and community service years with the appropriate level of confidence and competence when diagnosing and managing common primary care problems. They are able to function fully in the PHC team, and are able to take the lead in district-based health care, teaching and research in any community setting in South and Southern Africa.

Our postgraduate students enrolled for the M Fam Med, M Med (Fam Med), and M Phil (Pall Med) degrees are all required to complete a research dissertation.

Research highlights for 2012 included the following:

- The Division of Family Medicine partnered with Professor Leslie London in the Public Health Division and the Learning Network to successfully apply for an EU funded grant for the strengthening of primary health care services, to the value of around 1 million EURO. Family Medicine has 5 packages in this project to the approximate value of over R5 million over a period of 30 months, viz
  - **(a) 17:** Extension of undergraduate student language learning into the 5th and 6th years of the MBChB curriculum
  - **(b) 18:** Providing language instruction in isiXhosa and Afrikaans for service personnel at two sites
  - **(c) 19:** PROMS (Patient Related Outcome Measures) being conducted by Palliative Medicine in association with King’s College, London
  - **(d) 20:** PCAT (Primary Care Assessment Tool)
  - **(e) 21:** Chronic Disease Audit
- Professor Derek Hellenberg is the PI for packages 17 and 18 and Dr Liz Gwyther is the PI for package 19 of the EU project.
- Dr Nayna Manga appointed as Research Project co-ordinator for the Family Medicine Packages for the EU Grant.
- Dr Liz Gwyther is the PI for the IMPAQI study for the EU grant: Measuring and Improving Outcomes for Patients with Progressive Chronic Disease: a Palliative Care Audit in two Western Cape sites.
- Dr Elma De Vries leads the annual audit of chronic diseases of lifestyle for the Western Cape Department of Health. This project has now added a new dimension to the audit tool (that of patient perceptions of the management they receive for chronic diseases at CHC’s) which forms part of an EU Grant.
- Dr Graham Bresick is the PI for the PCAT study that started in 2011 and was completed in 2012. This study has been extended to include a rural and a few more urban sites and forms part of the EU Grant.
- Dr Abdul Isaacs is the PI for the Prescription costs study which was started in 2012 and compared medicine costs for chronic diseases at a few CHC’s in the Metro District. The first article from this study was accepted for publication in the SAFPJ in 2013.
- Professor D A Hellenberg is the PI of a survey initiated in 2009 of the first graduates of the new curriculum (2007) to assess the usefulness of language learning during the BaDr course in the work environment. Surveys and focus group interviews will be done annually until 2013 to record the effects of innovations in the course structure and content on the outcomes.
- Dr Tsepo Motsohi started a research project on staff absenteeism in the CHC’s on the Metro West platform.
- The database of 6th year family medicine student CHC-based projects is continuously updated on our database. The database serves as a useful guide for district management, the family physicians and family medicine registrars at the CHC’s when deciding on research priorities and interventions to improve delivery of primary health care services.
- Meetings with MDHS senior management and staff continued in 2012, to develop a common research agenda, prioritise key research questions and commission research. Date: 4th October 2012 which now involves the office of Dr Tracey Naledi assisted by Dr George Petros.
School Statistics

Permanent and long-term contract staff

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<th>Position</th>
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<tr>
<td>Professors</td>
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<td>Associate Professors</td>
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<td>Emeritus Associate Professor</td>
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<td>Senior Lecturers</td>
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Honorary Staff

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Students

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<td>Undergraduate</td>
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Contact details

School of Public Health and Family Medicine, Faculty of Health Sciences, University of Cape Town, Observatory, 7925, South Africa
Telephone: +27 21 406 6300
Fax: +27 21 406 6459
Web: http://www.publichealth.uct.ac.za/

Research output

Edited books


Chapters in books


Health Sciences


Articles in peer-reviewed Journals


Breuer, E., Stoloff, K., Myer, L., Seedat, S., Stein, D.J. and Joska, J. 2012. Reliability of the lay adherence counsellor administered substance abuse and mental illness symptoms screener (SAMISS) and the international HIV dementia scale (IHDS) in a primary care HIV clinic in Cape Town, South Africa. AIDS and Behavior, 16: 1464-1471.


Cleary, S., Birch, S., Moshabela, M. and Schneider, H. 2012. Unequal access to ART: exploratory results from rural and urban cases studies of ART use. Sexually Transmitted Infections, 88: 141-146.


Dewing, S., Mathews, C., Schaay, N., Cloete, A., Louw, J. and Simbayi, L.C. 2012. Behaviour change counselling for ARV adherence support within primary health care facilities in the Western Cape, South Africa. AIDS and Behavior, 16: 1286-1294


Jeebhay, M.F. 2012. ALLSA-Supported Research - Some reflections two decades later Current Allergy & Clinical Immunology, 25(2): 97-98.


elvitegravir with an emphasis on resource-limited settings. HIV/AIDS, 4: 5-15.


therapy in sub-Saharan Africa: systematic review and meta-analysis. Tropical Medicine & International Health, 17(12): 1509-1520.


The Division of Medical Physics continues to provide Medical Physics services to Nuclear Medicine at Red Cross Hospital. This service has been expanded by our physicist in Nuclear Medicine to regular quality control checks.

Chris Trauernicht will do Monte Carlo simulations of the dose distributions around I-125 seed ophthalmic applicators as part of his PhD thesis.

Research Fields and Staff

Head of Department

JAN HOUGH MPHIL (UCT) (RETIRED SEPTEMBER 2012)
Radiotherapy Treatment Planning

H. BURGER MSC (MED PHYS) (UP) (APPOINTED DECEMBER 2012)

Deputy Manager

H. BURGER MSC (MED PHYS) (UP)
Modern Radiotherapy and Radiosurgery Treatments and Treatment Planning

Assistant Managers (Medical Physics):

G MARREE PHD (UCT) (RETIRED OCTOBER 2012)
Brachytherapy and Radiation Dosimetry

H MACGREGOR BSC (HONS) (STARTED NOVEMBER 2012)
Radiotherapy and IMRT QA and Treatment Planning

T KOTZE PHD (US)
Diagnostic Radiology teaching and Radiation Protection

C TRAUERNICHT MSC (MED) IN MEDICAL PHYSICS (UCT)
Nuclear Medicine and Brachytherapy

Technical Staff

CHIEF RADIOGRAPHER
K BOTHA NAT DIPL RADIOGRAPHY (THERAPY), DIPL COMPUTER SCIENCE

Mould Room

CHIEF RADIOGRAPHER
S TOVEY DIPL RADIATION TECHNOLOGY, NAT DIPL RADIOGRAPHY (DIAGNOSTIC AND RADIOTHERAPY), BTECH (RADIOGRAPHY RADIOTHERAPY)

RADIOGRAPHER
G SIEBRTS NAT DIPL. RADIOGRAPHY (RADIOTHERAPY)
(STARTED OCTOBER 2012)

INTERN RADIATION TECHNOLOGIST
M HENDRICKS NAT DIPL RADIOGRAPHY (DIAGNOSTIC)

Mechanical Workshop

CHIEF INDUSTRIAL TECHNICIAN
C THOMSON NTCII

ARTISAN
RE HISCOCK NIII

Secretarial

SENIOR ADMIN CLERK
O KWAYIBA

Contact Details

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University of Cape Town, Observatory, 7925 Cape Town
Telephone: +27 21 404-6240
Fax: +27 21 404-6269
Email: Hester.Burger@uct.ac.za

Department Of Radiation Medicine

Division Of Nuclear Medicine

HEAD OF DIVISION: DR TESSA KOTZE

Divisional Profile

Nuclear medicine currently provides a wide spectrum of diagnostic procedures, in-vivo studies and therapy; all pertaining to the use of unsealed sources of radioactivity. Procedures cover the central nervous system, respiratory, cardiac, gastrointestinal, genitourinary, endocrine, lymphatic and skeletal systems. There is access to both SPECT/CT and PET/CT. All procedures are integrated into service provision, training and research. In the department is also an osteodensitometer.
Divisional Statistics
Permanent and Long Term Contract Staff
Joint Staff (UCT/PGWC)
Senior Consultant Full time 1
Junior Consultant Full time 1
Senior Consultant Part time 1

Research fields and staff
Specialist Staff
DR TESSA KOTZE
Therapy; PET

DR RACHELLE STEYN
ERNA

PROFESSOR MIKE MANN
Paediatric Nuclear Medicine

Undergraduate Staff
SUPERNUMERARY REGISTRAR DR GARBA YUNUSA
Registrar Dr Nerisha Govender

Contact Details
Division of Nuclear Medicine, Groote Schuur Hospital and University of Cape Town, Observatory, 7925 Cape Town.
Telephone: +27 21 404-6747
Fax: +27 21 404-3402
Email: Tessa.Kotze@uct.ac.za

Department Of Radiation Medicine
Division Of Radiation Oncology
HEAD OF DIVISION - PROFESSOR R P ABRATT

Divisional Profile
1. The Division of Radiation Oncology provides the following services:
   • Investigation, management and treatment of all forms of malignant disease. This is co-ordinated by 23 multidisciplinary clinics, which meet weekly.
   • Participation in clinical studies, both investigator initiated and as part of co-operative groups.
2. Teaching of undergraduate medical courses and provision of postgraduate specialists training courses. Pre and post-diplomate instruction to radiographers and post-diplomate courses to nurses. Full training in Radiobiology from under-graduate to honours, master’s and doctoral level.
3. Provision of a comprehensive clinical radiobiological research facility.

Divisional Statistics
Permanent and Long Term Contract Staff
JMS Staff
Professors 1

University Staff
Research Staff 6
Administrative/Clerical Staff 1
SUBTOTAL 7

Joint Staff (UCT/PAWC)
Head of Clinical Unit 1
Senior Full-time Lecturers 3
Lecturers 3
Principal Medical Officers 1
Sessional Medical Officers 3
Medical Officer 1
Medical Scientists 2
TOTAL 15

Honorary Staff
Honorary Lecturers 1
TOTAL 1

Postgraduate Students
Registrars 16
TOTAL 16

Research Fields and Staff
Permanent Staff

Specialist Staff
PROFESSOR RAYMOND ABRATT
Chief Specialist Radiation Oncology & Head of Division; NRF Rated – Category B
**Dr Jeanette Parkes**
Senior Specialist Radiation Oncology and Senior Lecturer;
Main interests - neurological tumours, paediatric tumours, bones and sarcoma

**Dr Sameera Dalvie**
Specialist Radiation Oncology Lung Cancer; Male genito-urinary tract cancer, Ear, nose and throat cancer

**Dr Zainab Mohamed**
Senior Specialist Radiation Oncology and Senior Lecturer;
Main interests - Lymphoma, Myeloma, Melanoma, Hodgkin’s Disease

**Dr Barbara Robertson**
Specialist Radiation Oncology & Lecturer; Main interests - Thyroid, Oesophageal and Gastro-intestinal cancers, stomach, pancreas, liver, unknown primary cancers.

**Dr Leon Van Wijk**
Senior Specialist Radiation Oncology & Senior Lecturer;
Main interests - Gynaecological tumours.

**Dr Julie Wetter**
Specialist Radiation Oncology and Lecturer; Main interests – skin cancers, melanoma, eye Head and neck.

Dr. Hannah Simonds – started 1 April 2012
Specialist Radiation Oncology and Lecturer; Main interests – breast cancer

**Medical Officers**

**Dr Cindy Shepherd**
Principal Medical Officer Radiation Oncology; Main interests - Lung cancer, Tumours of the thyroid, Male genito-urinary tract cancer.

**Scientific Staff**

**Dr Andre Hendrikse**
Senior Medical Natural Scientist & Lecturer; Main interest - Research in Medical Natural Science Radiobiology (research on tumours with experimental animals)

**Dr Alastair Hunter**
Medical Natural Scientist; Main interest - Research in Medical Natural Science Radiobiology (research on tumours with experimental animals)

**Contract Research Staff**
Part-Time Clerical Research Assistants (Data Managers)

**Mrs Glynis Chilcott**
**Mrs Sue Giles**
**Miss E Nel**
**Mrs Jean Wilmot**
**Mrs Rae Taylor**

**Contact Details**
Postal address: Division of Radiation Oncology, Groote Schuur Hospital & University of Cape Town, Observatory, 7925, South Africa
Telephone: +27 21 404 4263/5
Fax: +27 21 404 5259
E-mail: Raymond.abratt@uct.ac.za

**Department Of Radiation Medicine**

**Division Of Radiology**

**Head Of Division: Professor Stephen James Beningfield**

**Divisional Profile**
The Division of Radiology works closely with clinical colleagues and their patients throughout the hospital, both in service and academic capacities. This collaboration involves all major medical, surgical, therapy and women’s health areas, including their subspecialties. Pending arrivals of a 256-slice CT and research 3T MRI promise interesting boosts to service and research. Red Cross is making good use of their new MRI and CT scanners. There is now improved exposure to PET-CT scanning at Tygerberg Hospital. Links to Somerset and GF Jooste Hospitals remain strong, with some teaching activity also at Victoria Hospital; However Jooste is being closed for reconstruction next year, with Mitchell’s Plain Hospital standing in The experience of our post-retirement sessional staff continues to benefit the Division. The positive impact of the full conversion to digital radiology over the last year is now evident, with the next phase of electronic radiology requests partially implemented.
Interest in supernumerary registrar posts from within and outside the country remains strong.

Research Fields and Staff

PROFESSOR STEPHEN BENINGFIELD
Hepatobiliary, vascular, interventional radiology, computer applications and digital radiology.

DR NAZIR AHMED
Cross-sectional imaging, colorectal imaging.

DR HELEN BALL
Ultrasound, mammography, computerised tomography and urological radiology.

DR SALLY CANDY
Neuroradiology and Magnetic Resonance Imaging.

DR DILESH CHIBA
Musculoskeletal radiology, cross-sectional imaging, interventional radiology.

DR JACQUELINE KIECK
High resolution computerized tomography and fine needle biopsies, interventional radiology.

DR QONITA SAID-HARTLEY
Chest radiology

DR PAUL SCHOLTZ
Cross-sectional, abdominal imaging and Interventional radiology

DR GARY SUDWARTS
Cross-sectional, abdominal imaging and Interventional radiology

DR TRACY KILBORN
Paediatric radiology

DR ROBERT SEGIEE
Ultrasound, computerised tomography and general radiology.

DR NICOLE WIESELTALER
Paediatric radiology

DR E BANDERKER
Paediatric Radiology

Divisional Statistics

Permanent and long-term contract staff

University staff

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<tr>
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<tr>
<td>Administrative Staff</td>
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JMS Staff

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Part-time JMS Staff

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Part-time UCT Staff

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Students

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Teaching

- **Postgraduate**
  This major activity continues, with new inputs from the University, Colleges and the HPCSA having significant roles. More structured teaching, regular assessments and revised examination structure plus obligatory theses are now reality. The division upgraded and complete refurbishment processes to convert into a fully digital radiology unit, with the advent of a formal Picture Archival and Communication Systems (PACS) and Radiology Information System (RIS) partially done. This is having a major beneficial effect on the manner and quality of postgraduate teaching and supervision, both in radiology and other specialties.

- **Undergraduate**
  Regular weekly structured teaching sessions continue, together with the case-based multidisciplinary meetings in various specialties allowing both under- and postgraduate students to see the impact of imaging on clinical-decision making.
Research

There are a number of collaborative and self-initiated projects running, with the recent requirement for a thesis or dissertation leading to increased interest. The consequences of digital imaging and newer modalities remain strongly felt, with diversification of interests. These continue to be largely on the basis of combined collaboration and multidisciplinary applied clinical research, together with some basic research that is also being undertaken in MRI and digital mammography. There is a good prospect of a full body 3T MRI being installed soon.

Service

The increase in service load, particularly on the multislice CT’s, are placing an increased demand on reporting time. An attempt is being made to run three CT scanners during the day. The hope is that the PACS will allow more efficient distribution of the resulting reporting work. Close interaction with UCT PAH clinical service adds another aspect to the work undertaken.

Social responsiveness

There is ongoing collaboration with a number of the closer satellite hospitals, most notably GF Jooste, New Somerset and Victoria, but also II Military Hospital (with significant recent equipment upgrades), as well as with the newly-developed and refurbished regional hospitals such as George, Worcester and Paarl, Khayelitsha and Mitchells Plain, that are likewise converting to digital imaging and PACS.

Publications

These are largely on the basis of close clinical collaboration and applied research, although some more basic MRI and digital radiography research has been published.

General

The refashioning of the division into a purely digital system will have a major impact on the manner of our clinical interaction within and outside the division.

Contact Details

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Telephone: +27 21 404 4184 or 406 6426
Fax: +27 21 404 4185
E-mail: Steve.Beningfield@uct.ac.za

Department Of Radiation Medicine

Research output

Articles in peer-reviewed Journals


Department of Surgery
HEAD OF DEPARTMENT: PROFESSOR DEL KAHN

Departmental Profile
The Department of Surgery comprises the nine Divisions: General Surgery, Cardiothoracic Surgery, Emergency Medicine, Neurosurgery, Ophthalmology, Orthopaedics, Otorhinolaryngology, Plastic Surgery and Urology

Each of the Divisions functions very independently with regard to administration, clinical service, undergraduate and postgraduate teaching, and research. The Special Clinical expertise, research interests, and outstanding achievements over the last year, are documented in the individual divisional profiles.

The Department of Surgery Research Day, organised by Dr David le Feuvre, was a most successful collaboration between the Divisions. Professor Richard Barnes delivered the John Terblanche Lecture.

Department Of Surgery
Division Of General Surgery
HEAD OF DIVISION: PROFESSOR DEL KAHN

Divisional Profile
The four surgical firms within the Division of General Surgery are responsible for Hepatobiliary Surgery, Surgical Oncology/Endocrine Surgery, Colorectal Surgery, and Vascular Surgery. The Surgical Intensive Care Unit, the Trauma Unit, and the Transplant Unit are also part of the Division.

The Division prides itself on maintaining high standards of clinical service, and teaching of both undergraduates and postgraduates. The Division continues to function as a true academic unit, with its members making significant contributions at both local and international meetings, while at the same time maintaining a high research output.

Professor Jake Krige has several research projects in Portal hypertension and diseases of the liver and bile ducts. Professor Lance Michell is involved in an audit of admissions to the Surgical ICU, as well as several multi centre pharmaceutical trials using anti microbials.

The Vascular Unit under Dr Nadraj Naidoo has established a vibrant endovascular service. Genetic aspects of colorectal cancer is the main research interests of Professor Paul Goldberg in the Colorectal unit. Professor Eugenio Panieri has a special interest in sentinel lymphnode biopsy in breast cancer as well as problems related to battery acid ingestion and thyroid cancer. Professors Andrew Nicol and Pradeep Navsaria are involved in major audits of various types of trauma, as well as various prospective randomised studies including penetrating cardiac injuries. Dr Elmi Muller has embarked on a study of transplanting kidneys from HIV positive donors into HIV positive recipients.

In addition there is an Emergency Surgery Firm which manages all the non-trauma surgical emergencies.

Contact Details
Division of General Surgery, University of Cape Town, Groote Schuur Hospital, J46, Old Main Building, Observatory 7925
Tel: +27 21 406 6475
Fax: +27 21 448 6461
UCT web: http://www.uct.ac.za
Department Of Surgery
Division Of Ophthalmology
HEAD OF DIVISION: PROFESSOR C. COOK

Divisional Profile
The Division of Ophthalmology combines an academic hospital service with University teaching, clinical training and research.

Specialist tertiary care clinical services are provided to patients in the Western Cape and beyond.

Teaching is provided to fifth year medical students, and specialist training of both local graduates and graduates from other countries is provided.

A postgraduate diploma course in community eye health is provided for Vision 2020 programme managers working in sub Saharan Africa.

Permanent and Long Term Contract Staff

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<td>Undergraduate</td>
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Permanent Staff (Full-Time)

PROFESSOR C. COOK
Professor and Head, Division of Ophthalmology, UCT Faculty of Health Sciences, Groote Schuur Hospital and Red Cross Children’s Hospital. Community eye health, glaucoma.

DR N. DU TOIT
Consultant Specialist, Groote Schuur Hospital. Anterior segment surgery, glaucoma, ocular trauma.

DR K. LECUONA
Consultant Specialist, Groote Schuur Hospital. Prevention of blindness in developing countries, lacrimal drainage disorders, inflammatory eye disease, ocular oncology.

DR T. POLLOCK
Consultant Specialist, Red Cross Children’s Hospital. Paediatric ophthalmology.

DR J. RICE
Consultant Specialist, Groote Schuur Hospital. Vitreoretinal disease.

DR J STEFFEN
Consultant Specialist, Groote Schuur Hospital. Vitreoretinal disease.

DR C. TINLEY
Consultant Specialist, Red Cross Children’s Hospital. Paediatric ophthalmology.

Permanent Staff (Part-Time)

DR E. ALBRECHT
Medical retina.

DR M. ATTENBOROUGH
Cornea.

DR J. DE VILLIERS
Strabismus.

DR R. GROTTEN
Paediatric ophthalmology

DR D. HARRISON
Oculoplastics

DR F. KUPPER
General anterior segment

EMERITUS PROFESSOR A. MURRAY
Strabismus.

DR A. PERROTT
Glaucoma.

DR P. STEVEN
Neuro-Ophthalmology.

DR K SUTTLE
Surgical retina, oculoplastics.

DR H. VAN VELDEN
Surgical retina.

Honorary Staff

PROFESSOR P COURTRIGHT
Epidemiologist. Director of Kilimanjaro Centre for Community Ophthalmology.

PROFESSOR S LEWALLEN
Ophthalmologist. Director of Kilimanjaro Centre for Community Ophthalmology.

Contact Details
Division of Ophthalmology, University of Cape Town Medical School, Observatory 7925
Tel: +27 21 406 6216
Fax: +27 21 406 6218
UCT General enquiries: +27 21 650 9111
UCT web: http://www.uct.ac.za

Department Of Surgery
Division Of Orthopaedic Surgery

HEAD OF DIVISION - PROFESSOR ROBERT DUNN

Divisional Profile
2012 was a year of re-organisation with the retirement of Professor Walters and appointment of Professor Robert Dunn to the Pieter Moll and Nuffield Chair. This necessitated a staff reshuffle with Dr Stephen Roche being promoted to HOCU: Adult reconstructive unit and Graham McCollum to run the foot and ankle service.

Professor Hoffman’s retirement as head of Paediatric Orthopaedic Surgery led to Stewart Dix Peek assuming this role supported by the newly appointed Stewart Dix Peek.

An additional post was established to strengthen General Orthopaedic management and Ian Koller appointed.

There is a renewed energy with this change. The undergraduate program has been overhauled with more student-consultant contact time, adoption of IT augmented teaching with the use of tablets and pre-loaded instruction videos filmed and edited by Nick Kruger. The exam format has been improved with collaboration with Rachel Weiss’ teaching unit and multi-station double track OSCE’s.

Research has been prioritised with 22 papers presented at the national Orthopaedic meeting in September. Robert Dunn was awarded the Best Orthopaedic publication by the SAOA for the paper “MRI findings of Spinal TB: Comparison of HIV positive and negative patients”. Dr Roche was awarded best paper at the British Elbow and Shoulder Society meeting. Dr Maree was awarded best Hand paper at the annual Hand meeting.

The department continued to run its annual spine cadaver and porcine based live tissue courses which attract national and regional delegates. In addition, postgraduate teaching has been strengthened with regular cadaver based surgical training under the direction of Dr Roche.

The department continues to have a national impact with Robert Dunn as president of the Spine Society, Orthopaedic College and SAOA EXCO, Stewart Dix Peek president of Paediatric Orthopaedic Surgery and Steve Roche secretary of Shoulder / Elbow Society.

Our clinical units continue to flourish despite the local challenges with well established Acute Spine Injury Unit, Hand Unit, Orthopaedic Trauma unit, Paediatric Orthopaedic Unit and Adult reconstructive unit which houses upper and lower limb arthroplasty, soft tissue reconstruction, elective spine surgery and Orthopaedic oncology.

Due to these well established units, we have increasing sub-specialist fellowship training. Currently we have a Upper limb, Lower limb arthroplasty and two spine long term fellowships. In addition there are frequent visits by overseas specialists to observe our work.

Our department has been recognised by the International Society of Orthopaedic Centres (ISOC) as a full member. This is an exclusive group of 18 global centres based in 4 continents. This allows interaction on all levels including organisational and academic.

Divisional Statistics
Permanent and Long-Term Contract Staff

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<tr>
<th>Role</th>
<th>Number</th>
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<tr>
<td>Professor</td>
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<td>Senior Lecturers</td>
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<td>Senior Lecturers – Part-time</td>
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<tr>
<td>Lecturers – Part-time</td>
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<tr>
<td>Administrative and Clerical Staff</td>
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Students

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<tr>
<th>Course</th>
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<tr>
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<tr>
<td>Undergraduate MBChB</td>
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<tr>
<td>Bsc Physio/Occupational Therapy</td>
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<tr>
<td>Diploma in Orthopaedic Nursing Science</td>
<td>26</td>
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<tr>
<td>Total</td>
<td>260</td>
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</tbody>
</table>
Contact Details
Postal address: Department of Orthopaedic Surgery, H49 Old Main Building, Groote Schuur Hospital, Observatory, 7925, Republic of South Africa.
Telephone: +27 21 406 6157/8
Fax: +27 21 447 2709
E-mail: bernadette.priest@uct.ac.za

Department Of Surgery
Division Of Emergency Medicine
HEAD OF DIVISION: PROFESSOR LA WALLIS

Divisional Profile
Emergency Medicine is run as two academic Divisions (at UCT and SUN) but has a single, joint appointment, Head. The Division utilises various academic and satellite hospitals for the purposes of teaching and research; these include: Groote Schuur, Red Cross War Memorial Children’s, Victoria, GF Jooste, Paarl, and New Somerset Hospital. The types of patients seen and emergencies treated vary among hospitals, allowing our MMed students to become fully competent Emergency Medicine specialists.

The Division places an emphasis on postgraduate programmes, with 15 PhD students, 5 MSc, and 20 MPhil. In 2012, the Division produced 30 publications in peer-reviewed journals and contributed to 10 book chapters. The Division’s research has been focused in the following areas: emergency care systems, emergency ultrasound, pre-hospital care and disaster medicine, and mHealth.

The Division has 1 Professor, 2 Senior Lecturers, 3 Lecturers, and 1 Research Coordinator between SU and UCT. There are 9 honorary lecturers at SU and an additional 10 honorary lecturers at UCT.

Head of Division (UCT, SU & PGWC)
Professor Lee A. Wallis MBChB MD DIMC Dip Sport Med FRCSEd FCEM FCEM(SA) FFSEM

Head of Education
Heike I. Geduld MBChB FCEM(SA) MMed(EM)

MPhil Programme Coordinator
Tyson Welzel MBChB EMDM

Divisional Statistics

Permanent and Long-term Contract Staff

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<td>Research Staff</td>
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Honorary staff

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Students

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<td>MPhil</td>
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<td>MSc</td>
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<td>Undergraduate</td>
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Contact Details
Divisional Website: www.emergencymed.co.za
Telephone: +27 21 948 9908
Fax: +27 21 948 9909
Lee.wallis@uct.ac.za
Postal Address: Division of Emergency Medicine, University of Cape Town, Medical School, Groote Schuur Hospital, HS3 Old Main Building, Observatory, 7925
Tel: +27 21 948 9908
Fax: +27 21 948 9909
UCT General enquiries: +27 21 650 9111
UCT web: http://www.uct.ac.za

Department Of Surgery
Division Of Neurosurgery
HEAD OF DIVISION: PROFESSOR GRAHAM FIEGGEN

Divisional Profile
The Division of Neurosurgery is responsible for the neurosurgical management of patients at two internationally-renowned teaching hospitals, treating patients from across the Western Cape as well as elsewhere in South Africa and abroad. This clinical platform enables us to teach students, train specialists and pursue cutting-edge research into conditions relevant to our clinical practice.

The division has a tradition of close ties with colleagues in private practice, enabling us to contribute to the care
of patients across our community and strive to contribute in all ways possible to the growth and leadership of our specialty nationally and internationally.

Neurosurgery demands the highest standards of practice, while remaining mindful of the needs and priorities of a developing country. Our training program encompasses all aspects of modern neurosurgery, exposing registrars to the full spectrum of subspecialties. During their training, registrars have numerous opportunities to pursue research and are equipped with skills for lifelong enquiry. In this way, we strive to produce neurosurgeons who have superb clinical and operative skills coupled with the intellectual rigour to cope with a career in the fast-paced and rapidly evolving field of clinical neuroscience.

Divisional Statistics

Permanent and Long Term Contract Staff

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Students

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Honorary Staff

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Research Fields and Staff

Permanent Staff

PROFESSOR ANTHONY FIGAJI
Paediatric Neurosurgery, neurotrauma and neurocritical care: CNS injury and monitoring techniques including intraoperative neurophysiology; hydrocephalus and neuroendoscopy; CNS infection including TB; neurooncology.

ASSOCIATE PROFESSOR PATRICK SEMPLE
Pituitary disease and neuroendoscopy; neurocritical care, neurotrauma, neuroHIV.

ASSOCIATE PROFESSOR ALLAN TAYLOR
Neurovascular: diseases, interventions and surgery; Radiosurgery, stereotactic surgery and neuronavigation; skull base surgery.

DR DAVID LE FEUVRE, SENIOR LECTURER
Neurovascular: diseases, interventions and surgery; HIV vasculopathy, skull base surgery.

DR DAVID WELSH, SENIOR LECTURER
Neurospine: diseases and treatment, spinal trauma.

DR SALLY-JANE ROTHERMEYER, LECTURER
Functional neurosurgery: pain, epilepsy and movement disorders; neuroHIV.

DR LLEWELLYN PADAYACHY, LECTURER
Paediatric Neurosurgery: craniofacial surgery, paediatric neurovascular diseases, neurocritical care, monitoring and neuronavigation.

EMERITUS PROFESSOR JONATHAN PETER
Paediatric Neurosurgery: intraoperative neurophysiology, spasticity.

Contact Details

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Fax: +27 21 406 6555
UCT General enquiries: +27 21 650 9111
UCT web: http://www.uct.ac.za

Department Of Surgery

Division Of Urology

HEAD OF DIVISION – PROFESSOR R D BARNES

Divisional Profile

The Division of Urology renders a urological service to Groote Schuur Hospital, Red Cross War Memorial Children’s
Hospital and Somerset Hospital. An operating list is done once per week at Eerste river Hospital, operating on Groote Schuur Hospital patients.

Dr John Lazarus is head of Paediatric Urology at Red Cross Hospital and Professor R D Barnes attends Somerset Hospital for ward rounds and outpatients. The operating list at Eerste River Hospital is done by a Senior Registrar assisted by Professor Johan Naudé (ex head of Division of Urology).

Undergraduate teaching is provided to 6th year medical students, who do a two week block in Urology. Postgraduate training is provided to Urology Registrars and also to supernumerary registrars. The members of our division make significant contributions at both local and international meetings. A number of our members have attended instructional courses both locally and overseas. The Division has maintained its productivity despite staff shortages and the financial crisis.

The Division is involved with two combined clinics – Urological Oncology Clinic (with Radiation Oncologists) and Female Continence Clinic (with Gynaecologists). We run a number of other specialised clinics – Adolescent Spinal Defects Clinic, Haematuria Clinic, Stricture Clinic, Erectile Dysfunction Clinic, Reconstructive Urology Clinic and Metabolic Stone Clinic.

**Divisional Statistics**

**Permanent and Long-term Contract Staff**

<table>
<thead>
<tr>
<th>Position</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principal Lecturer</td>
<td>1</td>
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<tr>
<td>Senior Lecturers</td>
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<tr>
<td>Administrative</td>
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<tr>
<td>Sessional Senior Lecturers</td>
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<tr>
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**Students**

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<tr>
<td>MMed</td>
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<tr>
<td>Undergraduate (6th years)</td>
<td>187</td>
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<tr>
<td>Total</td>
<td>192</td>
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</table>

**Research Fields and Staff**

**PROFESSOR R D BARNES**
Metabolic aspects of Urolithiasis, Urological Oncology

**PROFESSOR A R PONTIN**
Renal infections in diabetics, Female Incontinence, Urological Oncology

**DR J LAZARUS**
All aspects of Paediatric Urology; Surgical Treatment of Renal Calculi

**DR S SINHA**
Widening indications for laparoscopic surgery in urology; double J stent insertion under local anaesthetic; radical cystectomy and extended pelvic lymphadenectomy

**DR L KAESTNER**
Prostate cancer; Renal Transplantation; Urogynaecology

**DR A VAN DEN HEEVER**
Results of urethroplasty for urethral strictures

**DR M KOLIA**
Retrospective Review Prostatectomies done between 2005 and 2011 at Groote Schuur Hospital

**DR F CASSIM**
Retrospective Review of Bladder of Open versus Laparoscopic Radical Cystectomy for the Treatment of Bladder Cancer: Complications and Oncological Outcome

**Divisional Contact Details**

Postal Address: Division of Urology, Area E26, New Groote Schuur Hospital, Anzio Road, Observatory, 7925

Telephone: SA (021) 406 6529
Fax: SA (021) 406 6122

[lesley.burke@uct.ac.za](mailto:lesley.burke@uct.ac.za)

**Department Of Surgery**

**Division Of Otolaryngology**

**HEAD OF DIVISION: PROFESSOR JOHAN FAGAN**

**Divisional Profile**

The Division of Otolaryngology combines an academic hospital service with university teaching, training and research. It provides specialist clinical services to patients in the Western Cape and beyond. Its university responsibilities include in-hospital and community-based training of 5th year medical students, teaching of dental and paramedical students, and specialist training of both local graduates and graduates from other countries. An outreach programme supplements the training of students and primary health care workers in the fundamentals of ear care. We place a strong emphasis on clinical research.
**Divisional Statistics**

**Permanent and Long-term Contract Staff**

<table>
<thead>
<tr>
<th>Role</th>
<th>Count</th>
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</thead>
<tbody>
<tr>
<td>Professors</td>
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<tr>
<td>Lecturers</td>
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<tr>
<td>Lecturers (part-time)</td>
<td>6</td>
</tr>
<tr>
<td>Audiologists</td>
<td>3</td>
</tr>
<tr>
<td>Administrative Staff</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>16</strong></td>
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**Students**

<table>
<thead>
<tr>
<th>Category</th>
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<tr>
<td>Master’s</td>
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<tr>
<td>Karl Storz Fellow in Advanced Head and Neck Surgery</td>
<td>1</td>
</tr>
</tbody>
</table>

**Staff and Research Fields**

**J.J. FAGAN**  
Head and Neck Cancer; Developing World ENT

**D.E. LUBBE**  
Rhinology; Minimally invasive cranial base surgery

**G.J. COPLEY**  
Paediatric ENT, ENT in primary care

**E. MEYER**  
Otolaryngology. Paediatrics; Head and Neck

**T. HARRIS**  
Otolaryngology; Head and Neck

**O. EDKINS**  
Sialendoscopy; General ENT

**Contact Details**

Postal Address: Division of Otolaryngology, Faculty of Health Sciences, Anzio Road, Observatory, 7925  
Tel: +27 21 406 6420  
Fax: +27 21 448 8865  
UCT General enquiries: +27 21 650 9111  
UCT web: http://www.uct.ac.za

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**Department Of Surgery**

**Chris Barnard Division Of**

**Cardiothoracic Surgery**

**HEAD OF DIVISION: PROFESSOR PETER ZILLA**

**Divisional Profile**

The Division offers the full range of adult and paediatric cardiac and thoracic surgery services, catering to all forms of congenital heart disease, myocardial revascularisation (on- and off-pump), cardiac valvular repair and replacement surgery as well as thoracic aortic surgery. The only exceptions are the use of long-term left ventricular assist devices or the use of the artificial heart, both of which are prohibitively expensive in a developing world scenario.

An envisaged ‘hybrid operating theatre’ has been approved in principal and nearing the end of its planning stage. While funding remains an issue, this facility will expand our repertoire to include the most recent development in heart valve replacement, namely transcatheter-delivered valve prostheses. This procedure will not only offer to reduce hospital stays but remove the costs of open heart surgery thereby bringing heart valve treatment closer to the third world where rheumatic disease remains highly prevalent. As this technology is prohibitively expensive, special training-arrangements were entered into with commercial valve providers to increase affordability under public hospital circumstances.

Moreover, the Cardiovascular Research Unit has been focusing on developing alternative transcatheter devices specifically aimed at the needs of a developing country including collaborative studies with the medical device industry and other international academic units to make newer and more cost-effective devices more readily available.

In this context, a UCT start-up company was formed around IP developed in the Cardiovascular Research Unit, receiving substantial funding – inter alia from the Department of Science and Technology’s ‘Technology Innovation Agency’ (TIA).

**Divisional Profile (Cardiovascular Research Unit)**

2012 represented a difficult year financially where decades of reliance on industry funding was largely replaced with a dependency on institutional academic grants.
The Western Cape Heart Research Grouping of the Medical Research Council, of which the Cardiovascular Research Unit is a member, continues to support essential basic research, the foundationstone for applied research.

The Unit has in 2012, amongst other grants, been awarded three separate NRF grants totalling approximately three million Rand.

A significant breakthrough in our synthetic vascular graft research was achieved in 2012 where spontaneous endothelialization of the luminal surface across an engineered porous graft wall was demonstrated in rats and shown to be independent of transanastomotic outgrowth. An endothelial lining in small diameter vascular grafts, commonly not achievable in humans, is essential for long-term patency.

International collaboration with Gothenburg and Clemson universities continued with respect to other vascular graft technologies.

Research focusing on the cell biology of the process of neovascularisation has spear-headed our regenerative medicine approach to facilitating the body’s own ability to remodel semi-synthetic prostheses. A model for assessment of the regenerative capacity of synthetic hydrogels in the treatment of myocardial infarction established in 2011 has led to published results and interest from overseas collaborators. The mechanism through which delayed delivery of hydrogel to an infarcted heart achieves greater therapeutic efficacy has been partially elucidated in 2012. The distribution of hydrogel was found to differ substantially dependent on the timing of hydrogel delivery. This is being further examined with micro computed tomography and promises to hold great significance in the field of biomaterial-based therapy for myocardial infarction.

Optimisation of treatment regimens to render animal tissue used in the construction of ‘bioprosthetic’ heart valves, especially transcatheter designs, more biocompatible and less immunogenic has in 2012 focused on porcine pericardium, including decellularisation and non-covalent ‘tanning’ thereof. Further assessment of both porcine and bovine pericardial candidates is currently in progress.

The Biomechanical Sciences group strengthened international networking through a 3-year collaboration grant from the UK Royal Society with Dr Georges Limbert from the University of Southampton, UK, on constitutive modelling of tissue-regenerative synthetic scaffolds.

Postgraduate training remained a priority in 2012. Interdigitation between our clinical staff and researchers also remains a key goal for which the Division continues to strive.

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### Divisional Statistics

#### Permanent and Long Term Contract Staff

<table>
<thead>
<tr>
<th>Position</th>
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<tbody>
<tr>
<td>Professor</td>
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<tr>
<td>Associate Professors</td>
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<tr>
<td>Senior Consultants</td>
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<tr>
<td>Supernumerary Registrars</td>
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<td>Surgical Registrar</td>
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<td>Surgical Rotator</td>
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<td>Senior Medical Officer</td>
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<td>Senior Scientific Officer</td>
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<td>Secretary</td>
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<td>Medical Technologist Director</td>
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<td>Senior Medical Technologist</td>
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<td>Clinical Technologist/Perfusionist</td>
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<td><strong>TOTAL</strong></td>
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#### Students

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<td>Master’s</td>
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<td>Honours</td>
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<td><strong>TOTAL</strong></td>
<td><strong>27</strong></td>
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</table>

### Research Fields and Staff

#### Permanent Staff

**PROFESSOR PETER ZILLA**  
Head of Division

**ASSOCIATE PROFESSOR JOHAN BRINK**  
Clinical Director

**ASSOCIATE PROFESSOR JOHN HEWITSON**  
Section Head: Paediatric Surgery

**ASSOCIATE PROFESSOR THOMAS FRANZ**  
Section Head: Biomechanics

**DR PAUL HUMAN**  
Research Director, Section Head Pathobiology

**DR LOVEN MOODLEY**  
Section Head: Thoracic Surgery

**DR ANDRE BROOKS**  
Senior Consultant

**DR DEON BEZUIDENHOUT**  
Senior Lecturer, Section Head Polymer Sciences

**DR NEIL DAVIES**  
Senior Lecturer, Section Head Biology and Regeneration
Contact Details

Chris Barnard Division Of Cardiothoracic Surgery
D24, New Groote Schuur Hospital, Anzio Road,
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Fax: +27 21 448 1145
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UCT General enquiries: +27 21 650 9111
UCT web: http://www.uct.ac.za

Cardiovascular Research Unit

Room 3.13, Chris Barnard Building, Faculty of Health Sciences, University of Cape Town, Anzio Road,
OBSERVATORY 7925, Cape Town, South Africa
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Fax: +27 21 448 5935

Department Of Surgery

Division Of Plastic Surgery

HEAD OF DIVISION: PROFESSOR DA HUDSON

Divisional Profile

The Division of Plastic Surgery combines an academic hospital service, with university teaching, clinical training and research. The division also functions at Red Cross Children’s Hospital and pressures sores are dealt with at Eerste River Hospital. Specialist tertiary services are provided to patients of the Western Cape and beyond.

The Department is actively involved in a number of multidisciplinary which include:

1. head and neck cancer clinic
2. skin cancer clinic
3. melanoma clinic
4. transsexual clinic
5. combined breast clinic

Multi-disciplinary clinics at Red Cross Children Hospital include:

1. Cleft lip and palate clinic
2. Inter sex clinic
3. Cranio facial clinic
4. Congenital ear clinic
5. Congenital hand clinic

Teaching is provided to fifth year medical students PAMS, and specialist training of postgraduates is undertaken – including supernumerary registrars from other countries.

The Department is actively involved in research in all aspects of Plastic Surgery, including paediatric Plastic Surgery.

The Department enjoys a strong partnership with colleagues in private practise. These part time surgeons provide valuable input to the Department both in teaching and in clinical services.

The Division continued to conduct research in breast reconstruction, complex wounds, paediatric plastic surgery, microsurgery and burns.

Permanent and Long Term Contract Staff

| Professors | 1 |
| Senior Lecturers | 2 |
| Lecturers | 10 |
| Administrative Staff | 1 |
| Total | 14 |

Students

| PhD | 1 |
| Master’s | 5 |
| Undergraduate | 0 |
| Total | 6 |

Research Fields and Staff

PROFESSOR D.A. HUDSON
Breast Reconstruction; Wound Healing; Burns.

DR K. ADAMS
Management of complex wounds, Transsexual Surgery, Burns

DR S. ADAMS
Cleft Lip Palate; Lower leg Reconstruction, Burns

Contact Details

Postal address: Department of Plastic, Reconstructive & Maxillo-Facial Surgery, Room HS3/69, Old Main Building, Groote Schuur Hospital, Observatory, 7925, Republic of South Africa.
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Fax: +27 21 406 6649
UCT General Enquiries: +27 21 650 9111
UCT web: http://www.uct.ac.za
Department of Surgery
Research output

Chapters in books


Articles in peer-reviewed Journals


Deans Office: Health Sciences

Articles in peer-reviewed Journals


Faculty of SCIENCE

Research in the Faculty of Science takes place through 13 separate departments, arranged on disciplinary grounds, and 15 affiliated formal research units and centres accredited by the University Research Committee. The vast majority of our staff are active in research and contribute to the overall research output of the faculty.

Dean’s Report

Despite a climate of decreasing research income from government for fundamental research, 2012 saw a number of research successes. The cost of research continues to grow and, despite the pressure on funding, particularly from government, staff were successful in raising some R108 million from government and non-governmental sources to support the research enterprise, with income from non-governmental sources comprising some R47.6 million of this total. Income from this external funding from industry, government, public entities, and statutory bodies was essential in providing bursaries to master’s and PhD students, postdoctoral fellowships, salaries of research and support staff, and project running expenses. The number of research contracts (145), and the income derived therefrom (R47.6 million), were significantly down on 2011 values (260 and R75.6 million respectively), which is a concern. Nevertheless, despite this funding pressure, the number of PhD and postdoctoral researchers continued to grow, with 124 postdoctoral fellows spread among the departments, and 376 PhD and 454 master’s students registered in the faculty. The number of doctoral degrees awarded in 2012 was 62, and that of master’s degrees was 137, approximately 20 percent of the latter with distinction; both PhD and master’s graduate numbers reflect increases over 2011. Two students who excelled in their postgraduate studies were Ms Andrea Muller, Department of Mathematics and Applied Mathematics, who received the S2A3 Bronze Medal for her MSc dissertation, titled Humpback whales, rock lobsters, and mathematics: Exploration of assessment models incorporating stock-structures, and Dr Ranga Jayakodi, Department of Chemistry, who received the Faculty PhD medal for his thesis, titled In silico investigation of the mechanism of ricin-catalysed depurination reaction and design of novel ricin inhibitors. Research publication output from staff and postgraduate students remained high, with some 900 peer-reviewed, accredited publications appearing in 2012.

One measure of our faculty achievements, in terms of recognition and international standing in the research arena, is through the increasing number of staff receiving high NRF ratings. In this regard, the faculty is proud of the latest additions to our current 14 NRF A-rated, 66 B-rated, 44 C-rated, and six P-rated researchers. The latter, in particular, reflect the growing research strength of our younger academic staff. Associate Professor Heribert Weigert of the Department of Physics received an NRF A rating in recognition of his research in Theoretical Physics, and two young researchers, Dr Åke Fagereng (Department of Geological Sciences) and Dr Andrew Hamilton (Department of Physics), received NRF P ratings in 2012; Dr Fagereng...
for his research work on earthquake dynamics and Dr Hamilton for his research related to the discovery of the Higgs Boson via the ATLAS consortium at the Large Hadron Collider. In total, 152 staff in the faculty are NRF-rated.

At the university level, associate professors Merle Sowman and Rachel Wynberg received the newly instituted Social Responsiveness Award for their leadership of, and research conducted through, the Environmental Evaluation Unit, aimed at uplifting poor communities in the Western Cape and further afield. Two of our younger scientists, Drs Will Horowitz (Department of Physics) and Åke Fagereng (Department of Geological Sciences), received prestigious UCT Fellows’ Young Researcher Awards, Dr Horowitz for his significant contributions to the determination of the properties of matter microseconds after the Big Bang, through demonstrating the importance of novel physics mechanisms in tomographic analyses, and Dr Fagereng for his studies on faults and fractures in the Earth’s crust, aimed at understanding how the Earth deforms and particularly the processes that lead to earthquakes.

The faculty was privileged to be awarded two DST/NRF SARCHI Chairs in 2012, one in Environmental and Social Dimensions of the Bioeconomy, awarded to Associate Professor Rachel Wynberg (Department of Environmental and Geographical Sciences), the other in Stable Isotopes in Archaeology and Paleo-environmental Studies, awarded to Professor Judy Sealy (Department of Archaeology). These two additions now bring the number of DST/NRF SARCHI Research Chairs in the faculty to 10.

Staff of the faculty continued to garner national and international awards for their research contributions. Professor Jill Farrant of the Department of Molecular and Cell Biology received the L’Oréal-UNESCO Women in Science Award in Life Sciences (region: Africa and Arab States), at a ceremony in Paris in April 2012 for her work on desiccation tolerance in plants. Other notable achievements by staff in the faculty were the receipt of the prestigious Humboldt Foundation Georg Foster Research Award by Professor Daya Reddy (Department of Mathematics and Applied Mathematics), and the Humboldt Foundation In Memory of Neville Alexander Research Award received by Emeritus Professor Césareo Dominguez of the Physics Department. National honours went to Professor Anusuya Chinsamy-Turan (Department of Zoology), who was awarded the NRF Special Category Award for Transformation of the Science Cohort in recognition of her excellent research performance and international standing as a palaeobiologist, and Professor Kelly Chibale (Department of Chemistry), who received the NRF’s Champion of Research and Capacity Development at Higher Educational Institutions in South Africa Award. Professor Ed Rybicki, Department of Molecular and Cell Biology, was successful in obtaining a prestigious Harry Oppenheimer Trust award for his work on Rift Valley fever virus and Crimean-Congo haemorrhagic fever virus proteins in plants, as reagents and potential vaccines.

The quality and research performance of the academic staff in the Science faculty is ably supported by many highly skilled and dedicated administrative and technical staff. They make an invaluable contribution to the research endeavour of the faculty and their skills are critical to the wide range of exciting research activities reported on in this 2012 Research Report.
DOCTORAL GRADUATIONS

M. BIRD (ZOOLOGY)
Effects of habitat transformation on temporary wetlands in the Southwestern Cape, South Africa
Supervised by Associate Professor J. Day

R. BLAMEY (OCEANOGRAPHY)
Mesoscale convective complexes over Southern Africa
Supervised by Professor C. Reason

T. BOOM (MOLECULAR AND CELL BIOLOGY)
A biological study of the cellular response to heat stress in the South African alga Gracilaria gracilis
Supervised by Associate Professor V. Coyne and Dr S. Rafudeen

N.A.K. BROWNE (ENVIRONMENTAL AND GEOGRAPHICAL SCIENCE)
Model evaluation for seasonal forecasting over Southern Africa
Supervised by Professor B. Hewitson and Dr B.J. Abiodun

L.A. CORKER (PHYSICS)
Probabilistic methods applied to fluctuating systems
Supervised by Professor D.T. Britton

V.B.G. COSTA (ZOOLOGY)
Using stable isotopes as a tool to understand the trophic relationships and movements of seabirds off Southern Africa
Supervised by Associate Professor P.G. Ryan and Dr R. Wanless (Birdlife South Africa)

K. DAVIES (CHEMISTRY)
Characterisation and topological analysis of novel metal-organic frameworks
Supervised by Professor S. Bourne

S.J. DU PLESSIS (MOLECULAR AND CELL BIOLOGY)
Molecular characterisation of selected gastrointestinal microbiota in South African HIV-positive patients during HAART
Supervised by Associate Professor V. Abratt and Associate Professor S.J. Reid

E. DU TOIT (MOLECULAR AND CELL BIOLOGY)
The development of probiotics for use in the ostrich farming industry in South Africa
Supervised by Associate Professor S.J. Reid

J.L. EWART-SMITH (ZOOLOGY)
The relationship between periphyton, flow and nutrients in foothill rivers of the south-western Cape, South Africa
Supervised by Associate Professor J. Day and Dr J.M. King

M.R. GAMIELDIEN (CHEMISTRY)
Parameterization of the Gay-Berne coarse-grained potential from atomistically detailed anisotropic free energy volumes
Supervised by Professor K.J. Naidoo
<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Title</th>
<th>Supervisor 1</th>
<th>Supervisor 2</th>
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</thead>
<tbody>
<tr>
<td>R. GAUJOUX (MOLECULAR AND CELL BIOLOGY)</td>
<td>Non-negative matrix factorization: tools and application to gene expression deconvolution</td>
<td>Professor C. Seoighe</td>
<td>Professor N. Mulder</td>
<td></td>
</tr>
<tr>
<td>D.M. HAREBOTTLE (ZOOLOGY)</td>
<td>Assessing the conservation value of wetlands and waterbirds with a focus on the winter rainfall region of South Africa</td>
<td>Emeritus Professor L. Underhill</td>
<td>Dr T. Williams (Cape Nature)</td>
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<tr>
<td>N.C.G. HART (OCEANOGRAPHY)</td>
<td>Synoptic-scale rainfall patterns over Southern Africa: scale interactions with large-scale modes of variability</td>
<td>Professor C. Reason</td>
<td>Dr N. Fauchereau (CSIR)</td>
<td></td>
</tr>
<tr>
<td>S. HOFMEYR (ZOOLOGY)</td>
<td>Impacts of environmental change on large terrestrial bird species in South Africa: insights from citizen science data</td>
<td>Emeritus Professor L. Underhill</td>
<td>Dr P. Barnard (South African National Biodiversity Institute)</td>
<td></td>
</tr>
<tr>
<td>S.M. HUDDY (MOLECULAR AND CELL BIOLOGY)</td>
<td>Development of a transformation protocol and cell culture system for the commercially important species of red macroalga Gracilaria gracilis</td>
<td>Associate Professor V. Coyne</td>
<td></td>
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</tr>
<tr>
<td>V.O. IKORO (PHYSICS)</td>
<td>A study of postgraduate students in an Astrophysics bridging year: identifying contradictions in a complex system</td>
<td>Associate Professor S. Allie</td>
<td>Professor D. Demaree (Physics, Oregon State University, USA)</td>
<td></td>
</tr>
<tr>
<td>R. JAYAKODY (CHEMISTRY)</td>
<td>In silico investigation of the mechanism of ricin-catalysed depurination reaction and design of ricin inhibitors</td>
<td>Professor K.J. Naidoo</td>
<td></td>
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<tr>
<td>G.S. JOSEPH (ZOOLOGY)</td>
<td>Understanding pattern-process relationships in a heterogeneous landscape: effects of large termite on diversity and disturbance regimes in Miombo woodlands of northern Zimbabwe</td>
<td>Professor G. Cumming</td>
<td>Honorary Professor D.H.M. Cumming</td>
<td></td>
</tr>
<tr>
<td>H. KAMBAFWILE (CHEMISTRY)</td>
<td>Synthesis of activity-based protein profiling probes for malaria and hypertension disease models and potential novel ACE Inhibitors with an attenuated zinc binding group</td>
<td>Professor K. Chibale</td>
<td></td>
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</tr>
<tr>
<td>M.J. KOTZE (ZOOLOGY)</td>
<td>Olfactory responses of Dasineura dielsi Rübsaamen (Diptera: Cecidomyiidae) females to host plant volatiles</td>
<td>Professor A. Chinsamy-Turan</td>
<td>Dr A. Jürgens (University of KwaZulu-Natal)</td>
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<tr>
<td>M.M. KOTZE (ASTRONOMY)</td>
<td>Exploring the super-orbital periodic behaviour of X-ray binaries</td>
<td>Professor P. Charles</td>
<td>Professor B. Warner</td>
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<tr>
<td>L. LANGE (ZOOLOGY)</td>
<td>Use of demersal bycatch data to determine the distribution of soft-bottom assemblages off the West and South Coasts of South Africa</td>
<td>Professor C. Griffiths</td>
<td></td>
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<tr>
<td>M.D. MABULA (MATHEMATICS AND APPLIED MATHEMATICS)</td>
<td>Compactness in asymmetrically normed lattices</td>
<td>Dr J. Conradie</td>
<td>Professor H.-P. Künzi</td>
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<tr>
<td>B. MAKHUBELA (CHEMISTRY)</td>
<td>The design, synthesis and characterization of polynuclear materials for applications in catalysis</td>
<td>Associate Professor A.T. Hutton</td>
<td>Professor N.J. Coville (University of the Witwatersrand)</td>
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<tr>
<td>P. MALATJI (CHEMISTRY)</td>
<td>Studies towards degradable polymers: new zinc(II) and palladium(II) complexes as catalysts for lactide polymerization and carbon monoxide/styrene copolymerization</td>
<td>Associate Professor A.T. Hutton</td>
<td>Professor N.J. Coville (University of the Witwatersrand)</td>
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<td>S.M. MARR (ZOOLOGY)</td>
<td>Conservation of the native freshwater fishes of the Cape floristic region (South Africa): management of non-native species</td>
<td>Associate Professor J. Day</td>
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<td>E.M. MASINDE (COMPUTER SCIENCE)</td>
<td>ITIKI: bridge between African indigenous knowledge and modern science on drought prediction</td>
<td>Dr A. Bagula</td>
<td>Professor N. Muthama (University of Nairobi)</td>
<td></td>
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<tr>
<td>M. MASUBELELE (BOTANY)</td>
<td>Understanding the past to conserve the future: long-term environmental and vegetation change in the Karoo Midlands, South Africa, over the 20th century</td>
<td>Professor T. Hoffman</td>
<td>Professor W. Bond</td>
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<tr>
<td>A.L. MONJANE (MOLECULAR AND CELL BIOLOGY)</td>
<td>Analysis of recombination and evolution of maize streak virus</td>
<td>Professor E. Rybicki</td>
<td>Dr D. Martin, Dr D. Shepherd and Dr A. Varsani</td>
<td></td>
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</tbody>
</table>
H.B.H. MOHAMED (MATHEMATICS AND APPLIED MATHEMATICS)
Properties of solutions of the equations for generalized Oldroyd-B fluids
Supervised by Professor B.D. Reddy

C. MOODLEY (MOLECULAR AND CELL BIOLOGY)
Molecular characterization of ABC-type multidrug efflux systems in Bifidobacterium longum subsp. longum T JCM 1217
Supervised by Associate Professor V. Abratt

J.M.W. MWICIGI (ZOOLOGY)
The distribution, formation, origins and constituents of nepheloid layers on the Agulhas bank, South Africa, and their implications for Chokka (Loligo Reynaudi) Squid
Supervised by Associate Professor M. Lucas and Dr M.J. Roberts (Oceans and Coasts, Environmental Affairs: DEA)

R.K. NAIDOO (MOLECULAR AND CELL BIOLOGY)
Investigation of the Gracilaria gracilis proteome response to nitrogen limitation
Supervised by Associate Professor V.E. Coyne

M. NDLOVU (ZOOLOGY)
Environmental influences on moult and movement strategies in Southern African waterfowl
Supervised by Professor G. Cumming and Professor P.A.R. Hockey

F.P.J. NEHAMA (OCEANOGRAPHY)
Modelling the Zambesi river plume using the regional oceanic modelling system
Supervised by Professor C. Reason

S.A. NICHOLSON (MOLECULAR AND CELL BIOLOGY)
The molecular characterisation of the recA locus in the opportunistic pathogen Bacteroides fragilis
Supervised by Associate Professor V. Abratt

P.M. NJOGU (CHEMISTRY)
Molecular hybrids of N-benzoyl-(2R, 3S)-3-phenylisoserine with antimalarial scaffolds: design, synthesis and biological evaluation for antitumoural and antiaplasmodial activity
Supervised by Professor K. Chibale, Associate Professor D.T. Hendricks and Dr A. Jardine

S. NSUMIWA (CHEMISTRY)
Synthesis and investigation of quinolone based b-haematin formation inhibitors as potential antimalarials
Supervised by Professor T.J. Egan

S.S. NTSHANGASE (PHYSICS)
Development of a recoil detector and the study of exotic asymmetric shapes in nuclei
Supervised by Dr R.A. Bark (external) and Dr R. Bark (Nuclear Physics, iThemba LABS)

P.M. OKOUMA (MATHEMATICS AND APPLIED MATHEMATICS)
Aspects of dark energy and cosmic curvature
Supervised by Professor B. Bassett

O. OLELA OTAFUDU (MATHEMATICS AND APPLIED MATHEMATICS)
Convexity in quasi-metric spaces
Supervised by Professor H.-P. Kunzi

P. PILLAY (CHEMISTRY)
Antiplasmodial neolignans from Trema orientalis: identification, synthesis and analogue generation
Supervised by Professor K. Chibale and Dr V. Maharaj (CSIR)

A. POTTS (BOTANY)
Tracking thicket through space and time: insights into the evolutionary history of the Albany Subtropical Thicket from comparative phylogeography and distribution modelling
Supervised by Professor T.A. Hedderon and Professor R. Cowling (Nelson Mandela Metropolitan University)

C. POWELL (PHYSICS)
J/ψ production in heavy ion collisions at the STAR detector at RHIC
Supervised by Professor A. Peshier, Emeritus Professor J. Cleymans and Dr G. Odyniec (Lawrence Berkeley National Laboratory, USA)

R. RADEMEYER (MATHEMATICS AND APPLIED MATHEMATICS)
The evolution of management procedures for the South African hake resource in the 2000s
Supervised by Professor D. Butterworth and Dr É. Plagányi (CSIRO, Australia)

R. RAMSOUT (CHEMISTRY)
Investigation of the in vitro and in vivo effects of some herbal preparations on risk factors for calcium oxalate kidney stone disease
Supervised by Professor A.L. Rodgers

N. RAZAK (GEOLOGICAL SCIENCES)
An investigation into the effectiveness of a controlled source electromagnetic survey in locating petroleum resources offshore Equatorial Guinea
Supervised by Mr G.C. Smith

A.F. REDDY (MOLECULAR AND CELL BIOLOGY)
Characterisation of the effect of stress on nitrogen metabolism in the commercially important agarophyte Gracilaria gracilis
Supervised by Associate Professor V.E. Coyne
H.A.B. Salata (Zoology)
Environmental factors influencing the distribution of bats (Chiroptera) in South Africa
Supervised by Professor D. Jacobs

M. Smart (Molecular and Cell Biology)
Flowering in Protea: a molecular and physiological study
Supervised by Dr L. Roden and Associate Professor M. Cramer

S. Stathopoulos (Molecular and Cell Biology)
The tangled history of olfaction in African mole-rats, Bathyergidae: insights from olfactory receptor genes
Supervised by Dr C. O’Ryan and Dr J.M. Bishop

T. Suniyuy (Botany)
The role of cone volatiles and thermogenesis in the pollination of Encephalartos cycads with particular reference to E. villosus
Supervised by Professor J.J. Midgley, Honorary Professor J. Donaldson (Botany and SANBI) and Professor S. Johnson (University of KwaZulu-Natal)

R.S. Thelingwani (Chemistry)
Integration of in silico and in vitro ADMET properties in lead identification and optimization of compounds for the treatment of parasitic diseases
Supervised by Professor K. Chibale, Honorary Professor C. Masimirembwa and Professor P. Smith

M. Tukulula (Chemistry)
The application of the Multi-Component Reaction (MCR) strategy in the design and synthesis of new antiplasmodial and antimycobacterial agents
Supervised by Professor K. Chibale

C.J. Uys (Zoology)
The impact of pine plantations and alien invertebrates on native forest and fynbos invertebrate communities in Table Mountain National Park
Supervised by Professor M. Picker and Professor C. Griffiths

C.K. Wainman (Oceanography)
Estimating the upper ocean vertical temperature structure from surface temperature as applied to the southern Benguela
Supervised by Professor F. Shillington

N.D. Watermeyer (Chemistry)
Design and synthesis of potential inhibitors of enzymes involved in the biosynthesis and utilisation of mycothiol
Supervised by Associate Professor D.W. Gammon and Associate Professor D. Steenkamp

RESEARCH CONTRACTS
145
VALUE OF RESEARCH CONTRACTS
R47.55 million
NRF-RATED RESEARCHERS
152
SARCHI RESEARCH CHAIRS
11
ACCREDITED RESEARCH GROUPINGS
13
DOCTORAL GRADUATIONS
62
DHET-ACCREDITED JOURNALS
327.20 units
PEER-REVIEWED PUBLICATIONS
920
FILED PATENTS
28
GRANTED PATENTS
6
POSTGRADUATE STUDENTS
1015
POSTGRADUATE FUNDING
R48 million
POSTDOCTORAL RESEARCH FELLOWS
124
POSTDOCTORAL RESEARCH FUNDING
R22.2 million
F. P. Wevers (Chemistry)
Transition metal complexes of bis(diphenylphosphino)methane, dithizone and dithiolenes: structural, spectroscopic, electrochemical and computational studies
Supervised by Associate Professor A.T. Hutton

M. R. Wilhelm (Zoology)
Growth and otolith band formation of Namibian hake merluccius capensis
Supervised by Associate Professor A. Jarre and Associate Professor C.L. Moloney

D. S. Worku (Physics)
Statistical models to describe nuclear matter at high temperatures and densities
Supervised by Professor J. Cleymans

F. Zheng (Chemistry)
Olef in oligomerization reactions: theoretical studies using cyclometallated palladium(II) catalysts and experimental studies on platinum(II) analogues
Supervised by Associate Professor A.T. Hutton, Professor S.F. Mapole (Stellenbosch University) and Dr C.G.C.E. van Sittert (North-West University)

PATENTS
FILED APPLICATIONS

ARENDZE-BALLEY, B.L., ELLICK, T.N., IYER, K., IYER, R., RAFUDEEN, M.S. AND THOMSON, J.A.
Plant stress-inducible promoter.
Provisional Patent Application South Africa 2012/06750

BRITTON, D.T. AND HÄRTING, M.
A Thin Film Semiconductor Device and Method of Manufacturing a Thin Film Semiconductor Device.
Divisional Patent Application Japan 2012-015646

BRITTON, D.T. AND HÄRTING, M.
Flexible temperature and strain sensors.
Provisional Patent Application South Africa 2012/00709

BRITTON, D.T. AND HÄRTING, M.
Temperature Imaging Sensors.
Provisional Patent Application South Africa 2012/00708

BRITTON, D.T., HÄRTING, M. AND WALTON, S.D.
Current switching transistor.
Provisional Patent Application South Africa 2012/07163

BRITTON, D.T., HÄRTING, M. AND WALTON, S.D.
Large area temperature sensor.
Provisional Patent Application South Africa 2012/00771

CAIRA, M.R., DE VILLIERS, M.M., LIEBENBERG, W. AND STIEGER, N.
Injectable Formulation of a Reverse Transcriptase Inhibitor for the Treatment of Cancer
National Phase Patent Application Canada 2796620

CAIRA, M.R., DE VILLIERS, M.M., LIEBENBERG, W. AND STIEGER, N.
Injectable Formulation of a Reverse Transcriptase Inhibitor for the Treatment of Cancer
National Phase Patent Application Europe 11730445.1

CAIRA, M.R., DE VILLIERS, M.M., LIEBENBERG, W. AND STIEGER, N.
Injectable Formulation of a Reverse Transcriptase Inhibitor for the Treatment of Cancer
National Phase Patent Application South Africa 2012/07797

CAIRA, M.R., DE VILLIERS, M.M., LIEBENBERG, W. AND STIEGER, N.
Injectable Formulation of a Reverse Transcriptase Inhibitor for the Treatment of Cancer
National Phase Patent Application United States 13/696,472
CAIRA, M.R., LIEBENBERG, W. AND STIEGER, N.  
Method for Producing a Composition.  
National Phase Patent Application South Africa 2012/04410

CAIRA, M.R., LIEBENBERG, W. AND STIEGER, N.  
Method of Producing a Polymorph Form.  
National Phase Patent Application Brazil 11 2012 014762

CAIRA, M.R., LIEBENBERG, W. AND STIEGER, N.  
Method of Producing a Polymorph Form.  
National Phase Patent Application China 201080061226.2

CAIRA, M.R., LIEBENBERG, W. AND STIEGER, N.  
Method of Producing a Polymorph Form.  
National Phase Patent Application Germany 11 2010004862.2

CHIBALE, K., WATerson, D., WITTY, M.J. AND YOUNIS, Y.  
New Anti-Malarial Agents.  
Provisional Patent Application United States 61/600,324

Expression of Proteins in Plants.  
Divisional Patent Application China 201210488322.6

Expression of Proteins in Plants.  
Divisional Patent Application India 5373/DELNP/2012

HITZEROTH, I.I., PINEO, C.B. AND RYBICKI, E.P.  
HPV Chimaeric Particle.  
PCT Patent Application PCT/IB2012/056912

JACOBS, M. AND JARDINE, M.A.  
Tricyclic Derivatives.  
Provisional Patent Application South Africa 2012/08875

JARDINE, M.A.  
Modified Chitosan for Argentation Chromatography.  
Provisional Patent Application South Africa 2012/08014

JARDINE, M.A., MAKHUBELA, B.C.E. AND SMITH, G.S.  
A Polymer Support.  
National Phase Patent Application China 201080040614.2

JARDINE, M.A., MAKHUBELA, B.C.E. AND SMITH, G.S.  
A Polymer Support.  
National Phase Patent Application Europe 10842020.9

JARDINE, M.A., MAKHUBELA, B.C.E. AND SMITH, G.S.  
A Polymer Support.  
National Phase Patent Application India 2724/DELNP/2012

JARDINE, M.A., MAKHUBELA, B.C.E. AND SMITH, G.S.  
A Polymer Support.  
National Phase Patent Application South Africa 2012/02047

JARDINE, M.A., MAKHUBELA, B.C.E. AND SMITH, G.S.  
A Polymer Support.  
National Phase Patent Application United States 13/496,116

JAYAKODY, R.S. AND NAIDOO, K.J  
Ricin transition state analogue inhibitors.  
PCT Patent Application PCT/IB2012/054999

LE, H.  
Medium Access Control in Wireless Sensor Networks.  
National Phase Patent Application South Africa 2012/06813

CHIBALE, K., NCHINDA, A.T. AND STURROCK, E.D.  
Angiotensin I-Converting Enzyme (ACE) Inhibitors.  
National Phase Patent Application Europe 06765437.6

EGAN, T.J., HUNTER, R. AND ZISHIRI, V.K.  
Quinoline Antimalarial Containing a Chloroquine Resistance Reversing Dibemethin Group.  
National Phase Patent Application South Africa 2011/01772

Expression of Proteins in Plants.  
Divisional Patent Application South Africa 2008/03486

ILLING, N., STEIN, D.J. AND VAN HEERDEN, J.H.  
A Method of Diagnosing a Mental State.  
National Phase Patent Application South Africa 2011/06540

RYBICKI, E.P. AND VARSANI, A.D.  
Chimaeric Human Papillomavirus 16 L1 Virus Like Particles and a Method for Preparing the Particles.  
Divisional Patent Application United States 12/174,104

Granted applications

CHIBALE, K., NCHINDA, A.T. AND STURROCK, E.D.  
Angiotensin I-Converting Enzyme (ACE) Inhibitors.  
National Phase Patent Application Europe 06765437.6

EGAN, T.J., HUNTER, R. AND ZISHIRI, V.K.  
Quinoline Antimalarial Containing a Chloroquine Resistance Reversing Dibemethin Group.  
National Phase Patent Application South Africa 2011/01772

Expression of Proteins in Plants.  
National Phase Patent Application Europe 06740997.9

Expression of Proteins in Plants.  
National Phase Patent Application South Africa 2008/03486

ILLING, N., STEIN, D.J. AND VAN HEERDEN, J.H.  
A Method of Diagnosing a Mental State.  
National Phase Patent Application South Africa 2011/06540

RYBICKI, E.P. AND VARSANI, A.D.  
Chimaeric Human Papillomavirus 16 L1 Virus Like Particles and a Method for Preparing the Particles.  
Divisional Patent Application United States 12/174,104
Department of Archaeology

HEAD OF DEPARTMENT: PROFESSOR JUDITH SEALY

Departmental Profile

The Department of Archaeology is characterised by a diversity of well-established research interests. The Western Cape has a rich archaeological heritage which includes evidence of hunter-gatherer settlement, pastoralist communities and colonial settlers - all the subject of ongoing research. Further afield, the Department also has a research focus on the archaeology of early Tswana and Sotho-speaking agropastoralists, particularly in North West and the Free State. In addition, the Department is home to archaeometric and materials research, focussing on palaeoanthropology, past environments, early human diets and materials analysis. The Department of Archaeology has developed an expertise in Cultural Resource Management, working with both government and private sectors to mitigate the effects of development and widen public awareness of the importance of the past.

Departmental Statistics

Permanent and Long Term Contract Staff

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<tr>
<th>Role</th>
<th>Number</th>
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<tbody>
<tr>
<td>Professor</td>
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<td>Technical Support Staff</td>
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Honorary staff

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Students

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</tbody>
</table>

Research Fields and Staff

Permanent staff

PROFESSOR JUDITH SEALY
Head of Department. Archaeometry, stable isotopes, precolonial southern Africa
Judith.Sealy@uct.ac.za

ASSOCIATE PROFESSOR REBECCA ROGERS ACKERMANN
Hominid evolution, variation, morphometrics, visualization and modelling, quantitative methods
Becky.Ackermann@uct.ac.za

DR DAVID BRAUN
Senior lecturer, Early Stone Age in eastern and southern Africa, stone artefact technology
drbraun76@gmail.com

DR SHADRECK CHIRIKURE
Senior lecturer, Archaeometallurgy, Iron Age, heritage studies
Shadreck.Chirikure@uct.ac.za

DR SIMON HALL
Senior lecturer, hunter-gatherers and farmers, Stone/Iron Age interaction, landscape sharing
Simon.Hall@uct.ac.za

DR RIASHNA SITHALDEEN
Lecturer, Primate biogeography using genetic techniques, academic development in the geosciences
Riaishna.Sithaldeen@uct.ac.za

DR DEANO STYNDER
Lecturer, African fauna, faunal analysis, ecomorphology, palaeoenvironments
Deano.Stynder@uct.ac.za

DR ALEXANDRA SUMNER
Lecturer, Lithic analysis, human cognitive evolution
Alexandra.Sumner@uct.ac.za

Contract research staff

MR DAVID HALKETT
Contract archaeology, historical archaeology, prehistory of the southwestern Cape

MR TIM HART
Contract archaeology, historical archaeology, prehistory of the southwestern Cape
Distinguished visitors

PROFESSOR JACK FISHER
Montana State University – faunal remains in archaeology

DR ALEX MACKAY
Australian National University – Pleistocene lithic technology

PROFESSOR SUSAN PFEIFFER
University of Toronto – biological anthropology

PROFESSOR PIERRE-JEAN TEXIER
CNRS-Valbonne France – prehistory

Contact Details
Postal address: Department of Archaeology, University of Cape Town, Private Bag X3, Rondebosch, 7701
Telephone: +27 21 650 2353
Fax: +27 21 650 2352
E-mail: lynn.cable@uct.ac.za
Web: http://www.uct.ac.za/depts/age/

Research output

Chapters in books

Articles in Peer-reviewed Journals


Master’s degrees (by research)


Smuts, K. 2012. An archaeology of the eighteenth and nineteenth century Cape wine economy from the perspective of Solms Delta and Babylonstoen. MSc. 265pp. Supervised by Hall, S.


Department of Astronomy
HEAD OF DEPARTMENT: PROFESSOR RENÉE C. KRAANKORTEWEG

Departmental Profile
The Astronomy department has a strong focus on multi-wavelength (X-ray, optical, infrared, radio) observational astronomy with strengths in extragalactic astronomy (large-scale structures of galaxies, cosmic flows, galaxy evolution and star formation, galaxy clusters, galaxy dynamics and dark matter), stellar astrophysics (Cataclysmic variables, X-ray binaries, accretion disks in compact binaries, supernova remnants, stellar pulsations and stellar evolution) and astronomical instrumentation (high-speed CCD detectors).

The Department hosts two SARChI chairs, one in Astrophysics and Space Science (DST/NRF) and one in Extragalactic Multi-wavelength Astronomy (SKA). Staff in the Astronomy department lead four of the ten MeerKAT Large (legacy) Survey Projects, focussing on the study of explosive radio transients in our Galaxy and the nearby Universe (ThunderKAT), to the study of the gas dynamics in nearby galaxies (Mhongoose) and the evolution of galaxies and their gas content over cosmic time scales (MIGHTEE and Laduma).

The Astronomy department is part of the Research Centre for Astrophysics, Cosmology and Gravitation (ACGC) at UCT (http://www.acgc.uct.ac.za), established in 2009, and is an active participant of the National Astrophysics and Space Science Programme – hosted at UCT – which offers Honours and Master’s degrees. Strong links have been established with the South African Astronomical Observatory (SAAO) and the SKA South Africa project through joint staffing positions and postgraduate student supervision. The Department also enjoys active research collaborations with a range of national and international groups.

In 2012 the Astronomy department has welcomed Professor Thomas Jarrett, a new DST/NRF SARChI Chair in Astrophysics and Space Science, whilst Professor Erwin de Blok, DST/NRF SARChI Chair from 2007-2012 left the department in January 2012 to join ASTRON in the Netherlands. He was appointed Honorary Professor to the Department from July 2012, and is still active in research and student supervision. Our postdoctoral cohort has continued to grow from eight in 2011 to twelve in 2012.

Departmental Statistics
Permanent and long-term contract staff

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<td>Professors</td>
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<td>Associate Professor</td>
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<td>Visiting SKA Professor</td>
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<td>Administrative Staff</td>
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Honorary & Emeritus Staff

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**Affiliated Researchers**

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<th>Role</th>
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<tr>
<td>Honorary Professors</td>
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<tr>
<td>Honorary Academic</td>
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<td>Postdoctoral Fellows</td>
<td>12</td>
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<td>Total</td>
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**Students**

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<tr>
<td>Doctoral</td>
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<tr>
<td>Master's (Research)</td>
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<td>Master's (NASSP Dissertation)</td>
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<td>Master's (NASSP Coursework)</td>
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<td>Honours (NASSP)</td>
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<td>Undergraduate</td>
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</table>

**Research Fields and Staff**

**Permanent Staff**

**PROFESSOR RENÉE C. KRAAN-KORTEWEG (HEAD OF DEPARTMENT), CO-DIRECTOR ACGC**
Large-scale structures and streaming motions in the nearby Universe, the Zone of Avoidance, systematic HI-surveys, evolution and transformation of galaxies.

**PROFESSOR CLAUDE CARIGNAN (SKA SARCHI CHAIR)**
Galaxy dynamics and dark matter; astronomical instrumentation and techniques.

**PROFESSOR THOMAS JARRETT (DST/NRF SARCHI CHAIR)**
Galaxy evolution and star formation, large-scale structure and bulk-flow motions in the local Universe, astrophysical databases and large data sets.

**PROFESSOR PATRICIA WHITELOCK (JOINT SAAO/UCT POSITION)**
Galactic structure, stellar evolution, Local Group galaxies, long period variable and symbiotic stars.

**EMERITUS DISTINGUISHED PROFESSOR BRIAN WARNER (SENIOR SCHOLAR)**
Cataclysmic variable stars, white dwarf stars, history of astronomy.

**ASSOCIATE PROFESSOR PATRICK A. WOUDT**
Cataclysmic variable stars, ultra-compact binaries, high time domain astrophysics.

**Research Fields and Staff**

**DR KURT VAN DER HEYDEN (SENIOR LECTURER)**
Supernovae and Supernova remnants, systematic HI surveys, clusters of galaxies, X-ray spectroscopy.

**DR SARAH BLYTH (LECTURER)**
Large-scale structure, galaxy evolution and galaxy clusters, HI-surveys.

**DR VANESSA MCBRIDE (LECTURER, JOINT SAAO/UCT POSITION)**
X-ray binaries, Magellanic Clouds.

**PROFESSOR ROB FENDER (VISITING SKA PROFESSOR)**
X-ray binaries, neutron stars, black holes, accretion disks, radio transient surveys.

**Honorary Staff in the Department**

**HONORARY PROFESSOR MICHAEL W. FEAST & HONORARY RESEARCH ASSOCIATE**
Stellar evolution, Galactic structure, long-period variable stars, distance scale.

**Honorary Staff Associated with the Department**

**HONORARY PROFESSOR PHIL A. CHARLES (UNIVERSITY OF SOUTHAMPTON)**
Cataclysmic variables, X-ray binaries, neutron stars, black holes, accretion disks.

**HONORARY PROFESSOR ERWIN DE BLOK (ASTRON, NL)**
Dark matter in disk galaxies, low-surface brightness galaxies, HI surveys, the interstellar medium in nearby galaxies, evolution of dark galaxies.

**PROFESSOR PETER DUNSBY**
Honorary Academic, Director NASSP, Co-director ACGC
Theoretical cosmology and gravity.

**Postdoctoral Fellows**

**DR GARRY ANGUS**
Cosmological simulations with modified Newtonian Dynamics.

**DR RICHARD ARMSTRONG**
Radio transients, radio interferometric techniques.

**DR MACIEJ BILICKI**
Cosmology, large-scale structure of the Universe, cosmic density and velocity fields, redshift and peculiar velocity surveys, cosmic flows.
Angus, G., Van Der Heyden, K. and Diaferio, A. 2012. The dynamics of the bulge dominated galaxy NGC 7814 in MOND. Astronomy & Astrophysics, 543: A76.


Peer-reviewed published conference proceedings


Department of Botany

(Including the Bolus Herbarium and the Plant Conservation Unit)

HEAD OF DEPARTMENT: PROFESSOR JEREMY J. MIDGLEY

Departmental Profile

Botany is a vibrant department, which strives towards the development of a centre of excellence for research and teaching of the ecology, evolution, physiological ecology and systematics of marine and terrestrial plants of southern Africa. The department includes two research units, the Bolus Herbarium and the Plant Conservation Unit, and is also home to the Department of Environmental Affairs & Tourism Chief Directorate: Marine & Coastal Management. Research thrusts include plant population, community and reproductive ecology, systematics, floristics, biogeography and evolutionary biology of the unique Cape Floral Kingdom and its response to different land use practices, ecology and economics of marine and freshwater algae, the ecophysiology of plant responses to pollution and global change, the physiology of plant nitrogen-fixing symbioses and dendrochronology and palaeoecology. The Plant Conservation Unit focuses on sustainable land use, restoration and palaeoecology/environmental history with an emphasis on the conservation of the vegetation of the winter rainfall region of South Africa, while the Bolus Herbarium is researching the taxonomy of and curating a specimen collection of over a third of a million southern African species. The staff are also active on Research Councils, policy-making forums and advisory committees.

Departmental Statistics

Permanent and long-term contract staff

<table>
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<th>Role</th>
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<tr>
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Honorary Staff

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Research Fields and Staff

Permanent staff

PROFESSOR JEREMY MIDGLEY
Head of Department; plant ecology; evolutionary biology; forest ecosystem dynamics.

PROFESSOR JOHN J. BOLTON
Phycology; marine and freshwater biology; mariculture.

PROFESSOR WILLIAM J. BOND
Plant ecology; evolutionary biology; conservation biology; fire and community dynamics.

DR SAMSON B. CHIMPHANGO
Physiology; nitrogen fixation.

ASSOCIATE PROFESSOR MICHAEL D. Cramer
Physiology; ecophysiology; plant nutrition.

DR EDMUND FEBRUARY
Senior Lecturer; palaeoecology; ecophysiology.

DR LINDSEY GILLSON
Deputy Director of the Plant Conservation Unit: conservation ecology; palaeoecology; theoretical ecology; landscape history.

PROFESSOR TERRY HEDDERSON
Plant systematics; bryology; molecular systematics; life history traits.

PROFESSOR M. TIMM HOFFMAN
Director of the Plant Conservation Unit: plant ecology; conservation biology; community ecology; biodiversity.

DR A. MUTHAMA MUASYA
Senior Lecturer: plant systematics; molecular systematics; biogeography.

DR ANTHONY G. VERBOOM
Senior Lecturer: Plant systematics, ecophysiology, biogeography.
Honorary Professors

PROFESSOR RICHARD COWLING
Plant ecology; conservation biology; community ecology; biodiversity.

PROFESSOR JOHN S. DONALDSON
Biodiversity.

PROFESSOR PETER LINDER
Systematics; taxonomy; evolutionary biology.

Honorary Associate Professors

ASSOCIATE PROFESSOR ROBERT J. ANDERSON
Phycology.

Honorary Research Associates

DR N. ALLSOPP
Ecophysiology

DR N. BERGH
Systematics

DR P. CARRICK
Restoration ecology

DR B HARDING
Phycology

DR S. HIGGINS
Ecosystems Ecology.

DR A.G. REBELO
Ecology.

DR R. ROHDE
Environmental Historian.

DR G. SCOTT
Systematics.

DR A. SEYDACK
Forest Ecology.

PROFESSOR C. STIRTON
Plant Systematics.

Research output

Chapters in books


Articles in Peer-reviewed Journals


Department of Chemistry
(Including the Centre for Supramolecular Chemistry Research, the MRC/UCT Drug Discovery & Development Research Centre and the Scientific Computing Research Unit)

HEAD OF DEPARTMENT: PROFESSOR SUSAN A. BOURNE

Departmental Profile
The research activities of the department reflect the wide range and scope of the traditional sub-disciplines of inorganic, organic and physical chemistry, sustained by analytical, spectroscopic and computational methodology. The four main research focus areas are synthetic and medicinal chemistry, supramolecular chemistry, transition metal chemistry as well as biophysical and structural chemistry. Programmes are devoted to fundamental and applied chemical research, and to interdisciplinary studies in which chemistry plays a key role. Synthetic studies are carried out in organic, organometallic and co-ordination chemistry, in order to develop and apply new methodology, and to prepare biologically active compounds, novel catalysts and components of new materials. These studies also provide tools for analytical and separation science, and models for advanced structural and conformational studies. Molecular structure determination with the aid of spectroscopic and X-ray diffraction techniques are two areas of specialisation in the department. Computational chemistry is a leading area of specialization supported by several state of the art LINUX clusters. Computer code development and modelling applications of biological and industrial problems play a key role in many of the Department’s research programmes. There is also an active research thrust in the area of chemistry education, with a particular focus on student learning in tertiary level chemistry courses.

The Department of Chemistry is home to three UCT-accredited research units

The Centre for Supramolecular Chemistry Research, CSCR (Dir. Prof. Mino Caira) studies the physical chemistry of supramolecular systems. Research projects include the synthesis and characterization of metal organic frameworks (MOFs) and large metal-containing supramolecular assemblies with the potential for guest uptake (gas storage, molecular sensing), the study of selectivity in organic host-guest systems, and the beneficiation of pharmaceutically relevant materials.
through the investigation of their polymorphs, solvates, cyclodextrin inclusion complexes and co-crystals. Solid phases are studied using powder and single crystal X-ray diffraction, thermal analysis (including TGA and DSC) and spectroscopy (FTIR and solid-state NMR techniques). The thermodynamics of inclusion and complexation processes in solution are investigated by high-resolution NMR spectroscopy and isothermal titration calorimetry.

The MRC/UCT Drug Discovery & Development Research Centre, H3D (Dir. Prof. Kelly Chibale) aims to bridge the gap between basic and clinical studies, training a new generation of African scientists with key skills required for drug discovery and development – integrating medicinal chemistry, biology, pharmacology as well as drug metabolism and pharmacokinetics (DMPK) studies as reflected in the processes of Absorption, Distribution, Metabolism and Excretion (ADME). H3-D also focuses on beneficiation of clinically used drugs, including generic medicines. Drug beneficiation, amongst other things, involves selection of the optimum form of a solid drug candidate for pharmaceutical development and (re)formulation.

The Scientific Computing Research Unit, SCRU (Dir. Prof. Kevin J. Naidoo) develop state-of-the-art high performance computing (HPC) software as well as providing a modelling and informatics platform for applications in chemistry and chemical biology. SCRU’s research activities include the development of software acceleration for life science applications. This aspect the unit’s research is supported by hardware giant Nvidia Corporation. SCRU’s specialised HPC facility houses the South Africa’s most sophisticated scientific compute servers and GPU clusters designed for chemical and chemical biology applications. The specific objectives of the unit are to trace gene-to-glycan biochemical schemes important in glycobiology as well as model enzyme catalysed chemical reactions and ionic liquids.

The research enterprise of the Department of Chemistry is significantly enhanced by the appointment of two of its permanent staff members to DST/NRF South African National Research Chairs - Professor Kevin Naidoo in Scientific Computing and Professor Kelly Chibale in Drug Discovery. These highly prestigious appointments have raised the Department’s international research profile significantly and contribute substantially to its research outputs.

Departmental Statistics

Permanent and long-term contract staff

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<th>Position</th>
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Honorary Staff

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Students

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</table>

Research Fields and Staff

Permanent and long-term contract staff

PROFESSOR SUSAN A. BOURNE
Inclusion chemistry; crystallography; thermal analysis.

PROFESSOR MINO R. CAIRA
Solid state chemistry; drug polymorphism; drug pseudopolymorphism; drug-cyclodextrin inclusion; drug complexation; co-crystallization; drug enantiomeric separation.

PROFESSOR KELLY CHIBALE
Organic synthesis; medicinal chemistry.

ASSOCIATE PROFESSOR BETTE DAVIDOWITZ
Chemical education; curriculum design; writing and communication within the discipline.
PROFESSOR TIMOTHY J. EGAN
Bioinorganic chemistry of the malaria parasite.

ASSOCIATE PROFESSOR DAVID W. GAMMON
Natural products chemistry; phytochemical studies on medicinal plants; carbohydrates; heterogeneous catalysis of organic reactions.

PROFESSOR ROGER HUNTER
Synthesis; indole alkaloids; calixarenes; p-block synthetic methodology.

ASSOCIATE PROFESSOR ALAN T. HUTTON
Organometallic chemistry; co-ordination chemistry; microwave chemistry; electrochemistry.

PROFESSOR GRAHAM E. JACKSON
Nuclear magnetic resonance; computer modelling; metal-ion equilibria; design of metal containing drugs; copper and rheumatoid arthritis.

DR ANWAR JARDINE
Senior Lecturer: medicinal chemistry; chemical biology; enzymology; natural product and organic synthesis; drug design and development.

PROFESSOR KEVIN J. NAIDOO
Computational chemistry; polymers; statistical physics; pharmaceutical drug design.

DR CLIVE OLIVER
Lecturer: self-assembly; large supramolecular assemblies; crystallography; inclusion chemistry.

ASSOCIATE PROFESSOR NEIL RAVENSCROFT
Physicochemical analysis of biologicals; carbohydrates; glycoconjugate and protein vaccines.

DR GREGORY S. SMITH
Senior Lecturer: organometallic chemistry; catalysis; metal-containing polymers and dendrimers; bio-organometallic chemistry.

DR GERHARD VENTER
Lecturer: computational chemistry; electronic structure calculations; free energy methods for properties of solutions; ionic liquids.

DR SARAH WILSON
Senior Lecturer.

Senior Scholars

PROFESSOR LUIGI R. NASSIMBENI
Physical chemistry; thermal analysis; kinetics; inclusion compounds.

PROFESSOR ALLEN L. RODGERS
Kidney stones; urine chemistry; calcium oxalate crystallization.

Honorary Research Associates

DR SHIRLEY C. CHURMS
Writing and communication within the discipline.

PROFESSOR RAYMOND J. HAINES
Organometallic chemistry.

DR ELIZABETH TIMME
Assessment of possible immuno-modulatory carbohydrates from local and indigenous plants and fungi.

Emeritus Professors

PROFESSOR JAMES R. BULL
Organic synthesis; steroidal hormones; 19-norsteroids; estrogens; bioactive steroids; predictive design; cycloaddition.

PROFESSOR PETER W. LINDER
Solution equilibria of cyclodextrin inclusion complexes.

PROFESSOR ALISTAIR M. STEPHEN
Carbohydrate chemistry.

Research Associate

DR GAËLLE RAMON
Supramolecular Chemistry; Inclusion Compounds; Metal Organic Frameworks; Crystal Engineering

Postdoctoral Fellows

DR YASSIR YOUNIS ADAM
Hit to Lead and Lead Optimization Medicinal Chemistry
Progression of Antimalarial Hits

DR ANDREW ANDAYI
New generation of combined drugs to fight tuberculosis

DR CHRIS BARNETT
Development of High Speed Informatics and Simulation Tools for Applications in Glycobiology

DR NYARADZO CHIGORIMBO-TSIKIWA
Biocatalytic modification of natural compounds for metabolite analysis.

DR DYANNE CRUICKSHANK
Beneficiation of Bioactive Compounds via Supramolecular Chemistry
DR FREDERIC DOUELLE
Hit to lead and lead optimization medicinal chemistry progression of antimalarial hits.

DR MARLENE ELIZABETH ESPINOZA MORAGA
Hit to Lead and Lead Optimization Medicinal Chemistry Progression of Antimalarial Hits

DR TZU-SHEAN FENG
New generation of combined drugs to fight tuberculosis

DR RIEDAA GAMIELDIE
Hybrid algorithms, Hybrid Architecture on a distributed highly available Protein Server for Structure Prediction, Functional Exploration and Gene Signatures

DR RICHARD KLAUS GESSNER
New generation of combined drugs to fight tuberculosis

DR DIEGO GONZALEZ-CABRERA
Hit to lead and lead optimization medicinal chemistry progression of antimalarial hits.

DR EMMA HAGER
The Synthesis of Water-Soluble Metallodendrimers for Use as Catalysts in Olefin Transformation Reactions

DR ZE HAN
Hit to lead and lead optimization medicinal chemistry progression of antimalarial hits.

DR AHMAD HUSAIN
Crystal engineering of large supramolecular assemblies and metal-organic frameworks

DR CLAIRE LE MANACH
Hit to lead and lead optimization medicinal chemistry progression of antimalarial hits.

DR STEFAN LOUW
Synthesis of novel artemisinin hybrid anti-malarial drugs.

DR BANOTHILE CHARITY EVENTS MAKHUBELA
Development of Water-Soluble Metallodendrimers for Biphasic Catalysis and as Novel Bioorganometallic Drugs

DR JESTIN MANDUMPAL
Development of coarse grain molecular dynamics software for protein folding

DR MAIA MEURILLON
New generation of combined drugs to fight Tuberculosis.

DR GRACE MUGUMBATE
Application of in silico Tools to the discovery of novel anti-infective agents.

DR DUBEKILE NYONI
The Design and Development of Novel Ruthenium, Rhodium and Iridium Dendritic Multinuclear Complexes for Use in Medicinal Bio- and Nanotechnology

PAQUET, TANYA
Hit to Lead and Lead Optimization Medicinal Chemistry Progression of Antimalarial Hits

DR MARIVEL SAMIPILLAI
Selectivity in Host-guest Systems

DR RAJNI SHARMA
Synthesis of N domain selective ACE inhibitors.

DR KAWALJIT SIGH
Towards the synthesis of reversed anti-tuberculosis agents and hybrid bacterial efflux pump inhibitors

DR CANDICE SOARES DE MELO
New generation of combined drugs to fight tuberculosis

Contact details
Tel: +27 21 650 2446
Fax: +27 21 650 5195
e-mail: shanaaz.manie@uct.ac.za
web: http://www.uct.ac.za/depts/cem

Research output
Edited books

Chapters in books


**Articles in Peer-reviewed Journals**


Thelingwani, R.S., Dhansay, K., Smith, P., Chibale, K. and Masimirembwa, C.M. 2012. Potent inhibition of CYP1A2 by frutinone A, an active ingredient of the broad spectrum antimicrobial herbal extract from P.fruticosa. Xenobiotica, 42(10): 989-1000.


Doctoral dissertations


Jayakody, R.S. 2012. In silico investigation of the mechanism of ricin-catalysed depurination reaction and design of novel ricin inhibitors. 210pp. Supervised by Naidoo, K.J.


Malatji, P. 2012. Studies towards degradable polymers: new zinc(II) and palladium(II) complexes as catalysts for lactide polymerization and carbon monoxide/styrene


Pillay, P. 2012. Antiplasmodial neolignans from trema orientalis-identification, synthesis and analogue generation. 228pp. Supervised by Chibale, K. and Maharaj, V.


Thelingwani, R.S. 2012. Integration of in silico and in vitro ADMET properties in lead identification and optimization of compounds for the treatment of parasitic diseases. 204pp. Supervised by Chibale, K., Masimirembwa, C. and Smith, P.

Tukulula, M. 2012. The application of the multi-component reaction (MCR) strategy in the design and synthesis of new antiplasmodial and antimycobacterial agents. 239pp. Supervised by Chibale, K.


Master’s degrees (by research)


Nengwekhu, T.M. 2012. Computer simulations of a chromatographic column used in the separation of platinum group metal chlorinated complexes. MSc. 95pp. Supervised by Naidoo, K.J. and Venter, G.A.

Department of Computer Science

HEAD OF DEPARTMENT: ASSOCIATE PROFESSOR SONIA BERMAN

Departmental Profile

The Department's main research themes are Information and Communication Technology for Development (ICT4D) and High Performance Computing (HPC). ICT4D is a multi-disciplinary field which looks at the design and creation of computer systems for the developing world. These systems could cover any sub-discipline of computing, such as the Internet of Things, virtual environments, security, interaction design, artificial intelligence and information retrieval. However they differ in that design constraints for the developing world are different: power is limited, networks scarce, users can be illiterate, etc. ICT4D deals with the creation of ICT solutions that address defined developmental and social challenges like education, medical care, identity and human dignity. High Performance Computing is an enabling technology that seeks to improve the performance of computing applications. For example, a carbohydrate simulation might be reduced from years to months, or digital 3D content produced in real time rather than requiring minutes to generate. A major theme of this HPC research is improving the speed of discipline-specific computational solutions.

The Department has two research centres and several research laboratories. The Collaborative Visual Computing Laboratory works in five main areas: procedural modelling, geometric compression, graphical simulation, virtual environments and computer games. The Digital Libraries Laboratory covers information storage and retrieval, including multilingual retrieval and cultural heritage...
preservation. The High Performance Computing Laboratory applies GPU programming and high throughput computing to areas such as scientific computing, visualisation and information retrieval, particularly in the domains of cultural heritage, radio astronomy and computational chemistry. The Intelligent Systems and Advanced Telecommunications Laboratory focuses on wireless sensor networks; and the Network and Information Security Laboratory on algorithms and systems for safe and secure information access.

ICT is an enabling technology, and thus highly cross-disciplinary. The UCT Centre in ICT for Development seeks to design, create and evaluate technologies that address the needs of the developing world, and to study the impacts of existing technology. This centre also includes staff from diverse UCT departments, such as Civil Engineering and Film and Media. It is closely associated with the Hasso-Plattner Research School in ICT for Development, through which the Hasso-Plattner Institute (Germany) funds African PhD students working in ICT for Development. The Samsung Mobile Innovation Lab is a joint Information Systems – Computer Science unit. The Telkom-Siemens Centre of Excellence in ATM and Broadband Networks and their Applications includes UCT’s Communications Group Laboratory in Electrical Engineering and the Departments of Computer Science at UCT and at Stellenbosch University.

Departmental Statistics

Permanent Staff

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Adjunct & Honorary Staff

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Students

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<td>Undergraduate</td>
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</table>

Research Fields and Staff

Permanent Academic Staff

DR ANTOINE BAGULA
Traffic Engineering; Network Engineering; Network Security; Internet of Things

ASSOCIATE PROFESSOR SONIA BERMAN
Head of Department; Data management

PROFESSOR EDWIN BLAKE
ICT for Development; Human-Computer Interaction; User Experience in Games and Virtual Environments

ASSOCIATE PROFESSOR JAMES GAIN
Computer Graphics; High Performance Computing; Visualisation

DR ANNE KAYEM
Information Security

ASSOCIATE PROFESSOR MICHELLE KUTTEL
Computational Science; Parallel Processing; Scientific Visualisation and Design

DR HANH LE
Networks; Distributed Computing

DR PATRICK MARAIS
Computer Graphics; Image Processing, GPU Computing

PROFESSOR GARY MARS DEN
Mobile Interaction Design; ICT for Development

DR AUDREY MBOGHO
Human Language Technologies; e-Health; Intelligent Systems and User Interfaces

DR GEOFF NITSCHKE
Artificial Intelligence; Co-evolution; Robotics

ASSOCIATE PROFESSOR HUSSEIN SULEMAN
Digital Libraries; Information Retrieval; Internet technology; High Performance Computing; Computer Science Education

Administrative and Support Staff

MRS SALEGGA VALLEY
Administrative Officer

MRS EVE GILL
Administrative Assistant
Postdoctoral Fellows

DR BRUCE MERRY
Computer Graphics

Adjunct and Honorary Professors

HONORARY PROFESSOR JUDITH BISHOP
Software Engineering; Programming Languages; Distributed Systems

ADJUNCT PROFESSOR ANDREW HUTCHISON
Information Security

Contact Details
Postal address: Department of Computer Science, University of Cape Town, Private Bag X3, Rondebosch, 7701
Telephone: SA (21) 650 2663
Fax: SA (21) 650 3551
Email: dept@cs.uct.ac.za
Web: http://www.cs.uct.ac.za/

Research Output
Chapters in books


Articles in Peer-reviewed Journals


**Peer-reviewed published conference proceedings**


Doctoral dissertations

Masinde, E.M.I. 2012. ITIKI: Bridge between African indigenous knowledge and modern science on drought prediction. Supervised by Bagula, A.B.

Master’s degrees (by research)

Allen, S.L. 2012. Analyzing the impact of mobile technology on mobile-centric youth in South Africa. Supervised by Marsden, G.


Erasmus, D.J. 2012. Video quality requirements for South African sign language communications over mobile phones. Supervised by Blake, E.

Fisher, M. 2012. Performance benchmarking physical and virtual linux environments. Supervised by MacGregor, K.J.


Isafiade, O.E. 2012. Drivable region detection for autonomous robots applied to South African underground mining. Supervised by Bagula, A.B.


Koletka, R. 2012. An architecture for secure searchable could storage. Supervised by Hutchison, A. M.


Mohamed Nour, M. 2012. An end-to-end solution for complex open educational resources. Supervised by Suleman, H.


Swanepoel, A.W. 2012. The design of a mobile user interface for an interest rate calculator. Supervised by Marsden, G.

Talbot, M.J. 2012. SHOP-Net: Moving from paper to mobile. Supervised by Marsden, G.


Department of Environmental and Geographical Science
(Including the Environmental Evaluation Unit)

HEAD OF DEPARTMENT: PROFESSOR MICHAEL E. MEADOWS

Departmental Profile

Major research themes covered by staff in the department reflect the interaction between humans and their environment and the variability of this environment, and the dynamic socio-economic and political conditions affecting society as a whole. Members of staff in the department draw empirical evidence from Africa to explore and engage these themes at various scales ranging from the global to the national, while also paying attention to specific challenges of reconstruction and development in South Africa. Much of the current research is focused on climate change, adaptation and modelling; ecology and society; environmental impact assessment; Quaternary palaeoenvironments, geomorphology and remote sensing; theories, policies and practices in natural resource governance and management; biodiversity conservation and benefit sharing; and urban theory, policy and planning.

The department has ongoing research initiatives and collaboration with dozens of institutions that are spread across six continents. It has strong working relationships with institutions in five countries in Africa (Botswana, Kenya, Liberia, Mozambique, and Tanzania); five countries in Asia (China, India, Indonesia, Japan and Sri Lanka); eight countries in Europe (France, Germany, Ireland, Italy, Netherlands, Spain, Sweden and United Kingdom); two countries in North America (Canada and the United States); and one country in South America (Brazil).

The Environmental Evaluation Unit was established as an independent professional consulting, research and training unit within the Department of Environmental and Geographical Science in 1985, based at the University of Cape Town. During the past 20 years, the EEU has completed over 150 consulting assignments and projects for private, institutional and government clients. The EEU has established itself as a centre of excellence in the field of environmental management, sustainable development, and natural resource management in Africa, particularly within the SADC region (projects have been completed in South Africa, Botswana, Namibia, Mozambique, Lesotho, Swaziland and the Seychelles).

Departmental Statistics

Permanent and Long-term Contract Staff

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<th>Category</th>
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<td>Senior Lecturers</td>
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<td>Research Staff</td>
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<td>Administrative &amp; Support Staff</td>
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Emeritus & Honorary Staff

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<td>Honorary Professors</td>
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Students

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Research Fields and Staff

Permanent Academic Staff

**DR BABATUNDE ABIODUN**  
Lecturer; Atmospheric Science, Climatology

**DR PIPPIN ANDERSON**  
Lecturer; Postgraduate co-ordinator

**DR SHARI DAYA**  
Lecturer; Gender, Modernity

**DR FRANK ECKARDT**  
Senior Lecturer; Geomorphology, Remote Sensing

**PROFESSOR BRUCE HEWITSON**  
Chair in Climate Change  
Atmospheric Science, Climatology

**DR RICHARD HILL**  
Senior Lecturer; Environmental Assessment and Management

**DR PETER JOHNSTON**  
Research Officer; Seasonal Forecasting Applications; Climate Change

**PROFESSOR MIKE MEADOWS**  
Head of Department; Quaternary Environmental Change

**ASSOCIATE PROFESSOR SOPHIE OLDFIELD**  
Political and Economic Geography

**PROFESSOR SUE PARNELL**  
Urban Studies, Historical Geography

**DR ZARINA PATEL**  
Senior Lecturer; Environmental governance and politics

**ASSOCIATE PROFESSOR MAANO RAMUTSINDela**  
Political Geography, Transnational Regionalism

**ASSOCIATE PROFESSOR MERLE SOWMAN**  
Environmental Planning and Management, Coastal and Small-Scale Fisheries Management

**DR KEVIN WINTER**  
Lecturer, Environmental Management, Water Resources, Monitoring and Evaluation

**ASSOCIATE PROFESSOR RACHEL WYNBERG**  
SARChI Chair in Environmental and Social Dimensions of the Bio-economy Biodiversity and Social Justice, Commercial Use of Biodiversity, Access and Benefit Sharing; Genetic Resources for Food and Agriculture

**DR GINA ZIERVOGEL**  
Senior Lecturer; Vulnerability and Adaptation

Long-term Contract Staff

**DR MARIA HAUCK**  
Coastal and Small-Scale Fisheries Management

Contract Research Staff

**MS LISA COOP**  
Research Assistant; Climate Data Analysis

**MR CHIMANGO HARA**  
Intern; Environmental Law

**MS PHILILE NONHLANHLA MBATHA**  
Junior Researcher; Coastal and Marine Management

**DR BRADLEY RINK**  
Human Geography

**MS KIRSTEN SCOTT**  
Research Assistant; EIA, Social Scoping Reports

**MS ANNA STEYNOR**  
Research Associate; Stakeholder Engagement

**MS JACKIE SUNDE**  
Research Assistant; Fisheries

**MS KATE SUTHERLAND**  
Research Assistant; Climate Data Analysis

**MS MATHILDA JACI VAN NIEKERK**  
Research Assistant; Biodiversity and Social Justice, Commercial Use of Biodiversity, Access and Benefit Sharing

**MS RUWANI WALAWEGE**  
Research Assistant; Climate Data Analysis

**DR PIOTR WOLSKI**  
Senior Researcher; Hydrology

Administrative and Support Staff

**MRS SHARON ADAMS**  
Administrative Officer

**MR ALDINO ARENDS**  
Administrative and Financial Co-ordinator
MRS SHARON BARNARD
Administrative Assistant

MR ROGER DUFFETT
IT Manager

MR TONY GEORGE
Library Assistant

MS FADELAAH HARTLEY
Senior Secretary

MR SAYED HESS
Laboratory Departmental Assistant

MR CHRIS JACK
Senior Scientific Technical Officer

MS VUYOKAZI MAFUNYA
Administrative Assistant

MR PHILLIP MUKWENHA
IT Assistant

MRS SHAADA REDDY
Librarian

MS SHAHIEDA SAMBADIDEN
Senior Secretary

Postdoctoral Fellows

DR OLIVIER CRESPO
Agricultural and Water Research Modelling

DR JOSEPH DARON
Climate uncertainties and adaptation

DR CHRIS LENNARD
Atmospheric Science

DR NEIL MACKELLAR
Climate and Land-cover Change

DR KABIRI NGETA
Environmental Governance for Social Justice

DR KAZEEM OARE OKOSUN
Epidemiological modelling and climate impact

DR SERGE RAEMAEKERS
Small-scale Fisheries Governance

Honorary Professors

PROFESSOR JOHN BOARDMAN
Soil Erosion, Land Degradation

PROFESSOR JONATHAN CRUSH
International Migration, Transnationalism

PROFESSOR DAVE THOMAS
Arid Zone Geomorphology, Quaternary Science

Research Associates

DR LAURENCE NATHAN
DR DAVID FIG

Emeritus Staff

PROFESSOR RON DAVIES
PROFESSOR RICHARD FUGGLE

Contact Details

Postal address: Department of Environmental and Geographical Science, University of Cape Town, Private Bag X3, Rondebosch, 7701
Telephone: SA (21) 650 2873/4
Fax: SA (21) 650 3456

Research output

Edited books


Chapters in books


Articles in Peer-reviewed Journals


Peer-reviewed published conference proceedings


Doctoral dissertations

Browne, N. 2012. Model evaluation for seasonal forecasting over southern Africa.110pp. Supervised by Hewitson, B.C.

Master’s degrees (by research)


Chasi, V. 2012. Tracing the progression of measles outbreaks: an exploratory and descriptive study of the City of Cape Town, South Africa. MPhil Disaster Risk Science. 183pp. Supervised by Coetzee, D.J. and Holloway, A.


Dhlembeu, R. 2012. Testing the use of the BASINS PLOAD model to simulate the quality of stormwater runoff from the Kuils River catchment, Cape Town. MSc. 118pp. Supervised by Winter, K.J.


Israel, A. 2012. The landscape pattern surrounding the Venda sacred site of Thathe forest. MPhil Environmental Management. 102pp. Supervised by Sowman, H.

Kinyanjui, R. 2012. Phytolith analysis as a palaeoecological tool for reconstructing mid-to late-pleistocene environments in the Olorgesailie basin, Kenya. MSc. 130pp. Supervised by Meadows, M.E.


Rumble, J. 2012. Collaborative environmental governance in agriculture: a case-study from the Breede Valley. MPhil Environmental Management. 120pp. Supervised by Hill, R.C.

Tkalani, T.E. 2012. A spatial analysis of the alternative admissions research project at the University of Cape Town, 2000-2005. MSc. 113pp. Supervised by Meadows, M.E.


Department of Geological Sciences

HEAD OF DEPARTMENT: PROFESSOR STEPHEN RICHARDSON

Departmental Profile

Research in the Department of Geological Sciences covers a wide range of disciplines. The Department has strengths in geochemistry, structural geology and tectonics, igneous and metamorphic petrology, sedimentology, marine geology, economic geology and petroleum geophysics. General research interests include: global tectonics and geodynamics with emphasis on Gondwana geology; oceanic and continental igneous processes and the geochemical evolution of the underlying mantle; kimberlites and the genesis of diamonds; evolution of the Kaapvaal craton and gold genesis; paleoenvironments; marine geoscience and sedimentary geochemistry. Analytical facilities include X-ray fluorescence, X-ray diffraction, electron microprobe, fluid inclusion stage, stable isotope extraction lines and
access to a stable isotope mass spectrometer, quadrupole (single collector) and magnetic sector (multi-collector) inductively coupled plasma mass spectrometers (solution and laser analysis) and associated clean laboratories.

Departmental Statistics

Permanent and long-term contract staff

<table>
<thead>
<tr>
<th>Position</th>
<th>Count</th>
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<tbody>
<tr>
<td>Professors</td>
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<tr>
<td>Associate Professors</td>
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<tr>
<td>Senior Lecturers</td>
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<td>Lecturers</td>
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<tr>
<td>Technical Support Staff</td>
<td>13</td>
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<tr>
<td>Administrative &amp; Clerical Staff</td>
<td>2</td>
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<tr>
<td><strong>Total</strong></td>
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Honorary staff

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<tr>
<th>Position</th>
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<tbody>
<tr>
<td>Honorary Research Associates</td>
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<tr>
<td>Emeritus Professors</td>
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Students

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<th>Level</th>
<th>Count</th>
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<tbody>
<tr>
<td>Postdoctoral</td>
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<tr>
<td>Doctoral</td>
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<tr>
<td>Master’s</td>
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<tr>
<td>Honours</td>
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<tr>
<td>Undergraduate</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>535</strong></td>
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</table>

Research Fields and Staff

Permanent staff

PROFESSOR STEPHEN RICHARDSON
Head of Department; Isotope geochemistry; geochronology; diamonds; continental mantle evolution.

PROFESSOR ANTON LE ROEX
Dean of Science; Igneous geochemistry; analytical geochemistry; mantle evolution.

PROFESSOR CHRIS HARRIS
Stable isotope geochemistry; igneous petrology.

ASSOCIATE PROFESSOR JOHN COMPTON
Low-temperature and sedimentary geochemistry; marine geology.

ASSOCIATE PROFESSOR DAVID REID
Precambrian crustal evolution and metallogeny; carbonatites; isotope geochemistry.

MR GEORGE SMITH
Senior Lecturer; petroleum geophysics.

DR EMESE BORDY
Senior Lecturer: Sedimentology

DR PHIL JANNEY
Senior Lecturer: Igneous petrology; analytical geochemistry

DR JOHANN DIENER
Lecturer; Metamorphic petrology.

DR AKE FAGERENG
Lecturer; Structural geology.

Honorary staff

EMERITUS PROFESSOR JOHN GURNEY
Upper mantle research; diamonds; diamond exploration and instrumental analysis of minerals

Honorary Research Associates

PROFESSOR HARTWIG FRIMMEL
Metamorphic petrology

DR WENDY TAYLOR
Palaeontology

Contact Details

Postal address: Department of Geological Sciences, University of Cape Town, Private Bag X3, Rondebosch, 7701
Telephone: +27 21 650 2931
Fax: +27 21 650 3783
E-mail: sci-geology@uct.ac.za
E-mail: http://web.uct.ac.za/depts/geolsci/

Research output

Articles in Peer-reviewed Journals


Doctoral dissertations

Razak, N. 2012. An investigation into the effectiveness of a controlled source electromagnetic survey in locating petroleum resources offshore Equatorial Guinea. Supervised by Smith, G.C.

Master’s degrees (by research)

Backeberg, N. 2012. Petrogenesis of the False Bay Dyke Swarm, Cape Peninsula, South Africa. MSc. Supervised by Reid, D.

Bergh, E. 2012. A one-year, postfire record of element deposition and cycling in the Kogelberg sandstone fynbos mountain ecosystem of the Western Cape, South Africa. MSc. Supervised by Compton, J.

Faber, C. 2012. Insights into the processes of felsic melt migration through the mid-crust; an integrative approach from the central zone of the Damara belt, Namibia. MSc. Supervised by Diener, J.

Maake, L. 2012. Source of the suspended load, upper Orange river, South Africa. MSc. Supervised by Compton, J. and Rogers, J.

MacHutchon, M. 2012. The geological evolution and sedimentary dynamics of Hout Bay, South Africa. MSc. Supervised by Compton, J.

MacLennan, S. 2012. Structural, geophysical and geochemical characterisation of a Mesoarchean paleosuture zone, Barberton Greenstone Belt, South Africa. MSc. Supervised by de Wit, M.
Department of Mathematics and Applied Mathematics

(Including the Cosmology and Gravity Group, the Laboratory of Foundational Aspects of Computer Science (FACS-Lab), the Marine Resource Assessment and Management Group (MARAM), Industrial Mathematics, and the Topology Research Group)

HEAD OF DEPARTMENT: ASSOCIATE PROFESSOR VASCO BRATTKA (UP UNTIL 30 JUNE 2012)

(ACTING HEAD OF DEPARTMENT: PROFESSOR HANS-PETER KUNZI (AS OF 01 JULY 2012))

Departmental Profile

The Department of Mathematics and Applied Mathematics houses a number of research groups and individual activities which, in total, cover a large part of the mathematical spectrum. Examples are: cosmology and relativity, computational and applied mechanics, marine resource assessment and management, rangeland modelling, industrial mathematics, foundational aspects of computer science, topology, category theory, nonlinear mathematical physics, functional analysis, cryptography, string theory, financial mathematics and algebra. The Department has active research collaboration with other groups in the country and abroad. There is a strong postgraduate program, with M.Sc. and Ph.D. students in a variety of fields. A number of staff have NRF A-ratings and B-ratings. The Department has a good technical and administrative infrastructure, and regularly hosts visitors from abroad. More information can be found on the website www.mth.uct.ac.za.

Departmental Statistics

Permanent and long-term contract staff

<table>
<thead>
<tr>
<th>Position</th>
<th>Number</th>
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<tbody>
<tr>
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Honorary staff

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Students

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Research Fields and Staff

Permanent and long-term contract staff

PROFESSOR IGOR BARASHENKOV
Nonlinear waves and solitons; nonlinear dynamics; mathematical physics

PROFESSOR BRUCE BASSETT
Observational and theoretical cosmology; nonlinear optimization. Research astronomer at the South African Astronomy Observatory and senior researcher, African Institute of Mathematical Sciences

PROFESSOR DOUG BUTTERWORTH
Director, Marine Resource Assessment and Management Group (MARAM); particular focus on South African fisheries, northwest Atlantic fisheries, southern bluefin tuna, Antarctic whale and krill resources
PROFESSOR KATHY DRIVER
Special functions, orthogonal polynomials and approximation theory

PROFESSOR PETER DUNSBY
Director of the National Astrophysics and Space Science Programme; Co-Director of the Astrophysics, Cosmology and Gravitation Centre; cosmological perturbations; cosmic microwave background anisotropies; gravitational lensing; inflationary cosmology; cosmological magnetic fields; on-line mathematics education

PROFESSOR GEORGE JANELIDZE
Category theory, Algebra, Topology, Sets and Logic

PROFESSOR HANS-PETER KÜNZI
Topology, orders, categories, combinatorics and their applications in analysis and algebra; particular focus being the theory of asymmetric topology; leader of topology and category theory research group

PROFESSOR DAYA REDDY
South African Research Chair in Computational Mechanics Director, UCT Centre for Research in Computational and Applied Mechanics (CERECAM); mathematical and computational aspects of continuum mechanics; the finite element method

ASSOCIATE PROFESSOR VASCO BRATTKA
Computable Analysis, Effective descriptive set Theory, Algorithmic Randomness

ASSOCIATE PROFESSOR CHRISTOPHER GILMOUR
Pointfree topology and sigma-frames; categorical topology

ASSOCIATE PROFESSOR CHARLES HELLABY
General relativity; cosmology; gravity

ASSOCIATE PROFESSOR ALEXANDAR IANOVSKY
Dynamical systems – finite and infinite dimensions; differential geometric methods in the theory of dynamical systems

DR PETER BRUYNs
Senior Lecturer; group theory; permutation groups

DR CHRISTOPHER CLARKSON
Senior Lecturer; cosmology; gravitational waves; non-linear perturbation theory; braneworlds -black holes; quasi-normal modes

DR JURIE CONRADIE
Senior Lecturer; functional analysis; vector lattices; von Neumann algebras; non-commutative function spaces; mathematics education

DR FRANCOISE EBOBISSE BILLE
Senior Lecturer, calculus of variations; PDE; mathematical and computational aspects of continuum mechanics; the finite element method

DR DAVID ERWIN
Senior Lecturer; classical, applied and algebraic graph theory

DR JOHN FRITH
Senior Lecturer; frame theory; topos theory; categorical topology; mathematical education

DR HENRI LAURIE
Senior Lecturer; mathematical biology, in particular ecology; industrial mathematics; mathematics education

DR JEFF MURUGAN
Senior Lecturer; string theory, quantum gravity, neurophysics

DR ANNELIESE SCHAUERTE
Senior Lecturer; frame and biframe theory; categorical topology; uniform and quasi-uniform structures

DR AMANDA WELTMAN
Senior Lecturer, string theory, cosmology, gravity

DR NORA ALEXEEVA
Lecturer; nonlinear dynamics and solitons; pattern formation in reaction-diffusion systems; synchronization of chaotic systems

DR MARGARET ARCHIBALD
Lecturer; analysis of algorithms and combinatorics

DR MARK BERMAN
Lecturer, group theory, universal algebra, set theory and model theory

DR TIRIVANHU CHINYOKA
Lecturer; computational fluid dynamics

DR EBRAHIM FREDERICKS
Lecturer; lie symmetries analysis of stochastic differential equations; lie symmetries analysis of partial differential equations; lie symmetries analysis of ordinary differential equations; applying lie symmetries to fluid mechanics, applying lie symmetries to mathematics of finance

DR ROBERT MARTIN
Lecturer, functional analysis; operator theory

DR ANDRIY POTOTSKY
Lecturer; stochastic processes and equations. Applications in Biology and Physics
MR KENNETH RAFEL
Lecturer; mathematics education

DR JESSE RATZKIN
Lecturer, geometric analysis

DR NEILL ROBERTSON
Lecturer; functional analysis; locally convex spaces; descriptive set theory; infinite-dimensional holomorphy

DR DEON SOLOMONS
Lecturer; thermodynamics of spacetime; interference and diffraction phenomena in gravitational lensing; structure formation in the universe; theories of higher order gravity

DR HOLGER SPAKOWSKI
Lecturer; theoretical computer science; computational complexity

DR CHRISTINE SWART
Lecturer; cryptography

DR VITALI VOUGALTER
Lecturer, nonlinear analysis, partial differential equations, mathematical biology

Senior Research Scholar
Emeritus Distinguished Professor George Ellis
Distinguished Professor of complex systems; cosmology and general relativity theory; emergence and functioning of complex systems, including the human brain; science policy; mathematics and science education and religion; social indicators

Research staff
DR ANABELA BRANDÃO
Senior Research Officer, MARAM; Southern Ocean toothfish assessment; SA west coast rock lobster surveys; minke whales, SA abalone assessment.

DR CARRYN DE MOOR
Senior Research Officer, MARAM; S.A. sardine and anchovy assessment and management

DR SUSAN HOLLOWAY
Senior Research Officer, MARAM; S.A. west and south coast rock lobster and horse mackerel assessment; whale management procedures

DR KENNETH HUGHES
Honorary Research Associate; number theory; algebra; algebraic geometry; topological quantum field theory; p-adic analysis, nil-theta functions

DR ÉVA PLAGÁNYI-LLOYD
Honorary Research Associate; multispecies modelling; Fisheries assessment and management ecological modeling, S.A. abalone assessment

Distinguished visitors
EMERITUS PROFESSOR BERNHARD BANASCHEWSKI
McMaster University, Hamilton, Ontario, Canada – pointfree topology; partially ordered algebraic systems; applied category theory

PROFESSOR ROY MAARTENS, Director of Institute of Cosmology and Gravitation, University of Portsmouth, UK – Relativity, Cosmology, Gravity

Honorary staff
EMERITUS PROFESSOR RONALD BECKER
Differential equations (bifurcations, abstract equations); theory of algorithms (graph partitioning, sorting networks) and Mathematical Finance

EMERITUS PROFESSOR GUILLAUME BRÜMMER
Topology and category theory group; categorical topology; asymmetric topology and uniformity

EMERITUS DISTINGUISHED PROFESSOR GEORGE ELLIS
Distinguished Professor of complex systems; cosmology and general relativity theory; emergence and functioning of complex systems, including the human brain; science policy; mathematics and science education; metaphysics of cosmology and its connections to ethics and religion; social indicators

EMERITUS PROFESSOR KEITH HARDIE
Homotopy theory; algebraic topology; digital topology; categorical topology

EMERITUS ASSOCIATE PROFESSOR RONALD CROSS
Functional analysis; unbounded linear operators; linear relations

PROFESSOR PATRICIA WHITELOCK
Visiting Professor and Principal Research Officer; SAAO

DR DAVID RICHARDSON
Research Associate; Rangeland Modelling Group; modelling grazing animal production systems; relations between complex and simple models

PROFESSOR JOHN WEBB
Mathematical competitions and Olympiads; popularisation of mathematics
Postdoctoral Fellows

DR ALVARO DE LA CRUZ
Cosmology

DR RITUPARNO GOSWAMI
Cosmology

DR NIMA KHOSRAV
Early universe cosmology including inflation and its generalisations

DR OLAWANLE PATRICK LAYENI
CERECAM: Moving boundary problems and variational inequalities

DR PATRICE OKOUMA
Constraints on dark energy from current and future cosmological observations including SKA

DR PRINA PATEL
Cosmology

DR ROBERT POLTIS
Works in particle physics and cosmology and in particular is studying the interface of the two looking at various tests of theoretical physics that can be done using observational cosmology

DR XAVIER ROY
Works on the averaging and backreaction problems in cosmology. This involves finding a self-consistent manner in which to smooth a spacetime, and make predictions for cosmology.

DR MARINA SEIKEL
Cosmology

DR PARAMJEET SINGH
Numerical analysis of conservation laws with fading memory in the research area of numerical analysis of partial differential equations

DR PER ERIC SUNDIN
String theory and Cosmology

DR ROCKHEE SUNG
Cosmology

Contact Details

Postal address: Department of Mathematics & Applied Mathematics, University of Cape Town, Private Bag, Rondebosch, 7701
Telephone: SA (21) 650 3191
Fax: SA (21) 650 2334
E-mail: mam-admin@uct.ac.za (Hayley.Leslie@uct.ac.za)
Web: http://www.mth.uct.ac.za

Research output

Authored books

Edited books


Chapters in books


**Articles in Peer-reviewed Journals**


Peer-reviewed published conference proceedings


Doctoral dissertations


Master’s degrees (by research)


Richardson, N. J.N.2012. An investigation into aspects of rate-independent single crystal plasticity. MSc(Eng) Mechanical. Supervised by Reddy, B.D.

Walters, A. 2012. Constructing realistic Szekeres models from initial and final data. MSc Astrophysics & Space-Science. 160pp. Supervised by Hellaby, C.

Wilson, B. 2012. Robust Bayesian portfolio optimisation: Higher moments and the distorting effects of constraints. MSc. Supervised by Witten, G.

In addition to the research outputs listed further above, contributions ranging across book reviews to popular articles were made. The Marine Research Assessment and Management Group (MARAM) provided 105 technical papers to the scientific working groups of the Fisheries Branch of the Department of Agriculture, Forestry and Fisheries related to the management of South African marine resources, and to other United States and international fisheries management organisations.

Department of Molecular And Cell Biology

HEAD OF DEPARTMENT: ASSOCIATE PROFESSOR VERNON COYNE

Departmental Profile

The Department has interests and expertise in diverse areas of biology. The problem of desiccation in plants is being tackled by a combination of physiological and molecular approaches. “Biofarming” research involves the expression of pharmaceutically-important proteins in plants and insect cells, including vaccine candidates for human and animal diseases such as bluetongue, human papillomaviruses, human rotavirus and psittacine beak and feather disease. Plant biotechnology research for plant improvement is focused on developing virus-resistant and drought-tolerant crops and the molecular basis of nickel hyperaccumulation in plants. Plant defence responses are studied in both model and crop plants. Circadian rhythms and their role in plant development and responses, as well as sports performance in humans, are studied. Eukaryotic gene expression projects include the role of chromatin modifications in regulating the rhythms of gene expression and gene expression during neuronal differentiation and stress. Basic mechanisms underlying the regulation of gene expression are studied in human cells and in Plasmodium, with a view to pinpointing Plasmodium-specific mechanisms that can be exploited to develop novel anti-malarial drugs. Misfolding of DNA sequences is being investigated as a possible cause of inheritable mental diseases. In addition, the actions of mammalian hormones, synthetic contraceptives and steroid receptors are being investigated with a view to understanding mechanisms, integration of signalling pathways and role in HIV pathogenesis. Research on viral pathogenesis includes virus-host genomic and proteomic interaction studies for Maize streak virus, and virus structure-function studies of the envelope protein and its role in HIV transmission. Evolutionary biology projects focus on mechanisms that shape both genomic and population-level diversity, as well as evolution of limb development in bats. Molecular virology studies focus on the genetic diversity and molecular biology of single-stranded DNA viruses of plants and animals, of the marine virome, and of papillomaviruses of primates and humans. Structural studies are being carried out by electron microscopy and X-ray crystallography on a number of proteins, including glutamine synthetase and members of the nitratase superfamily, to obtain insights necessary for rational drug and industrial enzyme design. Research in marine biotechnology includes genetic and proteomic studies of the immune response of the abalone (Haliotis midae) and the stress and disease response systems of the commercially important seaweed Gracilaria gracilis. In addition, probiotics are being developed to improve the growth rate and disease resistance of farmed abalone. Research in microbiology includes molecular-genetic investigations of industrially and medically important anaerobic bacteria such as Corynebacterium, Bacteroides fragilis, Bifidobacterium and the fibre-degrading bacteria in the ostrich gut. The taxonomy of antibiotic-producing actinobacteria is being investigated. The Department also runs an analytical facility (amino acid analysis, DNA sequencing, DNA synthesis, DNA microarrays and protein identification). The instrumentation in the facility consists of HPLCs, a GC MS/MS and LC-ESI QTOF and MALDI instruments for mass spectrometry.

Departmental Statistics

Permanent and Long-Term Contract Staff

<table>
<thead>
<tr>
<th>Category</th>
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<tbody>
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Honorary Staff

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Students

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Research fields and staff

Permanent Staff

ASSOCIATE PROFESSOR VERNON COYNE
Head of Department; Marine biotechnology

PROFESSOR JILL FARRANT
Desiccation tolerance; resurrection plants; seeds; plant physiology; molecular biology; systems biology

PROFESSOR JANET HAPGOOD
Molecular mechanisms of cell signalling and eukaryotic gene regulation via steroid receptors: role in HIV pathogenesis, immune and reproductive function

PROFESSOR NICOLA ILLING
Evolution of development; regulation of gene expression; limb development, comparative genomics

PROFESSOR EDWARD RYBICKI
Plant- and tissue culture-derived vaccines; oceanic viromics; Human papillomavirus (HPV); rotavirus; bluetongue virus; Beak and feather disease virus; geminivirus; Maize streak virus; molecular virology; molecular biotechnology

ASSOCIATE PROFESSOR VAL ABRATT
Bacteroides fragilis; nitrogen metabolism; virulence; metronidazole; DNA damage and repair; Bifidobacterium; Lactobacillus; probiotics

ASSOCIATE PROFESSOR SHARON REID
Gram-positive and anaerobic bacteria; Clostridium acetobutylicum; Bifidobacterium; Lactobacillus; gene regulation of nitrogen- and carbon-substrate utilisation; probiotics; molecular systematics; biofuels

DR ROBERT INGLE
Senior lecturer; interactions between plants and their environment (plant innate immunity, metal hyperaccumulating plants)

DR PAUL MEYERS
Senior lecturer; actinobacteria; family Streptosporangiaceae; Amycolatopsis; Kribella; Streptomyces; bacterial taxonomy; bioprospecting; novel antitubercular antibiotics

DR COLLEEN O’RYAN
Senior lecturer; molecular and population genetics; genetics of neurodevelopmental disorders

DR LAURA RODEN
Senior Lecturer; flowering time and photoperiodism; plant and human circadian rhythms; regulation of plant gene expression; plant molecular biology; Arabidopsis genetics

DR THOMAS OELGESCHLÄGER
Lecturer; molecular mechanisms of RNA polymerase II transcription regulation in eukaryotes; core promoter-selective transcription regulation mechanisms; transcription regulation in Plasmodium falciparum

DR SUHAILE RAFUDEEN
Lecturer; abiotic stress tolerance in plants; signalling and regulation of plant gene expression during stress; plant molecular biology; proteomics (protein expression profiling, protein mining); Xerophyta viscosa; maize; Tef

DR JERRY RODRIGUES
Lecturer; protein chemistry; drug discovery; plant desiccation tolerance; polyphenol research

DR ZENDA WOODMAN
Lecturer; HIV: structure-function and viral fitness; biochemical analysis of envelope’s role in HIV pathogenesis

Honorary Staff

EMERITUS PROFESSOR HORST KLUMP
Energy landscapes of dynamic ensembles of rolling triplet repeat bulge loops: implications for DNA expansion associated with mental-disease states

EMERITUS PROFESSOR JENNIFER THOMSON
Transgenic maize for resistance to the African Maize streak virus and tolerance to drought

Contract Research Staff

DR GARETH EVEREST
Postdoctoral fellow; antimycobacterial antibiotic drug discovery; actinobacterial characterisation; phylogeny of the family Pseudonocardiae; alternative taxonomic marker genes

DR BRUNA GALVÃO
Postdoctoral fellow; discovery and characterisation of novel putative virulence factors of the human opportunistic pathogen Bacteroides fragilis; membrane-associated adhesins; cell surface appendages; proteases
DR KERRY GORDON
Postdoctoral fellow; HIV-1 envelope structure and function; understanding the glycosylation requirements of HIV-1 envelope during transmission

DR INGA HITZEROTH
Senior Research Officer; plant-derived vaccines; Human Papillomaviruses (HPV), Beak and Feather disease virus (BFDV), Rotavirus and Influenza virus

DR SUZANNE HUDDY
Postdoctoral fellow; plant and algal biotechnology; plant-produced enzymes and pharmaceuticals; plant and algal tissue culture and transformation studies; Influenza

DR KERSHINI IYER
Postdoctoral fellow; plant biotechnology; promoter studies of stress-associated genes from Zea mays and Xerophyta viscosa

DR REVEL IYER
Chief Research Administrator; agricultural biotechnology; plant molecular biology; plant transgenics

DR BRIAN KULLIN
Postdoctoral fellow; Clostridium difficile (epidemiology, factors involved in host colonisation and mechanisms of antibiotic resistance); oxalate utilisation by probiotic gut bacteria (possible role in kidney stone prevention)

DR ANN MEYERS
Research Officer; plant-produced proteins, monoclonal antibodies and vaccines; bluetongue virus; Rift Valley fever virus; Crimean Congo haemorrhagic fever virus

DR SHANE MURRAY
Lecturer; crop genomics and transcriptomics; resistance in maize and grapevine to pathogens (fungi, viruses and phytoplasm)

DR CHRISTIANE M. NDAY
Postdoctoral fellow; identification of blood biomarkers for drug abusers with a history of psychosis using RNA sequencing technology

DR LYNTHIA PAUL
Research assistant; Bacteroides fragilis metronidazole resistance; mutational analysis; metronidazole uptake; flotillin; DNA recombination and repair genes

DR MAYA PFAFF
Postdoctoral fellow; marine virology; plankton ecology; metagenomics; microbial oceanography (understanding the role of viruses in the Southern Ocean carbon cycle and the formation, maintenance and termination of harmful algal blooms)

DR DIONNE SHEPHERD
Research Officer; virology and plant biotechnology; development of maize streak virusresistant maize; maize streak virus diversity; plant-virus interactions

DR MICHELE TOMASICCHIO
Postdoctoral fellow; glucocorticoid receptor (GR) transcriptional signalling; cross talk between HIV-1 Vpr and the GR in transcriptional regulation of host genes

Research Highlights

AWARDS
Professor Janet Hapgood was awarded a Grand Challenges Explorations grant by the Bill & Melinda Gates Foundation (www.uct.ac.za/mondaypaper/?id=9404).

SIGNIFICANT PUBLICATIONS
Emeritus Professor Horst Klump was a co-author on a paper in the Journal of the American Chemical Society (2011 impact factor: 9.907) that investigated the role of “bulge loops” in the generation of mutations that result in expanded stretches of repetitive DNA sequences (expansion mutations). Since expansion mutations are associated with a variety of human genetic disorders, such as Huntington’s disease, knowing more about bulge-loop behaviour may help researchers to understand expansion mutations (http://www.ncbi.nlm.nih.gov/pubmed/22397401).

Contact Details
Postal address: Department of Molecular and Cell Biology, University of Cape Town, Private Bag X3, Rondebosch, 7701, South Africa
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Fax: SA (21) 689-7573
e-mail: ethne.liebenberg@uct.ac.za
Web: http://www.mcb.uct.ac.za

Research output

Chapters in books

**Articles in Peer-reviewed Journals**


Mulema, J. and Denby, K.J. 2012. Spatial and temporal transcriptomic analysis of the Arabidopsis thaliana-


**Doctoral dissertations**


Botha, S. 2012. Development of a transformation protocol and cell culture system for the commercially important species of red macroalgae, Gracilaria gracilis. 272pp. Supervised by Coyne, V.E.


Master’s degrees (by research)

Brito, D. 2012. Evolution of the ZRS and the regulation of SHH expression in the forelimbs of bats. MSc. 100pp. Supervised by Illing, N.


Department of Oceanography

(Including the Nansen-Tutu Centre for Marine Environmental Research and the Research Diving Unit)

HEAD OF DEPARTMENT: PROFESSOR CHRIS REASON

Departmental Profile

The Department of Oceanography is the only such Department in sub-Saharan Africa, and is the major focus for research in physical oceanography, atmospheric science, ocean circulation, and climate in South Africa and elsewhere in Africa. The Department has research groupings in sea-going observations, satellite marine remote sensing, coastal oceanography, ocean and atmospheric modelling, marine and coastal meteorology, severe weather, the science underpinning operational oceanography, and climate variability and change. Six scientists in the Department have been favourably evaluated in the review process of the National Research Foundation. Active international associations are maintained by collaborative projects with the Netherlands, France, Germany, Spain, the UK, Australia, USA and Canada. The Department maintains close contact with marine science activities in the governmental, private and academic sectors in South Africa and into Africa. The UCT Research Diving Unit (RDU) is housed within the Department and is fully equipped with a decompression chamber and compressor. Most scientific diving at UCT is carried out in conjunction with the RDU.

Departmental Statistics

Permanent and Long-term Contract Staff

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<th>Position</th>
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<tr>
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Honorary Staff

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Research Fields and Staff

Permanent Staff

PROFESSOR C.J.C. REASON
Head of Department, Southern Hemisphere climate variability and change, Coastal and mesoscale meteorology, regional oceanography, modelling

PROFESSOR F.A. SHILLINGTON
Shelf oceanography, satellite marine remote sensing

DR I.J. ANSORGE
Senior Lecturer, Southern Ocean

DR H.N. WALDRON
Senior Lecturer, environmental oceanography

DR J. VEITCH
Lecturer; Benguela upwelling system, modelling
DR R. ROMAN
Senior Scientific Officer; satellite marine remote sensing

MR P. TRUTER
Diving Supervisor; ocean diving

ADMINISTRATIVE OFFICER
Mrs C. Khai

RESOURCE CENTRE OFFICER
Mrs N. Jabaar

Contract Research Staff

DR M. ROUault
Ocean-atmosphere interaction

DR BJORN BACKEBERG
Regional ocean modeling, data assimilation

Emeritus Professors

PROFESSOR G.B. BRUNDRIT
Operational oceanography

PROFESSOR J.G. FIELD
Marine Research Institute

Honorary Professors

PROFESSOR L.V. SHANNON
Benguela ecosystem

Honorary Research Associates

DR S. BERNARD
Optical oceanography

DR D. BYRNE
Agulhas Current

DR C. DUNCOMBE RAE
Coastal ocean dynamics

DR J. HERMES
Regional ocean modelling

DR P. MONTEIRO
Environmental oceanography

DR A. MAVUME
Tropical cyclones

DR M.J. KRUG
Agulhas current, remote sensing

DR K. BROWN
Marine ecologist

DR N.C. FAUCHEREAU
Climate Variability

DR K. HUTCHINGS
Fisheries specialist

DR R.W. LESLIE
Fisheries biologist

DR C. RUIZ-SEBASTIAN
Marine ecologist

DR C.J. ROY
Fisheries oceanography, upwelling systems

Postdoctoral Fellows

DR F. DUFOIS
Coastal oceanography

Dr S. Swart
Southern ocean Biogeochemistry

Dr A. Tagliabue
Southern ocean Biogeochemistry

Dr A. Treasure
Ecological modeling, Southern ocean

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E-mail: claire.khai@uct.ac.za
Web: http://www.sea.uct.ac.za
UCT General Enquiries: +27 21 650 9111
UCT web: http://www.uct.ac.za

Research output

Chapters in books

Articles in Peer-reviewed Journals
Backeberg, B., Penven, P. and Rouault, M. 2012. Impact of intensified Indian ocean winds on mesoscale


Le Moigne, F.A.C., Sanders, R.J., Villa-Alfageme, M., Martin, A.P., Pabortsava, K., Planquette, H., Morris, P.J. and


Peer-reviewed published conference proceedings


Doctoral dissertations


Department of Physics

HEAD OF DEPARTMENT: ASSOCIATE PROFESSOR ANDY BUFFLER

Departmental Profile

The Department of Physics is accommodated in the R W James Building, which houses research laboratories equipped for nuclear physics, X-ray stress determination, computational physics and nanoelectronics production. Additional facilities available to the Department are provided within the building by the Electron Microscope Unit (Scanning Electron Microscope and Transmission Electron Microscope), and at iThemba LABS (200 MeV cyclotron, a 5 MeV Van de Graaff accelerator used for ion beam analysis, including a nuclear microprobe, high resolution X-ray diffraction, and PET scanners adapted for positron emission particle tracking).

Major areas of interest include:

1. Experimental nuclear physics at iThemba LABS (D G Aschman, A Buffler, R W Fearick, M R Nchodu): (a) Gamma ray spectroscopy with the AFRODITE array; (b) Giant resonance reactions with the magnetic spectrometer; (c) Fast neutron physics
2. Theoretical Physics (J W A Cleymans, C A Dominguez, W A Horowitz, A Peshier, S M Perez, H W G Weigert, S M Wheaton and R D Viollier): (a) Research within the Centre for Theoretical and Mathematical Physics; (b) Structure of elementary particles; (c) Weak interactions; (d) Quantum Electrodynamics and Chromodynamics in vacuum at extreme temperatures and densities; (e) Renormalization group equations (Color Glass Condensate); (f) Nonlinear effects in QCD at high densities; (g) Phenomenology of heavy ion reactions; (h) Quark gluon plasma; (i) Nuclear structure and models
3. Experimental high energy physics (J W A Cleymans, R W Fearick, A Hamilton): (a) Research within the UCT-CERN Research Centre; (b) Relativistic heavy ion collisions within the ALICE collaboration at CERN; (c) High energy proton-proton collisions within the ATLAS collaboration at CERN
4. Nanophysics and solid state physics (M D Blumenthal, D T Britton, C M Comrie and M Härting): (a) Research within the Nanosciences Innovation Centre; (b) Structural and electrical properties of thin films; (c) X-ray diffraction studies of strain fields and residual stress analysis; (d) Single electron transport and interactions
5. Applied Physics (A Buffler, I Govender, M R Nchodu, S W Peterson, S M Wheaton): (a) Positron Emission Particle Tracking at PEPT Cape Town, iThemba LABS; (b) Particulate flow and interaction characterization in engineering and biological systems by computational and mechanistic modelling; (c) Radiation transport modelling in industrial and medical systems; (d) Applied nuclear physics using neutrons; (e) Geo-neutrino detection (EARTH collaboration)
6. Tertiary physics education (M S Allie, A Buffler and D Taylor): (a) Curriculum design and evaluation; (b) Role of language; (c) Understanding of measurement and uncertainty; (d) Modelling and visualization

Departmental Statistics

Permanent and Long Term Contract Staff

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<td>Part-time Lecturer</td>
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Technical Staff 4
Administrative Staff 4
Departmental & Lab Assistants 4
Total 30

Research Staff

Honorary Professor 1
Emeritus Professor 5
Emeritus Associate Professor 3
Honorary Research Associate 1
Total 10

Students

Doctoral 27
Master's 15
Honours 2
Undergraduate 1540
Total 1584

Staff and Research Fields

Permanent Staff

ASSOCIATE PROFESSOR A BUFLER, HEAD OF DEPARTMENT
Experimental Nuclear Physics, Physics Education

ASSOCIATE PROFESSOR M S ALLIE (CHED)
Physics Education

PROFESSOR D G ASCHMAN
Experimental Nuclear Physics

ASSOCIATE PROFESSOR M D BLUMENTHAL
Solid State Physics

PROFESSOR D T BRITTON
Solid State Physics

ASSOCIATE PROFESSOR R W FEARICK
Experimental Nuclear Physics

DR I GOVENDER
Senior Lecturer; Applied Physics

DR A HAMILTON
Lecturer; Experimental Particle Physics

ASSOCIATE PROFESSOR M HÄRTING
Solid State Physics

DR W A HOROWITZ
Lecturer; Theoretical Particle Physics

MR G LEIGH
Part-time Lecturer

DR M R NCHODU
Lecturer; Experimental Nuclear Physics

PROFESSOR A PESHIER
Theoretical Physics

DR S W PETERSON
Lecturer; Applied Nuclear Physics

MS D TAYLOR (CHED)
Lecturer; Physics Education

ASSOCIATE PROFESSOR H W G WEIGERT
Theoretical Physics

DR S M WHEATON
Senior Lecturer; Computational Physics

Research Staff

EMERITUS PROFESSOR F D BROOKS
Experimental Nuclear Physics

EMERITUS PROFESSOR J W A CLEYMANS
Senior Research Associate, Theoretical Physics

ASSOCIATE PROFESSOR C M COMRIE
Solid State Physics

EMERITUS PROFESSOR C A DOMINGUEZ
Theoretical Particle Physics

PROFESSOR F E LUBBEN, (HRA)
Physics Education

EMERITUS PROFESSOR S M PEREZ
Theoretical Nuclear Physics

EMERITUS ASSOCIATE PROFESSOR P SPARGO
History of Science

EMERITUS PROFESSOR R D VIOLLIER
Theoretical Particle Physics and Astrophysics

Honorary Research Associates

Dr Girma Gonfa, Haramaya University, Ethiopia
Dr Evariste Minani, Kigali Institute of Education, Rwanda
Professor Marcelo Loewe, University of Mainz, Germany
Professor Karl Schilcher, University of Mainz, Germany
Distinguished Visitors

Mr Stephan Gohl, Germany
Professor Herbert Spiesberger, University of Mainz, Germany
Professor Karl Schilcher, University of Mainz, Germany
Dr Shadrack Nsengiyumva, University of Johannesburg, SA
Dr Peter Egelhof, GSI, Germany
Dr Zvi Citron, Weizmann Institute, Israel
Dr Arnaud Ferrari, Uppsala University, Sweden
Professor Sergio Colafrancesco, Wits University, SA
Professor John Wood, Georgia Tech, USA
Dr Shadrack Nsengiyumva, University of Johannesburg, SA
Dr Peter Egelhof, GSI, Germany
Professor Karl Schilcher, University of Mainz, Germany
Mr Stephan Gohl, Germany
Professor Herbert Spiesberger, University of Mainz, Germany
Dr Shadrack Nsengiyumva, University of Johannesburg, SA
Dr Peter Egelhof, GSI, Germany
Dr Zvi Citron, Weizmann Institute, Israel
Dr Arnaud Ferrari, Uppsala University, Sweden
Professor Sergio Colafrancesco, Wits University, SA
Professor John Wood, Georgia Tech, USA
Dr Neven Bilic, Boskovic Institute, Croatia
Professor Kristian Müller-Nedebock, University of Stellenbosch
Dr Danish Azmi, University of Cape Town
Dr Hugo Touchette, Queen Mary, University of London, UK
Professor Ronald Bieniek, Missouri University of Science and Technology, USA
Dr Gyorgy Wolf, KFKI Budapest, Hungary
A. Oga & F. Adam, Greenpeace Africa
Professor David Wolfe, University of New Mexico, US
Professor Ketevi Assamagan, Brookhaven Nat Lab, US
Professor Raju Venugopalan, Brookhaven Nat Lab, US
Mr Chris Powell, UCT & Lawrence Berkeley Nat Lab, US
Professor Gregory Beaucage, Director of NanoPower Africa and University of Cincinnati, USA
Dr Jan Ilavsky, Argonne National Laboratory, USA
Dr Greg Smith, Oak Ridge National Laboratory, USA
Dr Neven Bilic, Rudjer Boskovic Institute
Dr Raju Venugopalan, Brookhaven National Laboratory, USA
Dr Nirmal Weerasekara, JKMERC, University of Queensland, Australia

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Fax: +27 (21) 650-3324
Email: margaret.maich@uct.ac.za
Webpage: www.phy.uct.ac.za

Research output

Articles in Peer-reviewed Journals


Peer-reviewed published conference proceedings


Patents


Department of Statistical Sciences

HEAD OF DEPARTMENT: ASSOCIATE PROFESSOR CHRISTIEN THIART

Departmental Profile

Statistical sciences are defined to include the traditional concepts of statistics as well as allied areas such as operation management research and decision modeling. The department is located academically in both the Faculties of Science and Commerce. Research within the department covers econometrics and financial modeling, biodiversity modelling, mathematical and theoretical statistics, operational research, reliability and geostatistics.
Departmental Statistics

Permanent and long-term contract staff

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Research Fields and Staff

Permanent staff

PROFESSOR GRAHAM BARR
Econometrics and economic forecasting; financial modeling; problem gambling analysis.

PROFESSOR DAVE BRADFIELD
Financial modelling.

PROFESSOR TIM DUNNE
Generalized linear models; statistical methods in education and psychology.

EMERITUS PROFESSOR RENKUAN GUO
Reliability and quality; imprecise spatial analysis.

EMERITUS PROFESSOR LINDA HAINES
Optimal experimental design; extreme value theory; modelling count data; time series.

EMERITUS PROFESSOR THEODOR STEWART
Multicriteria decision analysis and multiobjective optimization; resource allocation and management.

ASSOCIATE PROFESSOR CHRISTIEN THIART
Head of Department; GIS and spatial modeling; mixed linear models.

ASSOCIATE PROFESSOR FRANCESCA LITTLE
Statistical modeling; Biostatistic; longitudinal data analysis; Analysis of Causality; Analysis of time to event.

ASSOCIATE PROFESSOR SUGNET LUBBE
Multivariate statistics; Graphical displays; Biplots.

EMERITUS ASSOCIATE PROFESSOR JUNE JURITZ
Biostatistics, hierarchical generalised mixed models.

DR BIRGIT ERNI
Senior Lecturer; environmetrics; biometrics; generalized linear models; spatial statistics.

DR JUWA NYIRENDA
Senior Lecturer; operations research; management studies; simulation and Heuristics.

DR LEANNE SCOTT
Senior Lecturer; decision analysis; statistical methods in the social sciences and local government; operations research in developing countries.

MR KARL STIELAU
Senior Lecturer; sampling, ecological statistics and probability models.

DR IAN DURBACH
Senior Lecturer; decision analysis; risk and uncertainty.

DR FREEDOM GUMEDZE
Senior Lecturer; biostatistics; mixed linear models; longitudinal data analysis; survival analysis.

DR MELVIN VARUGHESE
Senior Lecturer; ecological modelling, statistical analysis of cosmological data; diffusion processes.

MR ALLAN CLARK
Lecturer; Bayesian analysis; Extreme value theory; Econometric modelling

MR GREG DISTILLER
Lecturer; biostatistics; statistical ecology.

DR MIGUEL LACERDA
Lecturer; bioinformatics; stochastic processes.

MS SHEETAL SILAL
Lecturer; Mathematical modeling of infectious disease; public health.

MR DOMINIQUE KATSUNGA
Lecturer; Professional teacher; multivariate analysis; financial modelling.
MS Hannah Kroon
Lecturer; Professional teacher.

Contact Details
Postal address: Department of Statistical Sciences,
University of Cape Town, Private Bag X3, Rondebosch, 7701
Telephone: +27 21 650 3219
Fax: +27 21 650 4773
Web: http://www.uct.ac.za/depts/stats/
UCT General enquiries: +27 21 650 9111
UCT web: http://www.uct.ac.za

Research output

Articles in Peer-reviewed Journals


Master’s degrees (by research)

Anyogu, A. 2012. The use of problem structuring methods to explore the functioning and management of a selected NGO. Master’s. Supervised by Scott, L.

Cecchini, L. 2012. Robben Island penguin pressure model: A decision support tool for an ecosystems approach to fisheries management. Master’s. Supervised by Scott, L.

Gavine, L. 2012. The use of environmental damage schedules and conjoint analysis in environmental valuation and decision making. Master’s. Supervised by Stewart, T.


Department of Zoology

( Including the FitzPatrick Institute, DST/NRF Centre of Excellence, the Marine Research Institute and the Animal Demography Unit)

HEAD OF DEPARTMENT: PROFESSOR ANUSUYA CHINSAMY-TURAN

Department Profile

The Zoology Department houses the Marine Biology Research Centre (MBRC), the Percy FitzPatrick Institute, DST/NRF Centre of Excellence (PFIAO); the Freshwater Research Unit (FRU) and the Animal Demography Unit (ADU). Other smaller cogent groups co-ordinate research on mammals, palaeobiology, entomology and physiology. The Department hosts South African Research Chairs in Evolution and Systematics and in Marine Ecology and Fisheries. The Department has a large postgraduate school of some 173 master’s and doctoral students and a significant portion of the research publications produced by UCT originate from Zoology.

Research interests of the MBRC include fisheries and coastal zone management, rocky shore ecology, seaweed and invertebrate biodiversity and systematics, the biology of the Benguela upwelling ecosystem, and biogeochemical cycles of the ocean, particularly of carbon and nitrogen, and how such cycles may be impacted by climate change. The PFIAO remains primarily involved in avian research, coupled with a strong emphasis on conservation biology. Research in the FRU focuses on the ecology of freshwater ecosystems, and on the conservation and management of rivers and wetlands. The Animal Demography Unit focuses on statistical ecology, with two strands of activities: a series of monitoring projects for birds, butterflies and reptiles, and a cohort of postgraduate students with statistics-rich research projects relating to various aspects of population dynamics. Other research in the department is centred around: the behaviour, ecology, physiology, systematics and evolutionary biology of a variety of small mammals (molerats, golden moles, rodents, bats), seals and primates; palaeobiology and osteohistology, including factors that affect bone depositional rates in modern birds and reptiles and the biological signals recorded in fossil bones of non-mammalian therapsids, mammals, dinosaurs and other archosaurs; the systematics and biogeography of insects and insect ecology in arid ecosystems; biological control, especially the use of herbivorous insects to curb the seeding capacity and invasiveness of problematic Australian acacia species; and physiological studies on...
how small peptide hormones produced in nerve cells regulate energy metabolism, growth, development and reproduction in insects and crustaceans and how astaxanthin and chitin can be used in an economically viable way to deal with so-called waste products of the rock lobster industry.

Departmental Statistics

Permanent and Long-term Contract Staff

<table>
<thead>
<tr>
<th>Position</th>
<th>Number</th>
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<tbody>
<tr>
<td>Professors</td>
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<td>Associate Professors</td>
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<td>Research Staff</td>
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<td>Library Manager</td>
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Honorary Staff

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Students

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</tbody>
</table>

Research Fields and Staff

Permanent Academic Staff

PROFESSOR ANUSUYA CHINSAMY-TURAN
Head of Department. Palaeobiologist. Undertakes comparative bone and teeth histology of extant and extinct vertebrates (such as dinosaurs, Mesozoic birds, pterosaurs, nonmammalian therapsids, as well as, more recent Pliocene vertebrates).

ASSOCIATE PROFESSOR COLIN ATTWOOD
Marine protected areas; line fish population ecology.

DR JACQUI BISHOP
Lecturer. Evolutionary biology and conservation genetics.

DR GARY BRONNER
Senior Lecturer; systematics, ecology and conservation biology of African small mammals, with emphasis on endemic and threatened golden moles; Scientific Editor: African Zoology

PROFESSOR CHARLES GRIFFITHS
Director of the Marine Biology Research Centre; aquatic invasive alien species; biodiversity and endemicity patterns of African marine fauna; coastal marine ecology; amphipod taxonomy

ASSOCIATE PROFESSOR JOHN HOFFMANN
Integrating biological control into the management of alien invasive weeds in South Africa

ASSOCIATE PROFESSOR DAVID JACOBS
DST & NRF Research Chair in Animal Evolution and Systematics. Evolutionary biology; behavioural ecology, systematics and evolutionary development; bats and other mammals

ASSOCIATE PROFESSOR ASTRID JANNE
DST & NRF Research Chair in Marine Ecology & Fisheries. Ecosystem modeling: ecosystem approach to fisheries management, collaboration between social and natural scientists

ASSOCIATE PROFESSOR MIKE LUCAS
Honorary Research Fellowship, National Oceanography Centre, Southampton, UK. UCT: biological oceanography; biogeochemical cycling; phytoplankton dynamics, carbon/nitrogen cycling and climate change. Research in the Benguela upwelling, North and South Atlantic and Southern Ocean ecosystems. South African Surface Ocean Lower Atmosphere Study (SOLAS) SSC

DR HEATHER MARCO
Lecturer; Neuropeptide purification/biochemistry; crustacean neuroendocrinology & physiology; insect neuroendocrinology; Convenor of second year Form and function (Ecophysiology) course. Alexander von Humboldt Foundation Research Fellow

ASSOCIATE PROFESSOR COLEEN MOLONEY
Plankton ecology; ecosystem dynamics; fisheries ecology; ecological modelling.
ASSOCIATE PROFESSOR JUSTIN O’RIAIN
Social mammals; behavioural ecology; vertebrate reproduction

ASSOCIATE PROFESSOR MIKE PICKER
Insect ecology; insect biodiversity

DR DEENA PILLAY
Lecturer; estuarine ecology; rocky-shore ecology; benthic ecology, biological interactions

DR CECILE C. REED
Lecturer; Aquatic Parasitology, freshwater ecology and conservation

PROFESSOR LES UNDERHILL
Director Animal Demography Unit. Interfaces statistics and biology, in applications of statistics in the biological sciences, particularly ornithology and ecology

PROFESSOR GRAEME CUMMING
Chair of Conservation Biology. Landscape ecology, conservation biology, community ecology, resilience and complex systems theory

PROFESSOR TIM CROWE
Evolution; systematics; gamebird management; sustainable utilization of wildlife

PROFESSOR PHIL HOCKEY
Director, Percy Fitzpatrick Institute of African Ornithology. Avian evolutionary biology; shorebirds; migration; community ecology; behaviour; ecology of rarity

ASSOCIATE PROFESSOR PETER RYAN
Seabird-fishery interactions; avian evolutionary biology; marine pollution; behavioural ecology; island conservation

DR ARJUN AMAR
Raptor research, Rarity & conservation of African birds

Liesl Phigeland – Senior Scientific Officer
Andrea Plos – Principal Technical Officer
Hilary Buchanan – Administrative Assistant
Anthea Links – Departmental Assistant
F A C Impson – Scientific Officer
C A Kleijnan – Scientific Officer
V C Moran – Scientific Officer
R A NAVARRO – SCIENTIFIC OFFICER
Chris Tobler – Principal Technical Officer

Contract Research Staff

MR DOUG HAREBOTTLE
SABAP2 Project Manager. Movement data for waterbirds in the African Eurasian flyway.

MS FIONA IMPSON
Development of insect agents for biological control of alien invasive plants.

MS CARIEN KLEINJAN
Evaluation of insect agents used for biological control of alien invasive plants.

DR HEATHER MALAN
Aquatic pollution; water quality; wetlands, sustainable urban drainage.

DR DIETER OSCHADLEUS
SAFRING Project Coordinator. African Weaver birds

MRS DONELLA YOUNG
CAR Project Coordinator. Coordinated Avifaunal Roadcounts; Long term monitoring of large terrestrial birds in agricultural landscapes

MRS GILLY SMITH
MBRC Research Officer

MR OSCAR FRANK NOELS

MR MICHAEL BROOKS

MRS MARJA THEA WREN-SARGENT

RENE ALDREDO NAVARRO

SUSAN KUYPER

MR JACOBUS JAN CLAASEN

MS SHAAMIELAH DAVIDS

MR EMLYN RHYS

Technical and Administrative Support Staff

George du Plessis – Chief Technical Officer
Granville Faulmann – Workshop/Departmental Assistant
Phelisa Hans – Niven Library Assistant
Tania Celest Jansen – PFIAO CoE Senior Secretary
Natalie Jodamus – SAP Administrator
Margaret Koopman – Niven Library Manager
Shanaaz Manie – Administrative Officer
Meg Ledeboer – Administrative Officer
Petra Muller – Chief Technical Officer
Jo-Wayne Palmer – Senior Secretary
Soraya Abrahams – Senior Secretary

Faculty of Science
Emeritus Professors

EMERITUS PROFESSOR GEORGE BRANCH
Rocky-shore ecology; estuarine and lagoonal ecology; invertebrate fisheries management; fisheries policy; subsistence fisheries; impacts of diamond-mining; coastal ecology

EMERITUS PROFESSOR GERD GÄDE
Invertebrates; isolation and characterization of neuropeptides; intermediary metabolism; anaerobic metabolism; insect flight and its control by hormones; mode of action of invertebrate neuropeptide hormones; phylogeny; confirmation of expression of genome predicted neuropeptides by mass spectrometric methods; spectrometric methods; cloning of neuropeptide precursors and their cognate receptors

EMERITUS PROFESSOR JOHN FIELD
Director Marine Research Institute

EMERITUS PROFESSOR W R SIEGFRIED
Former Director of the Percy FitzPatrick Institute

EMERITUS ASSOCIATE PROFESSOR BRYAN DAVIES
River ecology; ecosystem processes; ecological effects of dams and rivers; wetland ecology

EMERITUS ASSOCIATE PROFESSOR JENNY DAY
Director of the Freshwater Research Unit; freshwater ecology; bioassessment; crustaceans; wetlands, particularly temporary and saline waters; conservation and management of inland water ecosystems; water chemistry and water quality

EMERITUS ASSOCIATE PROFESSOR JENNIFER JARVIS
Small and subterranean mammal ecophysiology and ethology

Honorary Professors

PROFESSOR DAVID CUMMINGS
Influence of land use policy and practice on biodiversity and resilience in social-ecological systems

PROFESSOR LARRY HUTCHINGS
Marine fisheries

PROFESSOR R J M CRAWFORD
Animal Demography Unit

Honorary research associates

DR RES ALTWEGG
Statistical ecology

DR LARA ATKINSON

DR PAUL BARHAM
Penguin survival

DR R BARLOW

DR BARRY CLARK

DR ROB CRAWFORD
Ecosystem approach to fisheries (as it relates to seabirds) and the conservation and suitable utilization of South Africa’s seabirds

DR A COCKROFT

DR MARIENNE DE VILLIERS
SARCA Project Manager. Diversity and distribution of reptiles in South Africa, Lesotho and Swaziland.

DR DEON DURHOLTZ
Fish ageing, squid ageing, fisheries management

DR D Y GHEBREHWET

DR DAVID GRÉMILLET
Visiting Research Associate. Functional ecology of marine birds. Ecophysiology of marine birds facing global change; functional and evolutionary ecology; avian energetic; biotelemetry; impact of marine fisheries; polar ecosystems; Benguela upwelling ecosystem.

DR H J HAWKINS

DR JENNY HUGGETT

DR ALAN KEMP
Natural history, behavioral ecology and systematics of birds, especially hornbills, and diurnal and nocturnal raptors
DR SVEN KERWATH

DR R W LESLIE

EMERITUS PROFESSOR CLIFF MORAN

DR B PATERSON

DR GRANT PITCHER

DR JEAN-PAUL ROUX

Benguela system

DR T SAMAAI

DR CARL VAN DER LINGEN

Pelagic fish, fish feeding ecology, pelagic fisheries management

DR H VERHEYE

DR ROSS WANLESS

Seabird conservation; island restoration; invasive alien species; mitigation measures for avoiding seabird bycatch in fisheries; population biology and demography for conservation; seabird and insular ecology, remote tracking of seabirds at sea, marine protected areas and marine Important Bird Areas; genetics, taxonomy and conservation of the Aldabra Rail; conservation and ecological applications of stable light isotopes

DR INGRID WIESEL

DR TONY WILLIAMS

Seabird biology and conservation; the status and distribution of seabirds in Latin America; synanthropic ecology

DR P BARNARD

Birds & Environmental Change Partnership Programme, South African National Biodiversity Institute

DR A R RIDLEY

Cooperative Breeding and Sociality in Birds (including the Pied Babbler Research Project)

DR R SIMMONS

Raptor Research, Life History Strategies, Seabird Research, Climate Change Vulnerability and Adaptation

DR R M WANLESS

Seabird Conservation

DR J P ROUX

DR I WIESEL

DR A J WILLIAMS

Postdoctoral Fellows

DR LAURA BLAMEY

Coastal and fisheries ecology

DR FLORENT BLED

Dynamic macroecology in conservation

DR RUTLEDGE BOYES

Rarity and Conservation of African parrots

DR T R COOK

Seabird Research

DR AURORE CANOVILLE

Palaeobiology of early tetrapods

DR SUSAN CUNNINGHAM

Sub-lethal Effects of Climate Change on Desert Birds

DR FITSUM GEBRESELEASSIE

Integrated population modelling

DR KATRIN LUDYNIA

Namibian seabirds in the Benguela System

DR ROWAN MARTIN

Parrot biology and conservation

DR ANGELA MEAD

Marine biodiversity

DR HILKKA NDJALUA

Modeling marine fisheries

DR GRAEME OATLEY

Phylogenetics and biogeography of the African white-eyes

DR LORIEN PICHGREU

Marine Protected Areas for seabird foraging effort

DR TIMOTHY REID

Island Conservation & Seabird Research

DR RICHARD SHERLEY

Seabird biology
Factors influencing the ecology of the African Penguin

Animal behaviour

Assessment of Fish Stocks

Spatial resilience of protected areas

Behavioural ecology

Wetlands (delineation, functional assessment and rating, mitigation, law and policy), land-use and zoning review, analysis of aerial photography, GIS and mapping. Assessment and classification of streams

Testing, use and development of ‘tools’ for the assessment of freshwater ecosystems. Management of water resources, and the incorporation of ecological assessment in Environmental Impact Assessment (EIA)

Cooperative Breeding & Sociality in Birds (Sociable Weaver Research Project)

Project Manager, DST/NRF at the Percy FitzPatrick Institute, University of Pretoria
DR A MILEWSKI
Interactions between plants and megaherbivores

DR M PINEIRO DE MELO
Systematics and Biogeography

DR P PISTORIUS
Project Manager, DST/NRF at the Percy FitzPatrick Institute, NMMU

DR C O’RYAN

DR L ROXBURGH
Rarity and Conservation of African Birds

DR C SPOTTISWOODE

Contact details
Tel: +27 21 650 3603/4
Fax: +27 21 650 3301
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Web: www.zoology.uct.ac.za
UCT General Enquiries: +27 21 650 9111
UCT web: http://www.uct.ac.za

Research output

Edited books

Chapters in books


Articles in Peer-reviewed Journals


Gade, G. and Marco, H. 2012. The adipokinetic hormone (AKH) of one of the most basal orders of Pterygota: structure and function of Ephemeroptera AKH. Journal of Insect Physiology, 58: 1390-1396.


Peer-reviewed published conference proceedings


Doctoral dissertations

Barquete, V. 2012. Using stable isotopes as a tool to understand the trophic relationships and movements of seabirds off southern Africa. 184pp. Supervised by Ryan, P.G.


**Master’s degrees (by research)**

Brito, D. 2012. Evolution of the ZRS and the regulation of SHH expression in the forelimbs of bats. MSc. 100pp. Supervised by Illing, N.

Research output from the Commerce faculty has been rising steadily for several years, but plateaued in 2011 by comparison with 2010. The 2012 results show this to have been a pause for breadth. In 2012, the faculty produced a third more peer-reviewed, accredited journal articles than in any previous year, and our overall total of accredited units nearly doubled. By a number of measures, Commerce is the fastest growing hub of research at UCT, albeit from a comparatively low base, historically.

The faculty is undergoing rapid organisation into a structure of ‘wall to wall’ research units, each led by one or more senior scholars and including mid-career and junior academics, postgraduate students, and postdoctoral fellows. Three new units were accredited by the University Research Committee in 2012 for a provisional three-year period. First, the School of Economics added Policy Research in International Services and Manufacturing (PRISM) to its existing strong suite of units. Professor Mike Morris is PRISM’s founding director. Second, the Applied Management section of the School of Management Studies hosts the new UCT Tourism and Events Research Unit, directed by Dr Richard George. Third, the African Collaboration for Quantitative Finance and Risk Research (ACQuFRR) is jointly hosted by the Actuarial Science section and the Department of Finance and Tax. Associate Professor David Taylor serves as its founding director.

ACQuFRR merits special attention as the first piece of a larger enterprise that constitutes one of the faculty’s three strategic priorities. It will serve as the research wing of the larger planned African Institute for Financial Markets and Risk Management (AIFMRM), now in the final stages of planning. To be sponsored in its operations and governance by a consortium of South African financial institutions, AIFMRM will partner with the Risk Management Institute of Georgia State University to create capacity in quantitative finance and risk modelling on a level that has not previously been approached on the African continent.

AIFMRM will constitute the second major structural addition to postgraduate training in the Commerce Faculty. Ahead of it is the Graduate School for Development Policy and Practice (GSDPP), which will enjoy its first official year of operation in 2013, under the administration of founding director, Professor Alan Hirsch. Professor Hirsch rejoins UCT after several years of service as the senior economic policy advisor in the Office of the Presidency. The GSDPP has already made its presence felt in the country and the continent through a series of highly successful workshops and short courses on policy implementation for senior civil servants and municipal administrators from across Africa. In 2014, it will receive its first cohort of executive master’s students, with a full-time master’s programme to follow thereafter.

The past year has been a milestone in the growth of the faculty’s corps of NRF-rated researchers. Before 2013, there had never been an A-rated commerce researcher in South Africa. Now the Commerce faculty hosts the first two. In addition, three Commerce researchers received new B ratings, two received new C ratings, and one
The faculty’s overall number of A and B-rated researchers doubled in the last year.

A significant percentage of the research in the Commerce faculty is directly related to the economic development of South Africa and Africa. Government and international development agencies and foundations continue to be our overwhelmingly largest source of research support. Significantly stronger involvement is urgently needed from the main engine of economic growth and capacity development, the private sector. There is near unanimity among economists that an essential piece of the foundational institutional nexus for sustained ‘tiger’ – or ‘lion’ – rates of national growth are strong academic research hubs that work in close contact with innovative firms. UCT’s Commerce faculty is among the very few parts of South Africa’s tertiary education infrastructure that can realistically aspire to be the centre of such a hub in the short to medium term.

This requires persuading far more young South Africans to become involved in research beyond the level of the first degree than is currently happening. In particular, we need more such participation from members of formerly disadvantaged groups. Reduction of South Africa’s world-leading level of inequality absolutely depends on the success of this kind of transformation. UCT’s Commerce faculty has the capacity to make game-changing contributions to the country and the continent, but only if corporate leaders join us in setting and overseeing the research agenda. Businesses urgently need to foster an atmosphere of excitement around commercial research among young people. Our network of research partnerships with companies has been growing dramatically, from an almost non-existent base, but the scope for expansion in this area is effectively limitless.

The epicentre of research output in the Commerce faculty in 2012 remained our Africa-leading School of Economics (SoE). The Southern African Labour and Development Research Unit nurtures our two largest research enterprises, the National Income Dynamics Study and our activity as African host of the world-renowned Jameel Lateef Poverty Action Laboratory, based at the Massachusetts Institute of Technology. The SoE also hosts five other strong research units listed in this report. The Research Unit for Behavioural Economics and Neuroeconomics hosted its second annual workshop in experimental econometrics for researchers from across Africa, whose travel and accommodation was sponsored by UCT. The research of the Development Policy Research Unit (DPRU) into minimum wages yielded a series of publications in 2012, receiving significant public attention during the violent labour conflict that disrupted the country’s valuable deciduous fruit harvest in early 2013. The DPRU’s partnership with the Africa Growth Initiative at the Brookings Institution in Washington DC has also been highly successful.

The culture of world-class research is by no means confined to Economics, and now dominates all parts of the faculty. The highest per capita rate of publication is in the Marketing section of the School of Management Studies. This is a remarkable achievement, given that our Marketing academics also carry the faculty’s highest teaching loads. The UCT Unilever Institute of Strategic Marketing is the leading critical source of empirical research and marketing intelligence for South African companies. In the Department of Information Systems, the Centre for Information Technology and National Development in Africa (CITANDA), working especially closely with its new corporate partner, Samsung, leads development of customised mobile technology applications for businesses and households in the region.

Academics in the Department of Finance and Tax, which was launched at the beginning of 2012 are participating in two collaborative research projects, on international taxation with European institutions. Staff in the College of Accounting are involved in a number of research projects, including small business development and the SA Global Entrepreneurship Monitor project, and have collaborated with the South African Revenue Service and the National Energy Regulator of South Africa. Academics in the College worked with International Financial Reporting Standards (IFRS) subject experts from Ernst & Young’s EMEIA region (Europe, Middle East, India and Africa) to develop a dataset of questions designed to determine how IFRS is applied globally. In Actuarial Science, the Centre for Actuarial Research (CARE) led a multiyear project, funded by the United Nations Population Fund to update, and rewrite a major manual on demographic estimation from limited and defective data. Demographers at CARE also played a publicly prominent role in the evaluation,
analysis, and assessment of the 2011 South African census. The Organisational Psychology section’s Institute for Monitoring and Evaluation remains the preferred provider for public sector and non-governmental clients.

The research profile of the Graduate School of Business also continued to grow. Highlights included the 2012 international conference on the Business of Social and Environmental Innovation, which had as its theme, *Informal Sector Entrepreneurship and Social Entrepreneurship*. The conference was supported by the Bertha Centre for Social Innovation and Entrepreneurship and by TrustAfrica, which sponsored the travel and accommodation costs of a number of African delegates. The number of NRF-rated researchers in the school is currently eight, which represents a 300 percent increase over two years.

The research achievements of the Commerce faculty during 2012 have been notable, and the above represents only a fraction of these. The other achievements are, however, also both valued and recognised. The role of the faculty in producing business knowledge for Africa, integrated into the global context through an expanding range of international collaborations, is in a phase of exponential growth. We warmly encourage corporate partners and new postgraduate students to join this hub of excitement.
DOCTORAL GRADUATIONS

S.O. ADEWARA (ECONOMICS)
Provision of public goods and health outcomes during political transition in Nigeria
Supervised by Associate Professor M. Visser and Professor D. McIntyre

N. ASSAF (ACCOUNTING)
Longitudinal study of the relationship between board attributes and firms’ performance in South Africa
Supervised by Professor E. Uliana

J.E.O. ATAGUBA (ECONOMICS)
Distributional impact of health care finance in South Africa
Supervised by Associate Professor I. Woolard

F. BANKOLE (INFORMATION SYSTEMS)
The impacts of ICT infrastructure on national development: a multi-method investigation involving data mining and data envelopment analysis
Supervised by Professor I. Brown and Professor K. Osei-Bryson

F. BASARDIEN (GRADUATE SCHOOL OF BUSINESS)
The impact of action strategies on entrepreneurial success of emerging entrepreneurs in the Western Cape
Supervised by Dr H. Parker

W. BRAFU INSAINDOO (GRADUATE SCHOOL OF BUSINESS)
Determinants and macro-volatility impact of international capital flows in selected sub-Saharan Africa countries
Supervised by Professor N. Biekpe

Z. BREY (GRADUATE SCHOOL OF BUSINESS)
Towards building a theory of lean implementation in healthcare: Understanding the enablers and inhibitors of success
Supervised by Professor N.H.B. Faull

B.A. DELCARMEM (INFORMATION SYSTEMS)
The development and institutionalisation of an integrated healthcare waste information system
Supervised by Professor I. Brown

T. ESEMU (GRADUATE SCHOOL OF BUSINESS)
Innovation and value creation in the fish and cut-flower export sectors in Uganda
Supervised by Associate Professor E. Wood

J. FESSEHAIE (ECONOMICS)
The dynamics of Zambia’s copper value chain
Supervised by Professor M. Morris

S.J. GOSSEL (GRADUATE SCHOOL OF BUSINESS)
A macroeconomic analysis of South Africa’s post-liberalisation capital inflow components
Supervised by Professor N. Biekpe

P.E. GREBE (ECONOMICS)
Civil society leadership in the struggle for AIDS treatment in South Africa and Uganda
Supervised by Professor N. Nattrass

S. HOVE (ECONOMICS)
Essays on monetary policy, institutions and terms of trade shocks in emerging market economies
Supervised by Dr A. Touna Mama

F.M. HOVE (ECONOMICS)
HIV prevalence estimates and their use in regression models: cautionary evidence from Zimbabwe and studies of the relationship between armed conflict and HIV
Supervised by Professor N. Nattrass

G.J.P. HUMAN (MANAGEMENT STUDIES)
Competencies, capabilities, and relational factors in buyer-supplier business-to-business networks
Supervised by Professor J. Simpson

J.-M. JAQUET (GRADUATE SCHOOL OF BUSINESS)
A non-linear approach to modelling motivation in the workplace using artificial neural networks
Supervised by Professor W. Baets

V. KATOMA (GRADUATE SCHOOL OF BUSINESS)
A framework for discretionary effort based on performance expectancies in an integrated work environment
Supervised by Professor K. April

G. MUTASA (ECONOMICS)
Disability grant and labour supply in South Africa
Supervised by Associate Professor I. Woolard

T. NGWARU (ECONOMICS)
Gender, poverty and intimate partner violence in Southern Africa
Supervised by Professor N. Nattrass

M.M. PHEKO (MANAGEMENT STUDIES)
Predictors of sensitivity toward being the target of upward comparison (STTUC): a study of female employees in Botswana
Supervised by Associate Professor A. Schlechter

C.D. REDDY (GRADUATE SCHOOL OF BUSINESS)
Entrepreneurship, institutions, and economic development: a configurational approach
Supervised by Associate Professor R. Hamann and Professor B. Urban
L. REED (ECONOMICS)
The changing dynamics of the South African clothing value chain and the role for industrial policy: a case study of the China quotas
Supervised by Professor M. Morris

M. F. SCHMIDT (ECONOMICS)
Poverty reduction with high inequality and growth: evidence from post-independence Namibia
Supervised by Professor M. Leibbrandt and Associate Professor I. Woolard

E. SCOTT (INFORMATION SYSTEMS)
Towards coherent practice in capstone courses for IS majors
Supervised by Associate Professor K. Sewchurran

T. TOSSY (INFORMATION SYSTEMS)
Cultivating recognition: a classic grounded theory of e-learning providers working in East Africa
Supervised by Professor I. Brown

H. WEIMANN (INFORMATION SYSTEMS)
An organisational framework for the use of web-based tools in “virtual” project teams
Supervised by Professor I. Brown

RESEARCH CONTRACTS
136
VALUE OF RESEARCH CONTRACTS
R83.36 million
NRF-RATED RESEARCHERS
28
SARCHI RESEARCH CHAIRS
2
ACCREDITED RESEARCH GROUPINGS
10
DOCTORAL GRADUATIONS
26
DHET-ACCREDITED JOURNALS
56.56 units
PEER-REVIEWED PUBLICATIONS
278
POSTGRADUATE STUDENTS
724
POSTGRADUATE FUNDING
R9.5 million
POSTDOCTORAL RESEARCH FELLOWS
8
POSTDOCTORAL RESEARCH FUNDING
R1.8 million
College of Accounting

HEAD OF DEPARTMENT: ASSOCIATE PROFESSOR MARK GRAHAM

College Profile

Research in the College of Accounting is carried out in five broad areas, namely auditing, financial accounting, financial management, management accounting and taxation. The research effort is conducted on three general levels: applied research related directly to professional practice; applied research of a more general nature; and pure research on the broader frontiers of the discipline. In addition, research is carried out on the educational aspects of accountancy. The research is carried out by the staff members and postgraduate students.

College Statistics

Permanent and Long-term Contract Staff

| Professors | 3 |
| Associate Professors | 4 |
| Senior Lecturers | 8 |
| Lecturers | 5 |
| Administrative and Clerical Staff | 10 |
| Total | 30 |

Students

| Postgraduate Diplomas | 341 |
| Undergraduate | 2786 |
| Total | 3127 |

Research Fields and Staff

Permanent Staff

ASSOCIATE PROFESSOR PETER BOURNE
Auditing; corporate governance; company law.

MS CAROL CAIRNEY
Activity based costing/management.

MR R. CARPENTER
South African income tax; capital gains tax; international tax; trust and estate duty.

PROFESSOR CARLOS CORREIA
Capital budgeting; cost of capital; valuations.

MR PETER CRAMER
Cost of capital and capital gains tax.

PROFESSOR GEOFF EVERINGHAM
Financial reporting; International Financial Reporting Standards (IFRS); corporate governance.

ASSOCIATE PROFESSOR MARK GRAHAM
International Financial Reporting Standards (IFRS); financial analysis; corporate reporting.

MRS SHELLY HERBERT
International Financial Reporting Standards (IFRS); financial analysis; corporate reporting.

MS JACQUI KEW
Accounting education; financial literacy and entrepreneurship.

MS I. LUBBE

MR DONALD MACDONALD
Accounting Education; Financial Literacy

MR PAUL MAUGHAN
Social Accounting; accounting education; financial analysis.

MRS TARYN MILLER

ASSOCIATE PROFESSOR TESSA MINTER
Information risk management and financial systems and controls and the teaching thereof; Corporate Governance and the education/teaching thereof.

MR GOOLAM MODACK

MR SHAUN PARSONS
South African income tax; capital gains tax; financial instruments, banking and the taxation thereof.

PROFESSOR ALEX WATSON

MS GIZELLE WILLOWS
International Financial Reporting Standards (IFRS); Financial Analysis; Behavioural Finance

MR JAMES WINFIELD
Accounting education; business and professional ethics; foundation of accounting.
ASSOCIATE PROFESSOR MICHAEL WORMALD
Corporate capital structures and financial policy.

Contact Details
Postal Address: College of Accounting, University of Cape Town, Private Bag X3, Rondebosch, 7701
Telephone: +27 21 650 2269/2257
Fax: +27 21 689 7582
E-mail: mark.graham@uct.ac.za
Website: http://www.commerce.uct.ac.za/accounting

Research output
Authored books


Articles in Peer-reviewed Journals


Peer-reviewed published conference proceedings


School of Economics

DIRECTOR: ASSOCIATE PROFESSOR CORNE VAN WALBEEK

Departmental Profile

The School of Economics is located in two faculties, namely the Faculty of Commerce (which is also its administrative home) and the Faculty of Humanities. In March 2011, the School of Economics moved into a newly-constructed building on Middle Campus. The new infrastructure provides a good working environment for staff and helps the School in attracting good students and eminent academics from around the world. The School has 64 permanent and long-term contract staff. In 2013, Associate Professor Edwin Muchapondwa is set to direct the School of Economics.

The School has more than 3000 undergraduate students. In 2012, the School had 188 newly registered Honours students (67 in Economics and 121 in Financial Management and Portfolio Management), 56 registered master’s students, and 62 registered PhD students.

Since 2003, the School offers two PhD programmes. In addition to the traditional PhD by thesis programme, the School also has a coursework-and-thesis based PhD programme which is offered in collaboration with seven other universities on the African continent. The four-year collaborative PhD programme consists of 18-24 months of core and applied coursework, followed by a standard dissertation. Between 2003 and 2012 this programme has attracted 72 students, nearly all from African countries.

Since inception of the collaborative programme in 2003, a substantial number of PhD students in this programme have been funded by the African Economic Research Consortium (AERC). The AERC has typically funded about 11 students per year since 2011, up from 3-5 students per year before then. Furthermore, Carnegie Corporation provided one-year scholarships to another 12 PhD students in 2012. The scholarships from Carnegie Corporation are also tenable for students in the traditional PhD by thesis programme. The growth in the PhD enrolment means that the School can expect a sharp increase in PhD graduates in three or four years’ time. In 2012, the School graduated a total of 10 PhD students.

Current research activity, with an emphasis on policy related research, is spread across a number of fields, including development economics; international economics; international finance; financial theory; growth theory and empirics; labour economics; poverty and inequality; health economics; education; environmental and resource economics; and political economy.

The School of Economics hosts six research units which are led by its academic staff but also recruit other research staff. These are the Aids and Society Research Unit (ASRU), the Development Policy Research Unit (DPRU), the Environmental-Economics Policy Research Unit (EPRU), Policy Research on International Services and Manufacturing (PRISIM), Research Unit in Behavioural Economics and Neuroeconomics (RUBEN) and the Southern Africa Labour and Development Research Unit (SALDRU).

Aids and Society Research Unit (ASRU)

ASRU is an inter-disciplinary unit that conducts quantitative and qualitative social science research on various aspects of AIDS policy and the socio-economic dimensions of living with HIV. Recent research by students and researchers in ASRU has focussed on the socio-economic determinants of HIV infection, medical male circumcision, AIDS conspiracy beliefs (and how they are contested), sexual behaviour, the international AIDS response (including millennium development goal 6), HIV and reproductive rights, HIV and gender, the modelling of HIV in Southern Africa, the effect of antiretroviral treatment on labour market behaviour and household composition. ASRU continues to engage with community organisations and NGOs outside of the university. ASRU is directed by Professor Nicoli Nattrass.

Environmental-Economics Policy Research Unit (EPRU)

The Environmental-Economics Policy Research Unit (EPRU) is a research group which seeks to enhance environmental policy-making in South Africa through rigorous policy research and extension in order to attain sustainable development and poverty reduction. EPRU is funded by the Swedish International Development Cooperation Agency (SIDA) through the Environment for Development (EfD) Initiative managed by the Environmental Economics Unit (EEU) at Goteborg University. The EfD consists of 6 environmental economics research centers in developing countries (Costa Rica, China, Ethiopia, Kenya, South Africa and Tanzania), the EEU and Resources for the Future in Washington DC, US. The EfD Initiative provides EPRU with a rich network of highly skilled academics trained in environmental economics to draw on.

The existing focus of EPRU’s research projects are in the following areas: biodiversity and ecosystems management; responses to climate risk; distributional consequences of climate policy; poverty, service delivery and local environmental quality; community based resource
management; fisheries; behavioural aspects of natural resource management including risk preferences and cooperative behavior.

In 2012, EPRU was coordinated by Mare Sarr (Director) and Jane Turpie (Research Convener). In addition, EPRU has four senior research fellows (Anthony Black, Martine Visser, Edwin Muchapondwa and Mare Sarr); seven junior research fellows (Kerri Brick, Reviva Hasson, Sunday Adewara, Byela Tibesigwa, Grant Smith, Sue Snyman and Coretha Komba); an administration officer (Libbi Downes) and four domestic research associates (Stephanie Giamporcaro, Precious Zikhali, Harald Winkler and Andrew Marquard). A number of PhD and master’s students are also being funded and supervised by EPRU. In 2013, Anthony Leiman is set to direct EPRU.

EPRU’s research fellows are actively involved in teaching Environment and Natural Resource Economics, both within the School of Economics and in the broader university. Our research fellows have been particularly prolific with a publication record of 16 papers in reputable international and local journals, 4 discussion papers and a book chapter.

EPRU has collaborated with a number of local and national stakeholders on medium-size projects; these collaborators include South African National Parks in the wildlife sector, The Department of Water Affairs and Forestry in the water sector, The Department of Environmental Affairs and Tourism on marine and coastal management, The Department of Agriculture, Forestry and Fisheries, and the City of Cape Town on air quality management and energy savings. Increasingly the unit’s efforts are being channelled into research outputs accessible to policy makers.

Southern Africa Labour and Development Research Unit (SALDRU)

The Southern Africa Labour and Development Research Unit (SALDRU) carries out research in applied empirical microeconomics with an emphasis on labour markets, human capital, poverty, inequality and social policy. SALDRU is governed by an executive committee. It strives for academic excellence and policy relevance.

SALDRU was founded in 1975 and, in the apartheid years, conducted a number of surveys revealing the negative impacts of apartheid on the population. In the post-apartheid period, SALDRU has continued to gather data and conduct research directed at informing and assessing anti-poverty policy. Recent survey projects include the ongoing Cape Area Panel Study, the Financial Diaries Project, the Public Work Research Project and the Quality of Life Survey. In 2006 the Presidency awarded SALDRU the tender to set up and conduct the base wave of South Africa’s first national panel study of well-being, the National Income Dynamics Study. In 2009 and 2011, respectively, SALDRU won the tenders for the second and third waves of NIDS. Fieldwork for the third wave was conducted in 2012. In January 2011 J-PAL Africa was launched as a project within SALDRU. Linked to a global network of researchers, J-PAL Africa is building capacity within Africa to run randomized impact evaluations of anti-poverty programmes. In 2012 the National Treasury asked SALDRU to run a national project to stimulate and support research in three areas; employment, income distribution and inclusive growth. Three national research groups are being put in place to undertake this work.

Currently SALDRU’s research team includes a Director (Professor Murray Leibbrandt), a permanent Associate Professor, the Executive Director of J-PAL Africa, a Chief Research Officer, a Senior Research Officer, 3 Post-doctoral Fellows, a Survey Manager, 2 researchers, 19 research associates from within the School of Economics, 4 honorary research associates. There are 19 research affiliates, reflecting SALDRU’s active national and international research collaborators. The NIDS survey office is run by the survey manager and contains 7 dedicated staff and, during fieldwork, up to 30 temporary staff members. The J-PAL Africa office is run by the Executive Director, Kamilla Gumede, and has two research managers and four research assistants.

Aside from the National Income Dynamics Study and the work of J-PAL Africa, current research work falls into the following research themes:

- Post-apartheid Poverty, Employment, Education, Health and Migration dynamics In 2012 our key funders were the NRF Research Chair in Poverty and Inequality Research, the NRF Programme, Grand Challenges, Social Dynamics, European Union’s NoPoor Consortium, the National Institutes of Child Health and Development, the Presidency’s Programme to Support Pro-poor Policy Development, the National Treasury and the Centre of Higher Education Transformation.
- Fertility and Intergenerational Transfers (funded by the Hewlett Foundation and Population Reference Bureau).
- Social Protection, Public Works and the Labour Force (funded by the International Development Research Centre, the Ford Foundation and the British ESRC).
- The Economics of Tobacco Control in Africa (funded in 2011 by the American Cancer Society (ACS) and in 2012 by the ACS and the Bill and Melinda Gates Foundation).
Since 1999 SALDRU has run the annual UCT Summer Programme in Social Science Research Using Survey Data. Currently this programme trains over 100 Southern African researchers per year. It was funded by the Mellon Foundation for the first decade and, in 2011 was endowed by large grants from Kresge, Ford and Mellon Foundations and Statistics South Africa as well as smaller grants from 10 of South Africa’s universities. In addition, SALDRU runs Winter Workshops in the analysis of panel data and in programme evaluation.

Development Policy Research Unit (DPRU)

The Development Policy Research Unit (DPRU) has been actively engaged in policy-relevant research since 1990, establishing itself as one of South Africa’s premier research institutions in the fields of labour markets, poverty and inequality. The Unit’s research feeds into policy decisions and pronouncements at the highest level, including Cabinet memoranda, State of the Nation Addresses and legislation, while our research findings are regularly featured in the print and electronic media.

Much of the DPRU’s work derives from government departments at national and provincial level, while the DPRU also receives funding from international and multilateral agencies. In particular, the DPRU has completed numerous research projects at the national level for National Treasury, the Presidency, and the Departments of Labour, Social Development, Education and Trade and Industry, as well as for various departments in the Western Cape Provincial Government.

As part of our engagement in the policy arena, the DPRU has hosted highly successful conferences aimed at fostering greater interaction between researchers and policymakers. The DPRU publishes a Working Paper and a Policy Brief series, both of which are freely available on our website. DPRU staff members also undertake limited teaching and graduate supervision.

Apart from its research and capacity building activities, the DPRU is engaged in managing the Employment Promotion Programme (EPP), an initiative of the U.K. Government’s Department for International Development (DFID), aimed at providing an enabling policy environment in South Africa for employment creation and poverty reduction in South Africa. Bringing business, labour and government representatives together, the Programme has been able to commission a wide range of research that has had high level policy impact.

The DPRU is also the selected South African partner institution of the African Growth Initiative (AGI), in partnership with the Brookings Institute in the United States. This partnership ensures the DPRU’s research reach a broader international policymaking audience.

The DPRU’s Director, Professor Haroon Bhorat, holds the NRF Research Chair in Economic Growth, Poverty and Inequality. This has facilitated the awarding of postgraduate bursaries and fellowships broadly within the DPRU’s main areas of interest to Economics students at the University.

Current and recently completed projects undertaken by the DPRU include:

- Africa Growth Initiative (AGI) Programme
- Understanding enforcement of minimum wage laws
- Monitoring the impact of the economic downturn on the SA labour market
- Enhancing access to information: An analysis of collective bargaining and sectoral determination wage data
- Labour market dynamics in the Western Cape
- South African country case study on economic transformation
- Labour Market Intelligence Partnership Project
- The Pursuit of Inclusive Growth in South Africa

Policy Research on International Services and Manufacturing (PRISM)

Policy Research in International Services and Manufacturing (PRISM) is a research and policy unit located within the School of Economics. PRISM provides a lens to focus research and policy work broadly on issues of globalization, trade and industrialization. It is home to a number of related research activities, projects and programmes concerned with issues of globalization, global value chains, industrialization paths, international trade, foreign investment, the defence industry, policy governance, infrastructure development, the role of knowledge intensive services, innovation, and international competitiveness. Another feature of PRISM’s work has been its applied focus, responding to economic policy questions issues in South Africa, the rest of Africa and beyond. PRISM is managed by a Steering Committee consisting of Mike Morris (Head), David Kaplan and Anthony Black.

PRISM research and policy activities are focused around the following issues: Globalisation and industrialization development; International trade and foreign investment; Governance and economic policy; Commodities and resource based linkage industrialization; Innovation and upgrading in developing countries; Industrial policy and development; Employment intensive growth in South
Africa; International competitiveness of firms and sectors; Clusters and learning networks; China’s economic impact on Africa; Regulatory frameworks for trade, services and sectors; the distributional gains of industrial growth.

David Kaplan has been appointed to the Board of the Technology Innovation Agency (TIA) – the government agency responsible for bridging the chasm between new knowledge and commercial application.

Research Unit in Behavioural Economics and Neuroeconomics (RUBEN)

RUBEN’s interdisciplinary team of experimental economics researchers seek to understand the way in which people in developing economies assess risk and make decisions. They do this through quantitatively analyzed laboratory and field experiments with people earning real monetary rewards for performing experimental tasks. RUBEN researchers especially focus on trust - the essential basis of business relationships – and people’s attitudes to risk, uncertainty and time. This knowledge is crucial to innovative product design in insurance, banking and retail asset management. For certain studies, RUBEN researchers also have the technology and expertise to conduct brain imaging studies, of the kind needed for neuroeconomics and neuromarketing. In 2012, RUBEN was directed by Associate Professor Justine Burns, and includes researchers from other Departments at UCT and international associates. Members within the School of Economics are Andre Hofmeyr, Harold Kincaid, Don Ross, Mare Sarr, Martine Visser and Honorary Professor George Ainslie. In 2013, Professor Harold Kincaid is set to direct RUBEN.

Current RUBEN research projects underway include experimental and neuroimaging studies of addictive consumption and illegal gambling; a study of the risk and time preferences of Western Cape fruit farmers that can inform the design and pricing of new insurance products to support innovation for export promotion; a study of the prevalence and determinants of pathological gambling among Informal gamblers In a township; a study of a new initiative to deliver early childhood education in Cape Town townships; and a Portfolios of the Poor - Atlanta and Cape Town project about the financial lives and attitudes of the poor.

Departmental Statistics

Permanent and long term contract staff

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<th>Position</th>
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<td>Research Staff</td>
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<td>Total</td>
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</table>

*Number of students enrolled for economics courses. Students can take a number of courses in one year.

Research Fields and Staff

Permanent teaching staff

PROFESSOR HAIM ABRAM
Finance; futures and derivatives; monetary economics in a general equilibrium context.

PROFESSOR HAROON BHORAT
Director of the DPRU; labour markets and labour market policy; poverty and income distribution.

PROFESSOR ANTHONY BLACK
Development economics, trade and industrial policy; automotive industry, garment industry, foreign direct investment, regional integration; global location of manufacturing and services; employment.

ASSOCIATE PROF JUSTINE BURNS
Head of RUBEN; Microeconomics; labour; poverty and income distribution; rural development; institutional economics.

DR BEATRICE CONRADIE
Farm labour markets; women in agriculture; wine industry mechanisation; irrigation farming; human animal conflicts.

MR REZA C DANIELS
Econometric analysis with missing data; analyses of surveys undertaken at UCT; applied development and labour microeconomics; public policy and benefit incidence analyses; geography and uneven development.
DR CLARA DELAVALLADE
Development economics; applied econometrics; corruption; health; education; evaluation of public policies.

PROFESSOR PAUL J DUNNE
Defence, conflict and peace economics; applied econometrics

ASSOCIATE PROFESSOR LAWRENCE EDWARDS
International trade and competitiveness; trade policy; trade and infrastructure; trade, employment and poverty.

MS KATHERINE EYAL
Labour; development; education; program evaluation; econometrics, behavioural economics

DR FARAYI GWENHAMO
International capital movements and institutions; construction of economic and political institutional indices; property rights and economic performance; macroeconomics; time series econometrics.

ASSOCIATE PROF LUKASZ GRZYBOWSKI
Industrial organisation; game theory; applied econometrics; network economics; telecommunications; competition and antitrust policy.

ASSOCIATE PROFESSOR SHAKILL HASSAN
Finance: fixed income, currency and commodity markets; arbitrage and asset pricing; applied financial econometrics. Economics: currency speculations and crises; monetary policy and asset prices; applicable economic theory.

MR ANDRE HOFMEYR
Game theory; behavioural economics; the economics of addiction; political economy.

PROFESSOR DAVID KAPLAN
Technology development; technology policy; industrial policy; telecommunications industry; migration of skilled persons. Work on the SA mining industry – technological change; innovation; mining based exports (capital equipment and services); local (Western Cape) economic development issues.

PROFESSOR HAROLD KINCAID
Philosophy and methodology of social science; causal modeling; addiction; experimental elicitation of risk and time preferences and other topics in behavioral economics

MS LEIGH LAKAY
Labour economics; environmental economics.

PROFESSOR MURRAY LEIBBRANDT
Director of SALDRU; income distribution and poverty; survey econometrics; labour; education.

ASSOCIATE PROFESSOR ANTHONY LEIMAN
Environmental and resource economics; cost-benefit analysis; informal sector.

MR CECIL MLATSHENI
Youth and the labour market; participation, search and unemployment; fertility and labour market participation; the brain drain and skills migration.

PROFESSOR MIKE MORRIS
Director of PRISM; Globalisation; impact of China on Africa; industrialization and the Africa commodities boom; clothing and textiles; automotive industry; clusters and industrial development; industrial policy.

ASSOCIATE PROF EDWIN MUCHAPONDAW
Community based natural resource management; nature-based tourism; valuation of non-market environmental amenities

PROFESSOR NICOLI NATTRASS
Director of ASRU; The socio-economic dimensions of living with HIV; the clothing industry; attitudes to employment; the political-economy of job creation; the moral economy of dealing with predators.

DR MIQUEL PELICER GALLARDO
Economic inequality; political economy; education; redistribution; political clientelism; authoritarian regimes.

MS NERYVIA PILLAY
Risk measurement, financial markets.

DR PATRIZIO PIRAINO
Applied microeconometrics; labour economics; economics of education; immigration; development economics; experimental economics.

DR VIMAL RANJHOD
Labour economics; economics of education; economic demography; poverty; inequality and development economics.

PROFESSOR DON ROSS
Game theory; philosophy of economics (methodology); neuroeconomics and experimental economics; infrastructure development; African trade and industry policy; philosophy of science.

DR MARE SARR
Director of EPRU; Institutions and development; political economy; natural resources.

DR ASHA SUNDARAM
International trade; development economics; applied econometrics.
DR ALBERT TOUNA MAMA
Macroeconomics (households’ consumption/investment behavior); international macroeconomics (current account imbalances, sovereign borrowing); dynamic stochastic equilibrium models; development economics (informal insurance arrangements, terms of trade shocks, structural changes).

ASSOCIATE PROFESSOR CORNE VAN WALBEEK
The economics of tobacco control; evaluating economic forecasts; the quality of official data, economics education; economic history.

ASSOCIATE PROF MARTINE VISSER
Behavioural and experimental economics applications to natural resource utilization; environmental and natural resource economics; poverty, inequality and sustainability; social institutions and networks; applied game theory and microeconometrics; valuation techniques.

PROFESSOR MARTIN WITTENBERG
Data Quality; Measurement of Poverty, Incomes and Economic Well-being; Labour economics; economics of the household; analysis of time-use data; microeconometrics.

ASSOCIATE PROFESSOR INGRID WOOLARD
Measurement of poverty; income inequality; labour economics; social assistance.

Adjunct staff

ADJUNCT PROFESSOR BRIAN LEVY
Governance and political economy; development policy and practice.

ADJUNCT ASSOCIATE PROFESSOR MARK ELLYNE
Monetary economics (monetary transmission, monetary policy, inflation targeting); exchange rates (policy, valuation, exchange regimes and controls); regional integration (SADC convergence, African integration); IMF and World Bank (structural adjustment programs); country macroeconomic studies.

DR NICK SAMOUILHAN

Internship teaching staff

MS CATHERINE KANNEMEYER
Labour economics; education; social transfers.

MR FRANCOIS STEENKAMP
Labour economics and trade.

MR SEAN MULLER
Applied microeconometrics; growth and development (particularly in Africa); choice theory; intergenerational mobility; methodological issues in economics and econometrics.

Honorary staff

HONORARY PROFESSOR GEORGE AINSLIE
Behavioral economics (picoeconomics); motivation; choice; self-control; higher mental functions; interface among economics; experimental psychology; philosophy (theory of mind).

Research Staff

ASRU
NATHAN GEFLEN (researcher, deputy director of ASRU, and co-ordinator of GroundUp)

DPRU
MR MORNÉ OOSTHUIZEN
Deputy Director: Labour markets; prices; poverty and inequality.

MS CARLENE VAN DER WESTHUIZEN
Senior Researcher: Labour economics; poverty and inequality.

MS TOUGHEDAH JACOBS
Labour markets; development; poverty, inequality.

MS NATASHA MAYET
Labour economics; minimum wage

MS SUMAYYA GOGA
Labour markets; poverty and inequality.

MS ELNE JACOB
Development economics; labour economics; institutional economics; micro economics; survey data analysis; economics of education.

MR DAVID (CHEN-WEI) TSENG
Labour economics; survival analysis; time series and forecasts.

MR BENJAMIN STANWIX
Labour markets; economic history.

MR NAN TIAN
Labour economics; conflict; economic growth.
SALDRU

ASSOCIATE PROFESSOR CALLY ARDINGTON
Intergenerational support; analysis of household surveys; orphanhood; family background, school quality and educational outcomes.

PROFESSOR SEAN ARCHER
Economics of human rights; economics of education training, and identities and ecology of arid zones.

PROFESSOR FRANCIS WILSON
Poverty and development; unemployment; household survey data collection; water policy.

MS KAMILLA GUMEDE
Executive Director of J-PAL Africa.

DR THOMAS BOSSUROY
Inequalities and social mobility; political economy; social structures and identities and evaluation of public policy.

DR MALCOLM KESWELL
Econometrics of Programme Evaluation, Behavioural Economics, Development Economics

DR BRENDAN MAUGHAN-BROWN
HIV-related stigma; socioeconomic and behavioural determinants of HIV.

DR EVA WEGNER
Political mechanisms of inequality persistence; clientelism; political parties; authoritarian regimes; Islamist movements.

DR NICOLA BRANSON
Quantitative research in education inequality and the intergenerational consequence of teenage childbearing in South Africa.

ARDEN FINN
Inequality, poverty and the analysis of panel data

CLARE HOFMEYR
Economics of education, training, communications and policy work.

LAURA COSTICA
J-PAL Africa Research Manager

BRYAN PLUMMER
J-PAL Africa Research Manager

MUTHONI NGATIA
Researcher J-PAL Africa

Distinguished visitors

PROFESSOR RAVI KANBUR
Cornell University

PROFESSOR FREDERICK FOURIE
University of the Free State

PROFESSOR ROBERT LAWRENCE
Kennedy School of Government, Harvard University

PROFESSOR RHYS JENKINS
University of East Anglia

PROFESSOR ANDREW ROSE
University of California, Berkeley

PROF GLENN W HARRISON
Georgia State University

PROF ELISABET RUTSTROM
Georgia State University

PROF WARREN BICKEL
Virginia Institute of Technology

Contact Details

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Postal address: School of Economics, University of Cape Town, Private Bag X3, Rondebosch, 7701
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Email: kathy.forbes@uct.ac.za
Web: http://www.cssr.uct.ac.za/asru.html

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Telephone: +27 21 650 5705
Fax: +27 21 650 5711
Email: Waseema.Petersen@uct.ac.za
Web: www.dpru.uct.ac.za
Edited books


Chapters in books


Research Output

Authored books


Edited books


Chapters in books


Articles in Peer-reviewed Journals


Doctoral dissertations


Fessehaie, J. 2012. The dynamics of Zambia’s copper value chain. Supervised by Morris, M.L.


Hove, S. 2012. Essays on monetary policy, institutions and terms of trade shocks in emerging market economies. Supervised by Touna Mama, A.

Mutasa, G. 2012. Disability grant and labour supply in South Africa. Supervised by Woolard, I.D.


Master’s degrees (by research)

Bertscher, J. 2012. The complex determinants of childhood nutritional status and undernutrition in South Africa. MBusSc. Supervised by Wilson, F.


Etheredge, G. 2012. A procedure to test human behaviour under producer scrounger conditions. MSocSc. Supervised by Ross, D.A.


Smith, G. 2012. Social norms, social distance, social approval and household electricity consumption: a field experiment in Cape Town. MCom. Supervised by Visser, M.C.


Department of Finance and Tax

ACTING HEAD OF DEPARTMENT: ASSOCIATE PROFESSOR CRAIG WEST

Department Profile

The Department of Finance and Tax was formed with effect from 1 January 2012 and this represents the Department’s first research report. During January 2012, the Department moved into its allocated space. This represented some disruption for the members of staff, their teaching and research, but these issues were soon resolved.

The Department houses two disciplines, namely: finance at an undergraduate and postgraduate level and taxation at a postgraduate level only. The new Department is also home to a research unit, being the African Collaboration for Quantitative Finance & Risk Research (ACQuFRR).

As the Department becomes more established, it is anticipated that the research outputs of its staff will increase. Further postgraduate streams for taxation qualifications were developed during 2012 to come on-stream in 2013.

The tax section within the Department was invited to participate in a collaborative research project with 6 other institutions around the world. The Research Council of Norway funds this project. The staff of this section of the Department was further invited to participate in the Marie Curie International Staff Exchange Scheme (IRSES) for particular research topics in international tax. To this end, the Department hosted Dr Daniel Smit from Tilburg University in the Netherlands and will host further guests in 2013. Department staff will also participate in the exchanges in the coming years. The IRSES programme provides funding for the travel and accommodation of the visiting academic.

The Department has one NRF-rated researcher, Professor Enrico Uliana (part-time).

An exceptional 42 master’s students graduated from the department in 2012. The master’s graduates are expected to increase as are PhD students.

African Collaboration for Quantitative Finance & Risk Research (ACQuFRR)

The African Collaboration for Quantitative Finance & Risk Research (Director: Associate Professor David Taylor) was established within the Department of Finance & Tax at the beginning of 2012. ACQuFRR’s purpose is to advance the
theory and application of modern quantitative, statistical and mathematical techniques to the modelling and risk management of financial products and markets. It will be primarily interested in the application of these techniques in African and South African contexts. Whilst doing this, it will simultaneously foster a culture of research excellence, provide research mentorship to staff and students, encourage entrepreneurial activity and develop research capacity.

Departmental Statistics

Permanent and Long-term Contract Staff (including both full and part-time staff)

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<th>Role</th>
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Adjunct and Honorary Staff

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Students

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</table>

Research Fields and Staff

Permanen Staff

MR ABDUL ABDULLA
Accounting education; financial ratio analysis. Islamic Finance.

DR EDWARD CHAMISA
International accounting standards in developing countries; corporate governance; corporate social responsibility.

MR PHILLIP DE JAGER
Fair value accounting; banks; capital markets.

ASSOCIATE PROFESSOR GLEN HOLMAN
Capital markets.

MR CHUN-SUNG HUANG
Financial risk management and modelling; Value-at-Risk estimates and Improvements; Utility-Indifference Pricing; Stochastic Modelling.

DR RYAN KRUGER
Predictive modelling of asset returns and the financial applications of machine learning.

MR AKIOS MAJONI
Liquidity in African financial markets; corporate restructuring and shareholder value.

MR LUCIAN PITT
General field of disclosure with emphasis on risk disclosure in AFS.

MR KANSHUKAN RAJARATNAM
Decision making in consumer credit finance; credit union models; optimisation.

ASSOCIATE PROFESSOR JENNIFER ROELEVELD
International tax (Capital and Income); Tax Information Exchange Agreements; South African income tax and Estate Duty.

MR COLIN SMITH
Valuation models; working capital management; behavioural issues in Management Accounting; NGO accounting and financial management.

PROFESSOR PETER SURTEES
South African income tax.

DR FRANCOIS TOERIEN
Entrepreneurial and small business finance; alternative investments; equities.

PROFESSOR ENRICO ULIANA
Management accounting practices; strategic cost analysis; use of accounting in aligning performance with strategy; intellectual capital.

PROFESSOR PAUL VAN RENSBURG
Asset Pricing. Explaining the cross section of equity returns in local and international markets.

MR DAVID WarNEKE
Vat and income tax.

ASSOCIATE PROFESSOR CRAIG WEST
International Tax (Income and Capital); Tax Information Exchange Agreements and South African income tax.
MR DARRON WEST
Taxation of savings and investments; behavioural finance and investing.

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Website: http://www.commerce.uct.ac.za/FinanceandTax/

Research output

Chapters in books


Articles in Peer-reviewed Journals


Willows, G. 2012. She's Built For It: Differential Investment Performance in South Africa Based on Gender. MCom. Supervised by Darron West.

Master’s degrees in taxation


Glendining, D. 2012. An investigation into the leakage factor, in respect of the accretion of employer’s and employee’s contributions to retirement savings, compounded, over an employee’s working career, in the private sector. MCom. Supervised by Jennifer Roeleveld.


Olivier, A. 2012. An exploration and critical analysis of the plastic bag levy, the fuel levy and the carbon tax on new vehicles, in order to understand the purpose and effects of their implementation. MCom. Supervised by Peter Cramer.


Van der Mescht, E. 2012. Limited interest in property: An overview of limited interests in property with particular reference to the taxation of usufructs and more specifically the capital gains tax effects on disposal for individuals and for Trusts. MCom. Supervised by Jennifer Roeleveld.

Van Wijk, A. 2012. Whether tax incentives to stimulate foreign direct investment for manufacturing in the SADC region is an indicator of harmful tax competition. MCom. Supervised by Craig West.

Department of Information Systems

HEAD OF DEPARTMENT: DR LISA SEYMOUR

Department Profile

Research continued to be high on the agenda of the IS department’s deliverables. Professor Ojelanki Ngwenyama joined the Department on a part-time basis and received his new NRF (B) rating. With the successful re-evaluation application of Professor Hart, the Department increased its NRF-rated researchers to eight. In terms of research publications, the department succeeded in its goal of increasing the quality of its outputs with a substantial increase in output in DHET-accredited journals.

We graduated 5 PhDs in December (a record for the Department) and 10 master’s students. One member of staff, Elsje Scott, was awarded her PhD in 2012 and 3 more academics intend submitting by June 2013. Our overall postgraduate profile is strong with 49 Postgraduate diploma and 49 Honours students graduating in 2012. The Department now runs four postgraduate diplomas in Information Systems, Computer Forensics, Enterprise Systems and BPM and Business and Systems Analysis (BASA) respectively. In addition to record numbers of postgraduate student graduations, the department maintains a strong and steadily increasing cohort of registered postgraduate students. In 2012, the department had 38 registered doctoral students and 42 registered master’s students. This is in addition to the 65 honours students who are also required to submit an individual research project.

The department also secured its first major multi-year research contract through the UCT-Samsung Mobile Innovation Laboratory (R1+ million in annual funding in terms of a three-year agreement), the Department’s Digital Forensics Unit hosted South Africa’s first Digital Forensics Conference and the CITANDA Community IT project in Vrygrond has precipitated some relevant ICT for development research studies.

Departmental Statistics

Permanent Staff

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<thead>
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Honorary Staff

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Students

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Research Fields and Staff

PROFESSOR IRWIN BROWN
IS in developing countries; IS management; Grounded Theory in IS research.

ASSOCIATE PROFESSOR WALLACE CHIGONA
ICT for national development; community informatics; and mobile technology for development.

DR ERIC CLOETE
Computer architectures and software; information systems management; image processing; electronic commerce.

EMERITUS PROFESSOR MIKE HART
Strategic use of IS; key management issues in IS; business intelligence; data mining and analytics.

ASSOCIATE PROFESSOR KEVIN JOHNSTON
ICT strategy and alignment; use of ICT in business; ICT management issues; open source software.

ASSOCIATE PROFESSOR MICHAEL KYOBE
Strategic IT planning; IT alignment; computer security and utilisation of IT to leverage knowledge management; enterprise and IT governance.

DR ELSJE SCOTT
Object-orientated programming and methodologies; efficient teaching methods for programming concepts; IS project management, with the specific focus on student group projects using C# as programming language.
MS SALAH KABANDA  
IT adoption; M and E commerce; ICT4D.

PROFESSOR OJELANKI NGWENYAMA  
Developing and using critical social science methods for IS research. Empirical research focused on: software process innovation; IS implementation; IS management; the impact of ICT on social and economic development.

DR JACQUES OPHOFF  
Information and cyber security; privacy; design science research.

MR MIKE POLLOCK  
Effective IS teams, IS programming with students; technology acceptance; the digital divide in South Africa; digital forensics; virtual teams; m-innovation.

MS SUMARIE ROODT  
IS and Education: Technology-enhanced learning with a focus on using emerging technologies for the Net Generation, Digital Game-Based Learning (DGBL), Virtual Worlds, Educational Neuroscience & Technology-Enhanced Learning. IS and Business: Using emerging technologies for Competitive Advantage

DR LISA SEYMOUR  
Enterprise systems and business process management with a developing country focus.

ASSOCIATE PROFESSOR KOSHEEK SEWCHURRAN  
Project organising, systems thinking, innovation and creating a desirable tension between best-practices, research and professions.

EMERITUS PROFESSOR DEREK SMITH  
Project portfolio management; project teams; project manager competencies.

MR ADRIE STANDER  
Data communications; database design; human-computer interaction; culture and information systems.

MS MAUREEN TANNER  
Agile, Global Software development.

PROFESSOR JEAN-PAUL VAN BELLE  
Adoption of information technologies; ICT4D; e-commerce and m-commerce; e-government and m-government; open source software; enterprise IS architectures; e-readiness of SMEs and NGOs; Green IS/IT.

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Website:http://www.commerce.uct.ac.za/InformationSystems/

Research output  

Authored books  

Chapters in books  

Articles in Peer-reviewed Journals  


**Peer-reviewed published conference proceedings**


Doctoral dissertations


Delcarme, B.2012. The development and institutionalisation of an integrated health care waste information system. Supervised by Roode, J. and Brown, I.T.J.

Scott, E. 2012. Towards coherent practice in capstone courses for IS majors. Supervised by Sewchurran, K.


Weimann, P. 2012. An organisational framework for the use of web-based tools in ‘virtual’ project teams. Supervised by Brown, I.T.J.

School of Management Studies

HEAD OF SCHOOL: ASSOCIATE PROFESSOR ANTON F. SCHLECHTER

School Profile

The School of Management Studies provides undergraduate courses, postgraduate programmes and postgraduate diplomas in a range of management disciplines to students registered for Business Science, Commerce and Humanities degrees. Research is supervised at the Honours, Master’s and Doctoral levels. The School consists of five Sections (incl. Actuarial Science, Applied Management, Marketing, Organisational Psychology and the Professional Communication Unit), as well as four established research units (African Collaboration for Quantitative Finance & Risk Research (ACQuFRR); Centre for Actuarial Science Research (CARe); Institute of Monitoring and Evaluation (IME); and the Unilever Institute for Strategic Marketing). A further three research units have recently been established and are currently seeking University Research Committee (URC) approval (Development Unit for New Enterprise
from the professional United
In 2001 UCT became the second university in the world
other professional qualifications (for example as a CFA).
In addition, a significant number of our graduates go on to complete
as actuaries, which is one of the highest qualification
rates of any university in South Africa. In addition, a
Section of Actuarial Science (Head of Section: Ms
produces approximately 20% of all South
In 2001 UCT became the second university in the world
to have postgraduate courses recognised for exemption
from the professional United Kingdom examinations. In
the local actuarial qualification was introduced in
South Africa and UCT plays a key role as a provider of
to the Actuarial Science profession. The Centre
for Actuarial Research (CARé) (Director: Associate Professor
Tom Moultrie) and African Collaboration for Quantitative
Finance & Risk Research (ACQuFRR) (Director: Associate Professor
David Taylor) are further aligned with the Section of
Actuarial Science.

Centre for Actuarial Research (CARé), the only unit of
its kind at an African university was established in 2001
focuses on building capacity, improving techniques
and producing independent research in demography. The Centre is internationally recognised in the field of
estimation of demographic parameters from limited and
deficient data. The Centre's other major field of work
is in demographic and epidemiological modelling and
population projections. In addition, the Centre hosts
postgraduate training programmes in demography for both Master's and PhD students. During 2012 academic
staff at CARé were the principal investigators in a multi-
year project funded by the UNFPA to update and rewrite
a major manual on demographic estimation from limited
and defective data. The results of this work are available
electronically and a print version will appear in 2013. Demographers at CARé also played a significant role,
some of which was played out in the popular media, in
the evaluation, analysis and assessment of the data from
the 2011 South Africa census. In addition, the unit’s peer-
reviewed research output continued to be prolific, with
staff publishing 11 papers in major international journals.

The Section of Organisational Psychology (Head of
Section: Dr Suki Goodman) provides undergraduate
and postgraduate courses in Industrial/Organisational
Psychology. The Section presents a Master's degree
in Organisational Psychology that is accredited by the
Health Professions Council of South Africa (HPCSA) for
the professional training and registration of Industrial
Psychologists. The Section further offers a second Master's
programme in Programme Evaluation, the only one of
its kind in South Africa. The Section has PhD students
working in the areas of talent retention, work-family
studies, organisational health and safety and programme
evaluation. During 2012 Professor Joha Louw-Potgieter
edited a special edition of the South African Journal of
Human Resource Management, to which a number of
staff members contributed papers. In total, Section staff
published 13 accredited articles in 2012 and contributed
a total of seven oral/poster presentations at three
international conferences (incl. International Congress
of Psychology, World Congress of the International Federation
of Scholarly Associations of Management, Annual
Conference of the American Evaluation Association), and
two oral presentations at the Southern Africa Institute for
Management Scientists conference. One PhD, Dr Mpho
Phoko and 19 Masters students graduated in 2012. Towards
the end of 2012, Francois de Kock joined as a senior
lecturer from the University of Stellenbosch. He is in the
final stages of completing his PhD at Erasmus University
of Rotterdam. Various international research collaborations
were formed and further developed with visits during
2012: Dr Ines Meyer to the University of Connecticut;
Prof Joha Louw-Potgieter and Adilah Boodhoo to the
Claremont Graduate University; and Chao Mulenga to
the Organisational Health Psychology Institute in Oregon.
The Organisational Psychology Section hosts two research
units: Practice and Research of Occupational Health
Psychology in Africa (PROPHA) (Director: Professor Jeffrey
Bagraim); and the Institute for Monitoring and Evaluation
(IME) (Director: Professor Joha Louw-Potgieter).

During 2012 the PROHPA reading group was accredited
by the HPCSA and started providing Continuous
Professional Development (CPD) points for various
activities presented by the unit. The IME compiled
a self-review report as part of the formal review of
the School of Management Studies. The result of
this exercise was a review of the Institute’s main
goals. During 2012, the IME presented nine different
public short courses in programme evaluation. Despite
some competition in the market, the IME remains
the preferred provider of short courses for public
sector and non-governmental clients. The Institute also
completed 2 contract evaluations for clients within
the University; one for the ADAPT programme of the
Transformation Services Office and one for the Project
for the Study of Alternative Education in South Africa
(PRAESA).

The Section of Marketing (Head of Section: Dr Gert
Human) provides undergraduate courses in marketing
management, which includes courses in consumer
behaviour, industrial marketing, services marketing,
international marketing, marketing research, E-marketing
and tourism marketing. At a postgraduate level research is encouraged at the Honours, Master’s and Doctoral levels. The Marketing Section continues to engage key questions in both the scholarly and applied domains of marketing. Justin Beneke, Elsamari Botha and Dr Mignon Reyneke published papers in accredited journals and presented papers at peer reviewed conferences. Research conducted in the Section covers a wide spectrum of issues: Justin focused on consumer brand value, loyalty, and digital media marketing. These include local publications in the South African Journal of Business Management, and Acta Commercii, as well as international publications in noteworthy outlets such as the Journal of Product and Brand Management. In a collection of journal articles and conference papers Elsamari and Mignon looked at both the online and traditional market spaces to asked questions about the effects of predictors such as online presence, emotion, purchase intention and their relationships with dependent variables such as trust formation, viral marketing, product types and high net worth markets. Gert obtained his PhD for a thesis that addresses the issues of network competence and network capability in business-to-business markets for the first time in South Africa. He goes on to confirm the mediation power of trust and commitment in the quality-loyalty-satisfaction causal chain within buyer-supplier dyads. The Marketing Section also saw an exponential growth in its post graduate research activity and noteworthy Masters’ topic includes models to consider complex time perspectives and spontaneous infection theory in social networks. The UCT Unilever Institute of Strategic Marketing (Director: Emeritus Professor John Simpson) is aligned with the Section of Applied Management.

The main purpose of the UCT Unilever Institute of Strategic Marketing is to develop marketing theory and information for the uniquely South African market place. This has become a critical source of marketing intelligence for South African marketers and is widely used by corporates, market research houses, advertising agencies and academicians. 2012 was an exceptional year for the institute and their unique analysis of buying behaviour in emerging black consumer markets has spurred a new conceptualisation of the dynamic nature of these markets. Hence, major corporations across South Africa are keen to engage John Simpson, Martin Neethling and Paul Egan on these insights.

The Professional Communication Unit (Head of Unit: Dr Terri Grant) has the responsibility for teaching career-based communication practices across the faculty at both under- and postgraduate level. The PCU also offers its services to other faculties and institutions in both the public and private sector. Since 2010, when the local actuarial science qualification was introduced locally under the auspices of the Actuarial Society of South Africa (ASSA), the PCU has played a national role in examining the professional communication exemption examination and providing curriculum advice. Dr Terri Grant graduated with a PhD at the end of 2012. Her PhD entitled, Scenario Pedagogy: a negotiated, multimodal approach to developing professional communication practices in higher education, gave rise to two conference papers during 2012. The first, ‘Developing sustainable professional communication practices through Scenario Pedagogy, a multimodal and collaborative approach to teaching and learning in the commerce domain’, was presented at the Association of Business Communication conference in the Netherlands during May. The second, ‘Sustainable Business practices for Sustainable Futures: Professional Communication Pedagogy in HE’, a joint paper, was co-presented with colleague, Mr Gao Nodoba, at the annual HELTASA conference in November 2012 in Stellenbosch. Two journal articles based on PhD chapters have been submitted. One is under review; another, ‘Higher education drafting practices in professional communication and identity formation’, has been accepted for publication in the Journal of Modern Education Review, an international journal.

The Section of Applied Management (Head of Section: Ms Alison Meadows) is responsible for core management subjects on the Business Science degree, as well as presenting four postgraduate diplomas in Management (specialising in Tourism Management, Sport Management, Marketing and Entrepreneurship). The Section produces unique research within these fields of study. Dr David Priilaid’s research continues to focus on cue-conditioning where the key line of enquiry is how people consume cues like price and brand – and how through this style of consumption, given time and experience, people become increasingly conditioned by these cues. Dr Richard George wrote several journal articles on tourism crime-safety, specifically on tourists’ perceptions of Table Mountain National Park and the 2010 FIFA World Cup. The UCT Development Unit for New Enterprise (DUNE) is also aligned with the Section of Applied Management.

The UCT Development Unit for New Enterprise (DUNE) in collaboration with the Manufacturing, Engineering and Related Services SETA (MerSETA) is busy finalising the scoping and programme development of a Masters Programme in Technology-Based Entrepreneurship. To this end, DUNE and MerSETA have signed a Strategic Alliance Agreement which sees MerSETA committing R1.2 million, over 15 months, towards the costs of a detailed scoping, budgeting and programme development process which will determine the steps and resources needed to implement
the Masters programme. The programme development process includes the hosting of a colloquium of local and international experts in Entrepreneurial Education in Cape Town in August 2013.

Research Fields and Staff

PROFESSOR JEFFREY BAGRAIM
Theory and management of workplace attitudes; organisation commitment; commitment to change; work-family conflict; organisational culture.

PROFESSOR ROB DORRINGTON (CARE)
Demography; mortality; migration; HIV/AIDS modelling; population estimation and projection.

PROFESSOR JOHA LOUW-POTGIETER
Programme evaluation; human resource management.

EMERITUS PROFESSOR JOHN SIMPSON
Consumer behaviour; retailing; strategic marketing; management in sport; teaching methodology.

Adjunct Associate Professor Daniel Polakow
Financial derivatives; investment strategy; risk-budgeting; stochastic recurrence models; biostatistics.

ASSOCIATE PROFESSOR IAIN MACDONALD
Applied probability; time series models (especially hidden Markov models); mathematical finance.

ASSOCIATE PROFESSOR TOM MOUNTRIE (CARE)
Demography, especially the analysis of fertility patterns and trends; analysis of census and survey data; modelling of birth intervals; contraceptive use and adoption; HIV/AIDS.

ASSOCIATE PROFESSOR ANTON SCHLECHTER
Reward Management and talent retention; leadership; positive organisational behaviour.

ASSOCIATE PROFESSOR DAVID TAYLOR
Financial derivatives; mathematical finance; financial time series models (asset returns and volatility).

DR RICHARD GEORGE
Tourism marketing; responsible tourism; impact of mega-sport events; the association relationship between tourism and crime; township tourism.

DR TERRI GRANT
Business communications in the global economy; scenario learning and pedagogy; non-verbal communication and multimodality; graphics; commerce education and learning theories.

DR SUKI GOODMAN
Organisational and individual learning; training and programme evaluation; student ethics.

DR GERT HUMAN
Industrial marketing and inter-firm networks; strategic marketing; strategic management and international marketing.

DR SHANNON KENDAL
Measuring and managing retirement product risk; taxation of retirement funds; living annuities, defined benefit valuation bases.

DR SURE MATARAMVUURA
Financial Mathematics; Stochastic Calculus; Game Theory.

DR DAVID MARALACK
Principles of sport management; sport policy and politics; sport and development; sport institution building; sport in transformation; sport strategic management.

DR INES MEYER
Intergroup relations in the workplace; transformation; workplace diversity.

DR DAVID PRILAI
Wine pricing and brand valuations; extrinsic cues; placebo effects; the entrepreneurial mind-set.

DR MIGNON REYNEKE
Consumer Behaviour, Luxury Branding, Online marketing and branding and social media marketing.

MR JUSTIN BENEKE
Retailing management; electronic marketing; customer relationship management & higher education marketing.

MS ADILAH BOODHOO
Monitoring and programme evaluation; training evaluation; recruitment and selection.

MS ELSAMARI BOTHA
Marketing research and research methodology; social network analysis; online social networks; viral marketing; emotional contagion

MR FRANCOIS DE KOCK
Personnel selection; development and psychometric validation of psychological tests and personnel selection programmes; accuracy and bias in subjective ratings

MS CARREN FIELD
Monitoring and evaluation; training evaluation; employee relations.
Contact Details
Postal address: School of Management Studies, University of Cape Town, Private Bag X3, Rondebosch, 7701, South Africa
Telephone: +27 21 650 2466
Fax: +27 21 689 7570
E-mail: nonnie.falala@uct.ac.za
Website: http://www.commerce.uct.ac.za/Managementstudies/

Centre for Actuarial Research
Postal address: Actuarial Science, University of Cape Town, Private Bag X3, Rondebosch, 7701, South Africa
Telephone: +27 21 650 5475
Fax: +27 21 650 5937
E-mail: care@commerce.uct.ac.za
Website: http://www.commerce.uct.ac.za/Demography/, http://www.commerce.uct.ac.za/care

Research Output

Authored books

Chapters in books

Articles in Peer-reviewed Journals


Kerber, K.K., Tuaone-Nkhasi, M.T.N., Dorrington, R.E., Nannan, N., Bradshaw, D., Jackson, D. and Lawn, J.E.L.


Peer-reviewed published conference proceedings


Doctoral graduations


Master’s degrees (by research)

Ayalew, K. 2012. Assessment of the IGME methods of estimating infant mortality rate and neonatal mortality rate from under-five mortality rate in countries affected by HIV/AIDS. MPhil Demography. Supervised by Moultrie, T.


Hako, P. 2012. An investigation into factors that influence employees to support diversity in the South African workplace. MA Organisational Psychology. Supervised by Meyer, I.M.


Kuhn, C. 2012. The effect of rational choice and anti-intellectualism on students intention to cheat. MSocSc Organisational Psychology. Supervised by Bagraim, J.

Magadzire, A. 2012. Test the orphanhood method against benchmark rates in South Africa since 1996. MPhil Demography. Supervised by Dorrington, R.

Marais, I. 2012. Attitudes towards multiple role planning amongst engineering students. MCom Organisational Psychology. Supervised by Bagraim, J. and Jaga, A.


Muzigaba, M. 2012. An outcome evaluation of the SHAWCO Saturday school programme. MPhil Programme Evaluation. Supervised by Louw-Potgieter, J.


Tagwira, R. 2012. An investigation into the effect of information on decision-making for members of defined contribution pension funds. MBusSc Actuarial Science. 61pp. Supervised by Strugnell, D. M.


Wilson, B. 2012. Robust Bayesian portfolio optimisation: higher moments and the distorting effects of constraints. Master’s. Supervised by Witten, G.

Graduate School of Business

DIRECTOR: PROFESSOR WALTER BAETS

School Profile

The UCT Graduate School of Business’ goal is to be a leading emerging market business school that is relevant both internationally and to its local context. Its mission is to build and strengthen three pillars of excellence to ensure that we produce responsible leaders with a keen grasp of complex organisational and social challenges and opportunities:

Academic Excellence and Thought Leadership: The GSB is one of South Africa’s leading business schools in terms of research. We strive to make good use of our position at the tip of Africa, a continent in which the role of business in contributing to sustainable development is especially pertinent. GSB research is published in scholarly journals, as well as the popular media, taking a stand on issues of public concern. There is no uniform position within the GSB on key questions within management disciplines or surrounding the role of business in society; rather, we seek to cultivate a culture of debate within the school and beyond, which also enriches students’ experience.

Societal Relevance: The GSB has unique opportunities to contribute to the university’s strategic goal of addressing key developmental challenges facing South Africa and the continent. This includes the all-important teaching and research activities at the GSB, but it also relates to the manner in which we seek to create mutually beneficial relationships with diverse stakeholders. Much of our research has important pertinence for public policy or business strategy, and we strive to enhance such links through, for instance, workshops and conferences for officials or managers. Teaching and training programmes have been developed to proactively target disadvantaged youngsters, as in the Raymond Ackerman Academy of Entrepreneurial Development. Students in the MBA and other programmes are commonly linked to real-life development initiatives as part of their learning experience, especially in their group work.

Pedagogical Excellence: The GSB has sought to augment traditional lecture style teaching and case study discussions with alternative approaches that emphasise experiential
learning and personal development. A dedicated methodology called SYSTAL (Systems Thinking Action Learning) has been developed and implemented particularly in the Executive MBA, linking systems thinking to on-the-job action learning projects. Such approaches are also implemented in the executive education and customized academic programmes, as well as the MBA. The emphasis on systems thinking allows for the holistic integration of complex social, environmental and organizational issues in the exercises, discussions and projects in the classroom and beyond. A key underlying premise is the need for personal reflection and the development of mindfulness in becoming a responsible leader.

Continued efforts were put into developing GSB researchers’ capabilities and networks. These included in particular the “Research design and methodology workshop”, which we hosted 23-25 May. Through this workshop, we wanted to support African organisational and management researchers in making profound impacts on both practice and theory. Targeted at PhD students and faculty members, the workshop was an intensive ‘boot camp’ focusing on how to identify a compelling research question, to situate research in the literature, and to develop a coherent research design. Attention was also given to key qualitative and quantitative data generation and analysis methods, including quasi-experimental research designs. Participants had an opportunity to present and discuss their research, and they were expected to come carefully prepared with regard to a comprehensive reading list. The workshop was facilitated by Ted Baker (Associate Professor at North Carolina State University and associate editor of Strategic Entrepreneurship Journal) and Tim Pollock (Professor at The Pennsylvania State University and associate editor for the Academy of Management Journal). In November, we hosted for the second time our annual, international conference on “The Business of Social and Environmental Innovation”. The 2012 conference theme was “Informal Sector Entrepreneurship and Social Entrepreneurship,” and the event included 36 paper presentations and two keynotes. The conference was supported by TrustAfrica, which provided for travel and accommodation for a number of African delegates to attend. It was also supported by the Bertha Centre for Social Innovation and Entrepreneurship. A selection of papers presented in last year’s conference is currently being compiled in a book, with preliminary agreement to publish from two publishers. With regard to publications, 2012 publications include two authored books, one book chapter, four conference papers, and 13 accredited, peer-reviewed journal articles.

School Statistics

Permanent and long-term contract staff

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<thead>
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<th>Position</th>
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<td>Professional and Administrative Staff</td>
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Students

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<td>Master of Business Administration (MBA)</td>
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<td>Master of Commerce (MCom)</td>
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<td>Executive MBA</td>
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<tr>
<td>Postgraduate Diploma in Business Administration (PDBA)</td>
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<td>Executive Education</td>
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</tbody>
</table>
Research Staff and Fields

PROFESSOR WALTER BAETS
Innovation; knowledge management; management learning; non-linear dynamic (complex) behaviour in management; pedagogical approaches; workplace learning; personal development

PROFESSOR GEOFF BICK
Marketing, particularly marketing metrics

PROFESSOR NICHOLAS BIEKPE
Development finance, econometrics, statistics and financial economics.

PROFESSOR KURT APRIL
Human dynamics; organisational leadership; organisational psychology; personal psychology; diversity; inclusive workplaces and cross-cultural dynamics.

PROFESSOR ANTON EBERHARD
Strategic management; restructuring and regulation of infrastructure industries, including the electricity, gas, telecommunication and water sectors.

PROFESSOR THOMAS KOELBLE
Globalisation; European politics; business, governance and society; electoral laws; South African democracy.

PROFESSOR JOHN LUIZ
International business; business in Africa; business, society, and government economics of emerging markets.

PROFESSOR ERIC WOOD
Entrepreneurial thinking and mindsets—both individual and systemic; entrepreneurs as role models; high-tech ventures; entrepreneurship education; internationalisation strategies for high-profile businesses in the third world.

PROFESSOR (emeritus) NORMAN FAULL
Operations management; strategy and implementation; lean thinking in operations; supply chain management; world-class manufacturing.

PROFESSOR (emeritus) COLIN FIRER
Financial planning; corporate finance; history of South Africa’s capital markets.

PROFESSOR (emeritus) PAUL SULCAS
Information systems and technology; business strategy; applied business strategy; change management.

ASSOCIATE PROFESSOR RICHARD CHIVAKA
Strategic cost management; supply chain management; business strategy; business process improvement.

ASSOCIATE PROFESSOR RALPH HAMANN
Sustainable enterprise; corporate citizenship and social responsibility; organisational strategy; cross-sector collaboration.

ASSOCIATE PROFESSOR TOM RYAN
Systems thinking and organisational development; management development and learning; management research methodology.

ASSOCIATE PROFESSOR KOSHEEK SEWCURRAN
Innovation management, information systems, systems thinking and project organising.

ASSOCIATE PROFESSOR MILLS SOKO
International trade, international business; emerging markets; globalization; foreign direct investment; commercial diplomacy; regional economic integration, with a specific focus on southern Africa; public-private partnerships; economic competitiveness and innovation; government-business relations in South Africa.

DR FRANCOIS BONNICI
Social innovation, social entrepreneurship, health

DR PREEYA DAYA
Human resources management; diversity, inclusion and performance; performance management; leadership / team performance; high performance culture / organisation culture; employee engagement

MS JANINE EVERSON
Executive coaching; leadership and team development; large group facilitation; organisational development; productive dialogue skills; virtual teams; cross-cultural and global teams; implementation of small and large-scale coaching interventions.

DR STEPHANIE GIAMPORCARO
Responsible and sustainable investment; developmental finance; carbon finance and impact investment; social studies of finance; anthropology of markets and consumption; economic sociology; sustainability (green building, fair trade).

DR SEAN GOSSEL
Applied financial econometrics; applied macro econometrics; development finance; capital flows; corporate finance.

MS FATIMA HAMDULAY
Operations management; change leadership.

DR MLENGA JERE
Advertising; consumer behaviour; social marketing.
Contact Details
Postal address: Graduate School of Business, University of Cape Town, Breakwater Campus, Private Bag X3, Rondebosch, 7701
Telephone: +27 21 406 1503
Fax: +27 21 406 1412
E-mail (research director): ralph.hamann@gsb.uct.ac.za
Website: http://www.gsb.uct.ac.za

Research Output

Authored books


Chapters in books

Articles in Peer-reviewed Journals


DR SHADRICK MAZAZA
Health management; personal transformation; leadership; continuous quality improvement; healthcare quality and accreditation.

DR CHIPO MLAMBO
Investments; finance; financial markets.

DR WARREN NILSSON
Relationship between positive organizational dynamics (e.g., engagement, creativity, compassion) and broader patterns of deep, intentional, institutional change.

DR ELIADA W GRIFFIN-EL
Social entrepreneurship; entrepreneurial development in African emerging markets; social capital/networks and economic development; international development; global political economics; grounded theory

DR HAMIEDA PARKER
Manufacturing and operations; supply chain management; entrepreneurship; innovation and new product development.

MR MARK PETERS
Strategy, marketing and governance.

DR LINDA RONNIE
Managing people in organisations; organisational change; adult learning; sociology of education; research methodology; HR good practice and management; organisational behaviour.

MS ELANCA SHELLEY
Executive development; systems thinking; organizational diagnostics and design.

MS BEVERLY SHRAND
Marketing; database marketing; business administration.

MR BARRY STANDISH
Macro-economic performance and trends; economic modelling; economic impact assessment; market size studies.

MR LANCE STRINGER
Technology strategy and management; IT management.

DR NOSAKHERE GRIFFIN-EL
Freirean thought, love as a theoretical framework, qualitative methods, autobiography as methodology, and educational and societal issues of peoples from oppressed backgrounds.


**Peer-reviewed published conference proceedings**


I am pleased to report that the faculty’s three departments and their associated research units maintained their record of diverse research in 2012, by working together to steward and administer our thriving research enterprise. The research capacity of the faculty was also significantly strengthened during the past year, when six academics were successfully re-rated by the National Research Foundation. The faculty now has a total of nineteen NRF-rated researchers.

The faculty is home to the DST/NRF SARChI Chair in Customary Law (Professor Chuma Himonga) and the now well-established DST/NRF SARChI Chair in Security and Justice (Professor Clifford Shearing), as well as the Chair of Comparative Law in Africa (Professor Salvatore Mancuso) – an initiative supported by the Vice-Chancellor’s Strategic Fund – and the Chair in Intellectual Property Law and Policy (Professor Julian Kinderlerer), funded by the national Department of Trade and Industry. The Chairs all remained active in the generation and dissemination of research. The Chair in Customary Law, Professor Chuma Himonga, hosted a well-attended seminar on *Children: Rights and Ethics* on 16 October 2012. The seminar was presented by Professor Michael Freeman, a renowned scholar on children’s rights, and Associate Professor Anne Pope, an expert on research ethics. The Chair of Comparative Law in Africa and the members of the Centre for Comparative Law in Africa, which was established in 2011 to promote the study of comparative law and draw on the strengths of comparative methodology to conduct research into the multifaceted field of law in Africa, held its first Comparative Law methodology workshop, titled *Building African Scholarship in Comparative Law: Teaching and Research Methodology*. The workshop, held from 22 to 24 October 2012, hosted participants from various African law faculties, as well as from Europe and the United States. As part of the Vice-Chancellor’s Open Lecture series, the Centre for Criminology together with the Institute for Security Studies, hosted leading criminologist Professor John Braithwaite on 26 July 2012, who offered important ideas on how South Africa could address crime in his talk, titled *Restorative Justice: Republican Vision and Justice as a Better Future*.

Further highlights from our research units include an Expert Roundtable for the United Nations High Commissioner for Refugees hosted by the Refugee Rights Research Unit on 13 and 14 September 2012. A seminar by Willie Hofmeyr, who is currently the Deputy National Director of Public Prosecutions and Head of the Asset Forfeiture Unit, was jointly hosted by the Centre of Criminology and the Democratic Governance and Rights Unit (DGRU) and titled *Using Asset Forfeiture to fight Crime and Corruption*.

The faculty welcomed a number of special guests and visitors during the year. These include former Vice-Chancellor Dr Mamphela Ramphele and the Chair of the
Congress of Traditional Leaders, Patekile Holomisa, who formed part of the annual Constitution Week project organised by the DGRU. Clive Thompson, the founding director in 1987 of the Labour Law Unit at UCT known today as the Institute for Development and Labour Law, presented a lunchtime seminar for the faculty as part of the annual Rabinowitz lecture, titled The Paradox of the Great Workplace.

We had one inaugural lecture in 2012. On 31 July 2012, professor Wouter de Vos from the Department of Public Law gave a lecture on Is a Class Action a ‘Classy Act’ to implement outside the Ambit of the Constitution?

I am also very pleased to report that we have four authored books, written respectively by professors Hanri Mostert and Clifford Shearing, Ms Emma Witbooi, and Justice Laurie Ackermann, who is an Honorary Professor in the Faculty. These are listed below, together with books edited by our staff: Fisheries and Sustainability. A Legal Analysis of EU and West African Agreements (Emma Witbooi), Human Dignity: Lodestar for Equality in South Africa (Laurie Ackermann), Mineral Law: Principles and Policies in Perspective (Hanri Mostert), The New Environmental Governance (Clifford Shearing, co-author), Accountable Government in Africa: Perspectives from Public Law and Political Studies (Danwood Chirwa), African Perspectives on Tradition and Justice (Tom Bennett), Labour Law in Context (Rochelle Le Roux, co-author), Permanent Court of Arbitration Award Series: The Guyana/Suriname Arbitration Award of 2007 (Lise Bosman), and The Law of Contract in South Africa 2nd Edition (Dale Hutchison).

The faculty has also maintained its tradition of being engaged in socially responsive research. As such, the Faculty Research and Social Responsiveness Committee considered and approved an initiative titled the UCT Law Advice Programme, co-ordinated by Dr Alistair Price, senior lecturer in the Department of Private Law. The initiative will link members of the faculty with the Legal Resources Centre (LRC) and faculty members will provide legal advice in a number of areas of law, as and when needed by the LRC. In December 2011, the Traditional Courts Bill was published in the Government Gazette and received a critical response from a broad spectrum of civil society. In response, the Centre for Law and Society (previously known as the Law, Race and Gender Unit) co-hosted a national conference for rural community-based organisations and NGOs on the bill, resulting in the establishment of a national co-ordinating committee.

The Kramer Law Library has established a Postgraduate Research Commons, allowing doctoral students and postdoctoral fellows to utilise the quiet and adapted area for writing up their research.

The faculty is also proud to share a number of awards and distinguished appointments received by members of staff. Dr Sindiso Mnisi-Weeks received the Department of Science and Technology’s Emerging Researchers Women in Science Award for her work on the development of rural women. The previous Director of Research, Professor Hanri Mostert, was runner-up in the Distinguished Young Woman Scientist in the Social Sciences and Humanities category. Our faculty presents an annual Research Prize for the most outstanding article published in the preceding two years by any member of staff of the rank of senior lecturer or lecturer. The winner for 2012 was Dr Waheeda Amien and the runner-up was Dr Andrew Hutchison. DGRU director, Professor Richard Calland, has recently been appointed to the World Bank’s Independent Access to Information Appeals Board.

Finally, the faculty welcomed Sufia Singlee, Salona Lutchman, and Thabi Chanetsa as academic staff. It is with sadness, however, that I mention the passing of a wonderful teacher, researcher, friend, and colleague, Professor John Gibson, Director of the Institute of Marine and Environmental Law. He will be missed by all at the Faculty of Law.

Given the relatively high staff/student ratio in the Faculty of Law, the role of Director of Research has been crucial in promoting research in the faculty. Professor Loretta Feris, who took on the directorship officially at the beginning of 2012, continues to encourage and support research. The research featured in this year’s report reflects the broad scope and intellectual vigour of our faculty community. I have pleasure in sharing it with you.
DOCTORAL GRADUATIONS

A.M. BARDOPoulos (COMMERCIAL LAW)
The impact of technology on taxation and is VAT the eTax solution?
Supervised by Professor D. Davis

S. BAVIKATTE (PUBLIC LAW)
Stewarding the earth: rethinking property and the emergence of biocultural rights
Supervised by Professor T. Bennett

D. JORDAAN (PRIVATE LAW)
Medical biotechnology law in South Africa: a human rights analysis of selected topics
Supervised by Professor J. Kinderlerer

J. MASABO (PUBLIC LAW)
The protection of the rights of migrant workers in Tanzania
Supervised by Professor E.R. Kalula and Associate Professor B. Rutinwa (University of Dar es Salaam)

C.O. MOITUI (PUBLIC LAW)
Implementation of the precautionary approach in the regulation of genetically modified organisms: An African context
Supervised by Professor J. Kinderlerer

A.E. TSHIVHASE (PUBLIC LAW)
Military courts in a democratic South Africa: in search of their judicial independence
Supervised by Professor H.M. Corder

S. WAGENER (PRIVATE LAW)
An assessment of the normative bases for the doctrine of vicarious liability in South African law, and the implications for its application
Supervised by Professor A. Fagan

RESEARCH CONTRACTS
44
VALUE OF RESEARCH CONTRACTS
R5.66 million
NRF-RATED RESEARCHERS
19
SARCHI RESEARCH CHAIRS
2
ACCREDITED RESEARCH GROUPINGS
3
DOCTORAL GRADUATIONS
7
DHET-ACCREDITED JOURNALS
49.58 units
PEER-REVIEWED PUBLICATIONS
219
POSTGRADUATE STUDENTS
370
POSTGRADUATE FUNDING
R3.9 million
POSTDOCTORAL RESEARCH FELLOWS
4
POSTDOCTORAL RESEARCH FUNDING
R919 291
Department of Commercial Law

(Including the Institute of Development and Labour Law, the Centre for Comparative Law in Africa, the Shipping Law Unit and the Intellectual Property Law and Policy Research Unit)

HEAD OF DEPARTMENT: PROFESSOR ALAN RYCROFT

Departmental Profile

The Department of Commercial Law is the biggest department in the Law Faculty. It is staffed by many new academic staff working on PhD degrees. Longer-serving academic staff members are working on new books or on new editions of established works. The Department now has three NRF rated researchers.

The Department has an increasing number of PhD and LLM by dissertation students and teaches most of the students who are taking the LLM by coursework and the Postgraduate Diplomas in Law.

In the LLB programme the Department teaches compulsory courses in Corporation Law and Commercial Transactions and offers optional courses to final year students. The Department also offers specialised commercial law courses to nearly 2600 students from other faculties.

There are four research and teaching units which form part of the Department: the Institute of Development and Labour Law, the Centre for Comparative Law in Africa, the Shipping Law unit and the Intellectual Property and Policy Research Unit.

Departmental Statistics

Permanent and long-term contract staff

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<td>Teaching and Research Assistants</td>
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Students

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<td>LLB</td>
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<td>Master of Philosophy (by dissertation)</td>
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<td>LLM By Coursework and Dissertation</td>
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* These figures reflect actual registrations for Commercial Law courses and LLB courses. Where a student registers for two Commercial Law/LLB courses he/she was counted twice.

Research Fields and Staff

PROFESSOR AND HEAD OF DEPARTMENT

PROFESSOR A. RYCROFT
Labour Law, Dispute Resolution

Honorary Professors

PROFESSOR/JUDGE D.M. DAVIS
Capital Transfer and International Tax Law; Competition Law

JUDGE I. FARLAM

Professors

PROFESSOR P.S. BENJAMIN (Part-time)
Labour Law

PROFESSOR J.E. HARE
Admiralty Jurisdiction and Practice; Maritime Law and Marine Insurance; Carriage of Goods by Sea

PROFESSOR R.D. JOOSTE
Revenue Law; Company Law

PROFESSOR E.R. KALULA
International Comparative Labour Law; Labour Market Regulation; Social Security

PROFESSOR J. KINDERLERER
Biotechnology and IPL

PROFESSOR R. LE ROUX
Labour Law, Sport Law

PROFESSOR S. MANCUSO
Comparative Law
PROFESSOR R.C. WILLIAMS (Part-time)
Revenue Law; Company Law

Associate Professors
ASSOCIATE PROFESSOR G. BRADFIELD
Shipping Law, International Trade

ASSOCIATE PROFESSOR D. COLLIER
Labour Law; Electronic Law; Intellectual Property Law

ASSOCIATE PROFESSOR T.S. EMSLIE SC (Part-time)
Revenue Law

ASSOCIATE PROFESSOR T. MONGALO (On extended leave)
Company Law

Emeritus Associate Professor
EMERITUS ASSOCIATE PROFESSOR J. HOFMAN

Honorary Research Associate
DR T. KRUGER
International Trade Law

Adjunct Professors
MS A. BOSMAN
MR N. JERAM
DR T. MADIMA
MR W. SCHOLTZ
MR E. SWANEPoEL
PROF C.R. THOMPSON

Senior Lecturers
DR W. AMIEN
Business Law, Muslim Law

MS T.L. GUTUZA
Revenue Law; Capital Transfer and International Tax Law

DR A. HUTCHISON
Business Law

MS K. Idensohn
Company Law

MS K. LEHMANN
Business Law; Global Economic Law; International Economic Law

DR C. NCUBE
Business Law; Company Law; Intellectual Property Law

MS L.-A. TONG
Intellectual Property Law

DR T. WIESE
Company Law

MS J. YEATS
Business Law; Company Law

Lecturers
MR C. CHOKUDA
Business Law; Company Law

MS J. FRANCO
Business Law

MR M. NKOMO
Business Law; Intellectual Property Law

MS H. STOOP
Business Law; Company Law

MS A.L. TITUS
Business Law; Revenue Law

Administrators
MR C. ELISSAC
Administrative Officer
LLB and Postgraduate Courses

MR M. MBEBE
Administrative Assistant
All Commerce Courses

MS F. KHAN
Administrative Assistant
Labour and Development Law

Contact details
Postal address: Department of Commercial Law
Faculty of Law
Private Bag, Rondebosch, 7701
Telephone: +27 21 650 3068 / 65
Fax: +27 21 650 5631
Web page: http://www.comlaw.uct.ac.za
Institute of Development and Labour Law

DIRECTOR: PROFESSOR R. LE ROUX

Institute Profile

The Institute of Development and Labour Law was established in 1996 through the merger of the Labour Law Unit and the Institute of Development Law. The Institute plays a leading role in development and labour law teaching and research. It is involved with training courses in South Africa and other countries in Southern Africa. It also regularly contributes to training programmes in other organisations and collaborates closely with other leading university centres and NGOs.

Research Fields and Staff

Professors

PROFESSOR E.R. KALULA
International and Comparative Labour Law; Labour Market Regulation; Social Security; Law and Regional Integration

PROFESSOR R. LE ROUX
Labour Law

PROFESSOR P. BENJAMIN
Collective Bargaining and Strike Law; Health and Safety; Minimum Labour Standards; Regulatory Framework

ASSOCIATE PROFESSOR D. COLLIER
Labour Market Regulation, Inequality, Intellectual Property and Development

Adjunct Professors

PROFESSOR C. THOMPSON
Collective Bargaining; International Labour Law

DR T. MADIMA
Collective Bargaining

MR C. NUPEN
Dispute Resolution; Social Dialogue

MS T. ORLEYN
Dispute Resolution

MR N. JERAM
Social Security

Administrative Staff

MS F. KHAN

Researchers

MR S. GODFREY
Senior Researcher, Labour and Enterprise Project
Bargaining Councils; Industrial Sociology

MR J. THERON
Co-ordinator of the Labour and Enterprise Policy Research Group (LEP)
Labour Rights; Small and Medium Enterprise

MS M. VISser
Researcher

Honorary Research Associate

PROFESSOR N. RUBIN
International Labour Standards; Law and Development

Contact Details

Postal address: Institute of Development and Labour Law, 6.23, 6th Level, Wilfred & Jules Kramer Law Building, Middle Campus, University of Cape Town, Rondebosch, 7700
Tel: +27 21 650 5634
Fax: +27 21 650 5660
Web: www.idll.uct.ac.za

Centre for Comparative Law in Africa

DIRECTOR: DR A. ORDOR

The Centre for Comparative Law in Africa (CCLA) was established in 2011 to promote the study of comparative law and draw on the strengths of comparative methodology to research into the multifaceted field of law in Africa. The Centre presents an opportunity to develop a discipline that lends itself to optimal application in the pluralistic legal frameworks within which life is lived in Africa. In its mission to contribute to the development of comparative law in Africa, the strategy of the CCLA is to establish the field at UCT, build capacity in it across the continent through academic programmes, apply comparative law expertise in consultancies and disseminate new knowledge in comparative law in Africa through conferences, publications and professional networks. Its location within the Department of Commercial Law recognises
the centrality of comparative law to on-going efforts at economic integration on the African continent. The CCLA offers an LLM and a postgraduate diploma in Comparative Law and conducts research on a variety of themes that apply comparative methodology. Currently the Centre is involved in a collaborative research project on mineral law and policy in three southern African countries (South Africa, Namibia and Zambia) under the UCT PERC Africa Knowledge Project as well as customary law development in Somaliland. The CCLA offers support for Africa-focused doctoral research and also undertakes consultancies from institutions in the public and private sectors.

Professor and Chair
Professor S. Mancuso, LLB Palermo PhD Trieste

Administrator
Ms S. van der Brock

Contact details
Postal address: Room 4.41, 4th Floor, Kramer Law Building, Faculty of Law, Middle Campus
Tel: +27 21 650 5268
Fax: +27 21 650 3671
Email: info-ccla@uct.ac.za

Shipping Law Unit
PROFESSOR AND HEAD: PROFESSOR J.E. HARE

The Shipping Law Unit has been in operation since the beginning of 1993. The Unit was set up within the Department of Commercial Law to accommodate part-time and full-time studies in Shipping Law at higher postgraduate level, and to support the Maritime Law option offered to Final Level LLB students. The Shipping Law Unit provides postgraduate tuition and research in Admiralty law and practice and in all private law aspects of the law relating to the sea and ships. It serves as an information and advice centre to the shipping industry, and monitors developments in maritime law and policy in South Africa and abroad. The Unit co-operates closely with the Institute of Marine and Environmental Law which handles the public law elements of the Law of the Sea and related subjects.

Visiting Teacher
R. Knutzen, LLB Cape Town BCL Oxon

Contact details
Postal address: Room 501, 5th level, Wilfred & Jules Kramer Law Building, Faculty of Law, Middle Campus
Tel: +27 21 650 2676
Fax: +27 21 650 5662
Email: John.Hare@uct.ac.za

Department of Commercial Law

Research Output

Edited books


Chapters in books


Articles in Peer-reviewed Journals


Department of Private Law

HEAD OF DEPARTMENT: PROFESSOR TJAKIE NAUDÉ

Departmental Profile

The Department of Private Law has seven NRF-rated researchers. The Department continued to maintain its strong research record during the period of review. Members of the department maintained a high rate of publication, which included a number of international publications.

The Department welcomed Mr Alistair Price who has since obtained his PhD from the University of Cambridge in 2013.

Professor Hanri Mostert and Associate Professor Anne Pope convened the annual Southern African Property Law Teachers Colloquium and Associate Professor Mohamed Paleker convened a conference on the Law of Succession and Trusts. Several members of the Department presented papers at local and international conferences: Dr Lesley Greenbaum (UCT’s Teaching and Learning Conference and the Higher Education Teaching and Learning Association of South Africa Conference); Professor Tjakie Naude (International Consumer Law Conference, Utrecht, Netherlands); and Professor Hanri Mostert (World Bank Conference on Land and Poverty, Washington DC; Progressive Property Seminar, Harvard University).

Professor Jaco Barnard-Naudé was invited to teach at the University of Pretoria, Associate Professor Paleker at the University of Florida, Professor Mostert in the Topclass Programme of the Universities of Radboud Nijmegen and Groningen, and Associate Professor Scott at the University of Oxford. Prof Barnard-Naudé was also appointed as Honorary Research Fellow in the Birkbeck Institute for Humanities, University of London.

Departmental Statistics

**Permanent and long-term contract staff**

<table>
<thead>
<tr>
<th>Category</th>
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<tbody>
<tr>
<td>Emeritus Professor</td>
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<td>Admin and Clerical Staff</td>
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**Students**

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*These numbers generated from Peoplesoft course numbers for 2012.

RESEARCH FIELDS AND STAFF

PROFESSOR T. NAUDÉ
Law of Contract; Consumer Protection

**Professors**

PROFESSOR A.J. BARNARD-NAUDÉ
Jurisprudence; Legal Theory

PROFESSOR A.G. FAGAN
Law of Delict; Jurisprudence; Constitutional Theory

PROFESSOR C. HIMONGA
African Customary Law

PROFESSOR D.B. HUTCHISON
Law of Contract; Law of Delict

Emeritus Professors

EMERITUS PROFESSOR W. DE VOS SC
Unjustified Enrichment; Legal History

EMERITUS PROFESSOR I. LEEMAN
Copyright Law

Honorary Research Associate

ASSOCIATE PROFESSOR M.L. HEWETT
South African and European Legal History

Distinguished visitors

PROFESSOR R. EVANS-JONES
University of Aberdeen, Scotland

Senior Lecturers

DR A. BARRATT
Law of Persons and Marriage; Legal History; Intellectual Property Law
Edited books


Chapters in books


Department of Public Law

(INCLUDING THE CENTRE OF CRIMINOLOGY; INSTITUTE OF MARINE AND ENVIRONMENTAL LAW; DEMOCRATIC GOVERNANCE AND RIGHTS UNIT; LAW, RACE AND GENDER UNIT; AND REFUGEE RIGHTS UNIT)

HEAD OF DEPARTMENT: PROFESSOR D.M. CHIRWA

Departmental Profile

The Department of Public Law now has 9 NRF rated researchers on staff and continues to produce high level research in various areas, including constitutional law and human rights, environmental law, criminal law (both national and international), criminal procedure, evidence, policing, land rights and labour law. 2012 was another highly productive year for this Department. Members of the Department were involved in the production of at least four books and two edited books. A large amount of book chapters and journal articles were produced.

The Department’s research units – the Centre of Criminology, the Institute of Marine and Environmental Law, the Democratic Governance and Rights Unit, and the Law, Race and Gender Research Unit – apart from producing accredited research outputs, were involved in a wide range of socially responsive activities, which bolstered the Department’s contribution to society.

Departmental Statistics

Permanent and long-term contract staff

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<th>Role</th>
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<td>Associate Professors</td>
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<td>Teaching and Research Assistants</td>
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Honorary staff

<table>
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<tr>
<th>Role</th>
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<tr>
<td>Research Associates</td>
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<tr>
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<td>Emeritus Professors</td>
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Students

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<tbody>
<tr>
<td>LLB</td>
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<td>Honours</td>
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*These figures reflect actual registrations for Public Law courses and LLB courses. Where a student registers for two Public Law/LLB courses he/she was counted twice.

Research Fields and Staff

Professor and Head of Department

PROFESSOR D.M. CHIRWA
International Human Rights; the Rights of the Child; Domestic implementation of Human Rights; Administrative Law; Social and Economic Rights

Professors

PROFESSOR T.W. BENNETT
African customary law; land rights; public and private international law
### Associate Professors

<table>
<thead>
<tr>
<th>Name</th>
<th>Specializations</th>
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<tbody>
<tr>
<td><strong>ASSOCIATE PROFESSOR R. CALLAND</strong></td>
<td>Accountable Government; Access to Information; Whistle Blowing Legislation; Constitutional Law; Public Ethics</td>
</tr>
<tr>
<td><strong>ASSOCIATE PROFESSOR A.R. PATERSON</strong></td>
<td>Environmental Law; Biodiversity; Protected Areas; Environmental Fiscal Reform</td>
</tr>
<tr>
<td><strong>ASSOCIATE PROFESSOR D. SMYTHE</strong></td>
<td>Law and Society (particularly the use of interdisciplinary research methods); Criminal Justice Policy; Human Rights; Violence against Women</td>
</tr>
<tr>
<td><strong>ASSOCIATE PROFESSOR E. VAN DER SPUY</strong></td>
<td>Policing (public); International Assistance to Policing in Transition; Security Sector Reform; Police Reform; Peacekeeping</td>
</tr>
</tbody>
</table>

### Emeritus Professors

- **PROFESSOR D.J. DEVINE**  
  International Law of the Sea; General Principles of International Law; Regional Integration
- **PROFESSOR D. VAN ZYL SMIT**  
  Criminal Law

### Honorary Professors

- **PROFESSOR J. DUGARD**  
  Advocate W. TRENGOVE
- **JUSTICE L.W.H. ACKERMANN**  
  Emeritus Justice of the Constitutional Court

### Senior Lecturers

- **MS C.H. POWELL**  
  Constitutional Law; International Law; International Criminal law

### Lecturers

- **MS M.C. DU PLEISSIS**  
  Social Security Law and Governance; Workers’ Compensation
- **MS P.K. GUMEDE**  
  Environmental Law; Alien Invasive Species, Environmental Management Agreements; African Customary Law; Marine Pollution Law
- **MS K. PHELPS**  
  Constitutional Criminal Adjudication; Punishment; the Principle of Legality and Sexual Offences
- **MR A. TSHIVHASE**  
  Military Justice; Criminal Procedure; Law and Regional Integration in Africa; Human Rights; Constitutional Law
Contract Staff

ASSOCIATE PROFESSOR R. MANJOO
Women’s Human Rights; Violence against Women; Culture, Religion, Tradition and Human Rights

DR H. WOOLVER
International Law, International Criminal Law

MS M. VON BROEMBSEN
Law and Poverty; Human Rights and Legal Empowerment of the Poor; the Interrelationship between the Informal Economy; Alleviation of Poverty and Law

Administrative Staff

MS D. MWAMBALA
Administrative Officer

MS R. FRANCKE
Senior Secretary

Contact Details

Postal address: Department of Public Law, Faculty of Law, University of Cape Town, Private Bag X3, Rondebosch, 7701
Telephone: +27 21 650 3072
Fax: +27 21 650 5673
Website: http://www.publiclaw.uct.ac.za

Centre of Criminology

DIRECTOR: PROFESSOR C. SHEARING

Centre profile

The Centre is a niche research unit within the Faculty of Law at the University of Cape Town. Our research and analysis in 2012 was organised around three principal foci, namely, developments in policing; developments in penal policy and the emergence of new environmental risks and responses to them. A uniting theme is the concern to ensure that the programmes contribute to both theory development and to policy development and implementation.

The Centre’s research programme builds on established arenas within Criminology and established strengths within the Centre of Criminology and is stretching the boundaries of Criminology in ways that will enable it to recognise and respond to the changing international and local risk landscapes.

Research on policing at the Centre of Criminology is concerned both with public police and private policing developments in South Africa and in transitional contexts,particularly in Africa.

Centre Statistics

Permanent and long-term contract staff

<table>
<thead>
<tr>
<th>Position</th>
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<tbody>
<tr>
<td>Professors</td>
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<td>Honorary Research Associates</td>
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Research Fields and Staff

Permanent Staff

PROFESSOR C. SHEARING
Governance of Physical and Environmental Security

ASSOCIATE PROFESSOR E. VAN DER SPUY
Policing (public); International Assistance to Policing in Transition; Security Sector Reform; Police Reform; Peacekeeping

MS. J. BERG, SENIOR LECTURER,
Governance of Security; Plural Policing; Policing Accountability

Honorary Research Associates

DR L. LAZARUS
Lecturer at St Anne’s College, University of Oxford

C. CULLINAN
Director, EnAct International, Practising Environmental Attorney

ASSOCIATE PROFESSOR J. FROESTAD
Institute of Administration and Organization Theory, University of Bergen

Research Staff

MS E. ATKINS (Information Manager)
Multi-media Electronic Resource Library

MR T. HERBSTEIN
Environmental Security Programme
Institute Profile

The Institute of Marine and Environmental Law undertakes research, teaching and consultancy in the fields of marine and environmental law both at the international level and in the context of Southern Africa. It also participates in multi-disciplinary projects in collaboration with other specialists in marine and environmental subjects. 2012 was a year of transition for the Institute with the sudden sad death of its director, Professor John Gibson. Prof Gibson will always be remembered for his significant international and domestic contribution to teaching and research in the areas of international law of the sea, coastal zone law, marine resources law and marine pollution law. In 2012, Professor Loretta Feris initiated a research project examining the right to sanitation in both international law and domestic law. To this end she delivered papers at both international and domestic conferences which will shortly be published. She also published an article on acid mine drainage and investigated the intersection between customary law and the traditional rights to fishing, which resulted in the drafting of an advisory opinion for the Eastern Cape Parks and Tourism Authority. Professor Jan Glazewski’s research focussed on the areas of climate change law and marine law. In collaboration with the Centre for Law and Environment at UCL, he convened a series of workshops and co-authored a report titled Carbon Capture and Storage – Towards a Regulatory and Legal Regime for South Africa. He was also involved in collaborative projects with the ACDI (on climate change in the Berg River Region) and MA-Re (on ocean governance). Associate Professor Alexander Paterson continued with his research in the area of protected areas governance. He published several journal papers and book chapters on co-management, indigenous peoples’ rights in protected areas, and legal models for promoting inclusive, participatory and human-centred legal approaches to conservation. He also continued his work with the IUCN Environmental Law Centre relating to the development of a Concept Paper on the Legal Aspects of Connectivity Conservation. Miss Peggy Gumede progressed with her research in the areas of integrated coastal management and alien invasive species regulation.

Institute Statistics

Permanent and Long-term Contract Staff

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<th>Type</th>
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<td>Administrative and Clerical Staff</td>
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Students

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<tr>
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<td>LLB – Final Year</td>
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<td>Non-Law students</td>
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<td><strong>Total</strong></td>
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Research Fields and Staff

Permanent Staff

PROFESSOR J.N.K. GIBSON
Law of the sea; coastal zone law; environmental law

PROFESSOR J.I. GLAZEWSKI
Environmental law; energy law; Antarctic; marine pollution law
The vision for the future is that in ten years’ time, the DGRU will have a strong international reputation as a place where bold new ideas are born and then turned into working practice, providing a stimulating environment for policy-makers, academic thinkers and students alike, and an intellectual bridge between Europe and Africa on some of the most significant public law issues that face modern societies everywhere.

**Unit Statistics**

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<th>Position</th>
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<td>Associate Professors</td>
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**Research Fields and Staff**

### Permanent and Contract Staff

**ASSOCIATE PROFESSOR R. CALLAND**  
Transparency Law & Policy, the Right of Access to Information, Whistle Blowing, Public Ethics, Political and Economic Governance, Constitutional Law, Multi-stakeholder Processes

**MS T. MASENGU**  
Refugee Law, Women’s Rights and the impact of the Protocol to the African Charter on the Rights of Women in Africa on Democracy and Governance

**MR C. OXTOBY**  
Judicial Appointments, Judicial Ethics, Human Rights, Anti-terrorism Law and Practice in Southern and Eastern Africa and the 2010 World Cup

### Administrative Staff

**MS V. KARTH**  
Programme and Financial Management; Website Management, Marketing & PR

**Contact details**

Postal Address: The Democratic Governance and Rights Unit, Kramer Law School Building, Middle Campus, University of Cape Town, Rondebosch, 7700  
Tel: +27 21 650 2011  
Fax: +27 21 650 5607  
Web: www.dgru.uct.ac.za
Law, Race and Gender Research Unit

DIRECTOR: ASSOCIATE PROFESSOR D. SMYTHE

Unit profile

The Law, Race and Gender Unit (LRG) has worked, since its inception in 1993, to provide legal decision-makers with an understanding of the ways in which the history and social context of our country informs the creation, application and interpretation of our laws. The Unit focuses on producing excellent empirical studies of law in context, based on participatory methodologies and collaborative partnerships. It publishes a work in progress series, called Issues in Law, Race & Gender and convene a very successful seminar series under the auspices of our Rural Women’s Action Research Project.

Over the years LRG has done research, developed a range of training materials, and conducted regular participatory workshops through which actors within the justice system are able to explore issues such as gender-based violence, racial discrimination and inequality, sexuality, ethics and various associated legal problems. Current work focuses on laws and practices affecting women living under customary law, including the Traditional Courts Bill and Communal Land Rights Act, and related governance issues. Its work reflects a continued commitment to sound research underpinning evidence-based advocacy on critical legal and social issues.

LRG hosted an externship project with Stanford University’s Stanford International Human Rights Clinic, receiving 3 final-year Stanford law students. They also convene the final year LLB research focus group on ‘Women and the Legal System’ and an LLM course on “Sexual Offences”.

LRG works on a collaborative basis with a range of external partners, including rural community based organisations (e.g. Masifunde, Masimanyane, LAMOSA, Border Rural Committee, and the Rural Women’s Movement) and other academic institutions (especially UWC, Stellenbosch and Stanford University). They work particularly closely with lawyers from the Legal Resources Centre. They draw on a range of internationally recognised researchers to supplement their own research capacity where necessary.

Permanent and Contract Staff

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Research Fields and Staff

Permanent Staff

ASSOCIATE PROFESSOR D. SMYTHE
Law and Society (particularly the use of Interdisciplinary Research Methods), Participatory Governance, Criminal Justice Policy, Violence against Women

DR A. CLAASSENS
Culture and Human Rights; Land Rights; Women’s Rights; Participatory Action Research, Traditional Leadership and Governance

DR S. MNISI
Interface between Living Customary Law and State Law, Culture and Human Rights; Institutionalisation of Traditional Authorities, particularly Traditional Courts; Succession

MS M. DE SOUZA
Researcher

MS D. JEFTHAS
Researcher

MS S. TAHERZADEH
Researcher

MR M. JARA
Accountable Government; Traditional Leadership and Governance; Land Rights; Agricultural Production

Research Support Staff

MR C. KAVURO
Resource Administrator

Administrator

MS S. WRIGHT
Refugee Rights Unit

DIRECTOR: MS F. KHAN

Unit Profile

The Refugee Rights Unit was founded in 1998 as a Project within the UCT Law Clinic, aimed at providing legal support services to the growing number of refugees and asylum seekers in South Africa. It has since evolved into a fully independent Unit, with four main components: the Unit’s Refugee Law Clinic provides direct legal services to thousands of refugees and asylum seekers in the Western Cape each year; the Unit conducts applied research in refugee law and related topics; it teaches refugee law to undergraduate law and masters’ students within the Department of Public Law; and, it undertakes a significant amount of targeted advocacy and training of government officials, the judiciary, civil society partners and refugee communities.

The close relationship between the Refugee Law Clinic’s practice, the Unit’s teaching of Refugee and Immigration Law courses to LLB and LLM students, and the Unit’s research is a unique aspect of the Unit’s work. The Refugee Law Clinic provides the Unit with a close link to the practical application of refugee law in South Africa and therefore directly informs and supports the Unit’s teaching activities and research outputs. Students often engage with the most current issues facing refugees and asylum seekers in South Africa, including those involved in the strategic litigations undertaken by the Refugee Law Clinic. Students are also encouraged to volunteer at the Refugee Law Clinic in order to gain practical experience and fulfil community service requirements. The Unit’s teaching component includes the direct supervision of undergraduate and graduate level research work in the field of refugee and immigration law.

The Working Paper Series, (http://www.refugeerights.uct.ac.za/research/working_papers/) publishes the research reports of the Refugee Rights Unit, occasional papers of the Unit members and versions of some of the papers presented by the Refugee Rights Unit members. A key focus of the Working Papers is the promotion of the rights of refugees in South Africa and the global South.

The Refugee Rights Unit remains not only committed to directly assisting refugees and asylum seekers but also in teaching and engaging in research which can be used to promote and further the law in this area and as an advocacy tool in the future.

Unit Staff

Ms F. Khan Rights of refugees and their integration into the host country

Ms T. Schreier (Senior Attorney and Research Manager) International and human rights law, South African refugee law and analyzing refugee legislation in SADC

Unit Attorneys and Researchers

MR J. CHAPMAN
MR J. DE JAGE
MS M. SCHOEMAN

Unit Candidate Attorneys

MS N MAGAZI

Contact Details

Postal address: Department of Public Law, Faculty of Law, University of Cape Town, Private Bag X3, Rondebosch, 7701 Telephone: +27 21 650 5632 Fax: +27 21 650 4107 Web: http://www.refugeerights.uct.ac.za

Department of Public Law

Research output

Authored books


Edited books


Chapters in books


Mnisi, S. and Claassens, A. 2012. Tensions between vernacular values that prioritise basic needs and state versions of customary law that contradict them: “we love these fields that feed us, but not at the expense of a person”. In S. Liebenberg and G. Quinot (eds), Law and Poverty. Perspectives from South Africa and Beyond, pp. 381-402. Claremont, South Africa: Juta. ISBN 9780702194450.


Articles in Peer-reviewed Journals


Corder, H.M. 2012. ‘Building a nation’: the judicial role in South Africa. Law in Context, 28(8): 60-75.


Peer-reviewed published conference proceedings

Faculty of Engineering & the Built Environment

The Faculty of Engineering & the Built Environment continues to strive towards research excellence, and to strengthen its international profile.

Dean’s Report

During 2012, the faculty has seen an increase in the number of NRF-rated researchers to 46. There has also been a marked increase in publications in peer-reviewed, accredited journals, and the publication count is up from 71.36 units in 2005 to 94.67 units in 2011. With this reputation, the faculty has become the faculty of choice for a growing number of prospective postgraduate students. The number of postgraduate students registered in the faculty in 2012 totaled 1,040. Contracts from industry have steadily increased in number over the past years. In 2011, the faculty signed 299 contracts to the value of R94.2 million and in 2012 a total of 296 contracts, valued at R136.6 million, were awarded to the faculty.

In 2012, the South African National Roads Agency Limited funded a chair in Transport Studies in the Department of Civil Engineering. Eskom established two chairs, the first in the field of Energy Efficiency, housed in the Department of Mechanical Engineering, and the second in Materials Science, hosted by the Centre of Materials Engineering. In addition, the faculty has two new DST/NRF SARChI Chairs – the first in Reaction Engineering, in the Department of Chemical Engineering, and the other in Industrial Computational Fluid Dynamics, in the Department of Mechanical Engineering.

The faculty has appointed three senior research scholars to assist in the mentoring of younger staff, and also to contribute to the research agenda of the faculty. As part of the AW Mellon Foundation’s Visiting and Retired Scholars Mentorship project, the African Centre for Cities hosted Professor Margo Huxley, a retiree from the University of Sheffield, in the UK. The faculty continues to create a supportive and enabling environment for research and innovation, and it is particularly encouraging to note that nine new staff members joined the Emerging Researcher Programme during 2012. The programme ensures the transfer of essential research skills from experienced researchers to those academics who are establishing a research career.

The faculty had 21 registered postdoctoral research fellows in 2012. Four postdoctoral fellowships are available annually through faculty funds, to increase the number of postdoctoral fellows in the faculty. We believe that the role of postdoctoral fellows is critical to the development of the next generation of research scholars.

PROFESSOR FRANCIS PETERSEN
Dean of Engineering & the Built Environment
Highlights from 2012

- The Centre for Materials Engineering had a Geeble 3 800 installed thanks to an NRF special equipment award. Valued at more than R10 million, the Geeble 3 800 will place the centre at the forefront of research into the performance of materials during manufacture, allowing researchers to investigate novel materials processing.

- Aurecon has committed R2 million over the next five years to support postgraduate students in the Department of Civil Engineering.

- Professor Mark Alexander, Dr Hans Beushausen, and Mike Otieno (PhD student) from the Department of Civil Engineering were awarded the Wason Medal for Materials Research from the American Concrete Institute.

- Associate Professor Harro Von Blottnitz’s Environmental and Process Systems Research Group, in the Department of Chemical Engineering, was awarded a R2.5 million grant by the NRF to support research into the emerging biogas innovation sector in South Africa.

- Professor Alison Lewis from the Department of Chemical Engineering was named Distinguished Woman Scientist: Physical and Engineering Sciences at the Department of Science and Technology Distinguished Women in Science Awards.

- Joyce Mwangama, Gladwell Nganga, and Lombe Mutale received fellowships from the Department of Science and Technology for their doctoral and master’s studies.


- C*Change, the DST/NRF Centre of Excellence in Catalysis, hosted the Syngas Convention in association with Sasol and PetroSA. This was a first-of-its-kind convention, dedicated to synthesis gas conversion and brought together some of the world’s top scientists and industry experts to build valuable international collaborations.

- Neelal Mooruth and Dr Rob van Hille, from the Department of Chemical Engineering, received the Water Institute of South Africa’s award for the most outstanding contribution to industrial water technology.

The years ahead will remain exciting and demanding ones for the faculty, progressing on a journey of providing quality research output that can make an impact internationally.
DOCTORAL GRADUATIONS

M.S. AHMAD (MECHANICAL ENGINEERING)
Study of dynamic behaviour of multilayered structures subjected to blast loading
Supervised by Professor G. Nurick

O.S. AZEEZ (CHEMICAL ENGINEERING)
Supply and target-based superstructure synthesis of heat and mass exchange networks
Supervised by Associate Professor D. Fraser

L.E.K. CHALEMBA (ELECTRICAL ENGINEERING)
Topology-aware multicasting in phased mobile ad hoc networks for e-learning
Supervised by Dr A. Murgu and Professor M.E. Dlodlo

G. EVEZARD (MECHANICAL ENGINEERING)
An innovative rapid compression machine in theory and practice
Supervised by Professor A. Yates and Mr T. Cloete (International Labour Resource and Information Group)

C. GERETTO (MECHANICAL ENGINEERING)
The effects of different degrees of confinement on the deformation of square plates subjected to blast loading
Supervised by Professor G. Nurick and Dr S.C. Kim Yuen

Y. GORBANI (CHEMICAL ENGINEERING)
On the progression of leaching from large particles in heaps
Supervised by Associate Professor J. Petersen, Dr M. Becker, Dr A. Mainza and Professor J.-P. Franzidis

M. JOHNSTONE-ROBERTSON (CHEMICAL ENGINEERING)
Influence of enzyme location and culture rheology on the optimisation of glucose oxidase production by Aspergillus niger NRRL-3 and Penicillium sp. CBS120262
Supervised by Professor S.T.L. Harrison and Professor K.G. Clarke (Stellenbosch University)

A. KOTSIOPOULOS (CHEMICAL ENGINEERING)
Development of an unsteady state model for the tank biorecovery of sulphide mineral concentrates in flow reactor systems
Supervised by Dr R. Rawatlal and Emeritus Professor G. Hansford (deceased)

C.V. MADELL (ARCHITECTURE AND PLANNING)
Local economic development, business stimulation and poverty reduction in poor urban areas: the disjuncture between state policies and household survival strategies in the case of Heideveld, Cape Town
Supervised by Professor V. Watson

J.T. MARKS (MECHANICAL ENGINEERING)
Kolb interrupted: an investigation into students’ experience of an experiential learning approach to entrepreneurship education
Supervised by Associate Professor B. Collier-Reed and Professor J. Case

R.P. MOGOROSI (CHEMICAL ENGINEERING)
Metal support interactions on Fe-based Fischer-Tropsch catalysts
Supervised by Professor E. van Steen

M.M.Z.E. MOHAMMED (ELECTRICAL ENGINEERING)
Automated signature generation for zero-day polymorphic worms using a double-honeynet
Supervised by Professor H.A. Chan

M.M.A. MUSLAM (ELECTRICAL ENGINEERING)
Host mobility management with identifier-locator split protocols in hierarchical and flat networks
Supervised by Professor H.A. Chan

M.J. RAPSON (ELECTRICAL ENGINEERING)
An extensible computational cochlear modelling framework
Supervised by Professor J.C. Tapson and Ms R.A. Verrinder

C. SHAW (MECHANICAL ENGINEERING)
Learning systemic management practice
Supervised by Associate Professor T. Ryan

L.C. SMITH (CHEMICAL ENGINEERING)
The effect of selected academic development programmes on the academic performance of academic development students at a South African university: An empirical analysis
Supervised by Associate Professor J. Case, Professor D.M. Fraser, Associate Professor C. van Walbeek, and Dr V. Ranchhod

A.F. UDEMANS (MECHANICAL ENGINEERING)
Business Architecture Tool (BAT): Development and assessment of a systems framework to guide organisations from concept to delivery, in terms of creating deeper and meaningful integration across processes and functions
Supervised by Associate Professor T. Ryan

A.A. VAN DER BYL (ELECTRICAL ENGINEERING)
A parallel processing framework for spectral based computations
Supervised by Professor M. Inggs and Professor R. Wilkinson (Department of Electrical Engineering, Cape Peninsula University of Technology)
**PATENTS**

**FILED APPLICATIONS**

**BACON, T. AND MCNAUGHT, A.M.**
*Prosthesis with Underactuated Prosthetic Fingers.*
PCT Patent Application PCT/IB2012/056637

**TOMA, V.N.**
*Stabilised and Activated Metal Cluster Complex Based Catalysts and their Preparation.*
PCT Patent Application PCT/IB2012/056681

**BOONZAIER, J.A., HENDRICKS, M.R. AND VICATOS, G.**
*Transport Distraction Apparatus.*
PCT Patent Application PCT/IB2012/056664

**BRIJAL, Y., JOHN, L.R. AND SIVARASU, S.**
*Hand Exoskeleton.*
Provisional Patent Application South Africa 2012/08238

**BURTON, S.G., DAVIDS, L.M. AND ZWANE, E.N.**

**BURTON, S.G., DAVIDS, L.M. AND ZWANE, E.N.**

**BURTON, S.G., DAVIDS, L.M. AND ZWANE, E.N.**

**CLAEYS, M.C.M.**
*Compression Seal Fitting for Tubes and Other Elongate Elements.* Provisional Patent Application South Africa 2012/04359

**CLAEYS, M.C.M. AND FISCHER, N.F.**

**CLAEYS, M.C.M. AND FISCHER, N.F.**
*Sample Presentation Device for Radiation-Based Analytical Equipment.* PCT Patent Application PCT/IB2012/053438

**BURTON, S.G., DAVIDS, L.M. AND ZWANE, E.N.**
*A Hydroxytyrosol Compound.* National Phase Patent Application Europe 10818478.9

**BURTON, S.G., DAVIDS, L.M. AND ZWANE, E.N.**
*A Hydroxytyrosol Compound.* National Phase Patent Application China 201080052708.1

**BURTON, S.G., DAVIDS, L.M. AND ZWANE, E.N.**

**GINSBERG, S.I.**
*Adjustable Picture Hanger.*
Provisional Patent Application South Africa 2012/05031
GINSBERG, S.I., PARSONS, A.T. AND VICATOS, G.
An Endoprosthesis. PCT Patent Application PCT PCT/IB2012/053247

GOLOVINS, E.

GOLOVINS, E.

GOLOVINS, E.

LUSILAO-ZODI, G-A. AND MORRISON, N.

LUSILAO-ZODI, G-A. AND MORRISON, N.

LUSILAO-ZODI, G-A. AND MORRISON, N.

LUSILAO-ZODI, G-A. AND MORRISON, N.

VICATOS, G.
Rotating Hinge Knee Prosthesis. Provisional Patent Application South Africa 2012/01641

RESEARCH CONTRACTS
296
VALUE OF RESEARCH CONTRACTS
R136.62 million
NRF-RATED RESEARCHERS
46
SARCHI RESEARCH CHAIRS
6
ACCREDITED RESEARCH GROUPINGS
13
DOCTORAL GRADUATIONS
18
DHET-ACCREDITED JOURNALS
94.67 units
PEER-REVIEWED PUBLICATIONS
389
FILED PATENTS
22
GRANTED PATENTS
2
POSTGRADUATE STUDENTS
1090
POSTGRADUATE FUNDING
R29 million
POSTDOCTORAL RESEARCH FELLOWS
21
POSTDOCTORAL RESEARCH FUNDING
R3.3 million

GRANTED APPLICATIONS

BRADSHAW, D.J. AND NEWELL, A.J.H.

BURTON, S.G., DAVIDS, L.M. AND ZWANE, E.N.
School of Architecture, Planning & Geomatics  
(Including the African Centre for Cities)  
DIRECTOR: ASSOCIATE PROFESSOR ALTA STEENKAMP  

School Profile  
Within the School of Architecture, Planning and Geomatics, research work includes conventional research and applied research as well as creative work. This takes place within the actively teaching divisions within the School, as well as within dedicated research units. In the Architecture and Planning programmes these research endeavours include areas of enquiry such as urban design, architectural design, architectural education, digital technology, contemporary architectural theory and practice, planning theory, urban conservation, urban transport policy and urban informality.

The ethos of this School is also strongly influenced by our context: the physical context, the city, and the broader social/cultural/economic context of the region and the country. We are committed to engage with these contexts in both a meaningful and critical way, not as abstract sites for investigation but rather as peopled places to which we can respond.

The Geomatics Division within the School undertakes research in a variety of areas. These include documentation, modelling and visualization of African heritage sites, close-range photogrammetry, laser scanning of architectural structures and remote sensing of the environment; issues relating to land surveying, ownership, registration and tenure; modeling of the shape of the Earth (geoid) using gravity and satellite data, applications of GPS and modeling of datum transformations in Africa; applications of remote sensing and geographic information systems (GIS) to urban, agricultural and environmental monitoring. Spatial data infrastructure (SDI) development for integrated development planning (IDP) in sub-Saharan African cities.

African Centre for Cities  
Known colloquially by the acronym ‘ACC’, the Centre has established an impressive international profile and reputation as a dynamic home for analysis of urban problems and policies. Its interdisciplinary brand gives the ACC huge potential to facilitate urban conversations and inquiry throughout UCT.

‘CityLabs’, a new model of engaged and applied research, were created to address pressing concerns in Cape Town, including flooding, urban health, densification, ecology, and climate change. New Labs on violence, culture and human settlements have been launched. The ACC partners with international research units studying food security, and women’s informal employment. Honours for ACC include its (renewed) status as a UCT ‘Signature Theme’ and a Rockefeller Innovation Award.

School Statistics  
Permanent and Long-term Contract Staff  

<table>
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<tr>
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<tbody>
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<tr>
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Students  

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Research Fields and Staff  

DR MAHMOUD ABDEL-GELIL  
Senior Lecturer: Geomatics. Gravity data analysis, GPS, Geodesy and geophysics.

FRANCIS CARTER  
Senior Lecturer: Architecture. Curriculum theory in relation to undergraduate built environment design programmes; theories of making, with reference to contemporary South African architecture; programming for new knowledge space.

ASSOCIATE PROFESSOR NICHOLAS COETZER  
Architecture. Architectural design; contemporary architectural history and theory; digital technology.

ALBERTRUM CROWDER  
Lecturer: Architecture. Specializes in the area of cultural heritage conservation. His research focuses on the inherent values that people associate with their environment and the possibility for this to help promote sustainable cultural heritage conservation and development.
KEVIN FELLINGHAM
Senior Lecturer: Architecture. Interdisciplinary research, practice and design.

CLINTON HINDES

SIMON HULL
Lecturer: Geomatics. Digital photogrammetry for heritage documentation, fields of land tenure reform, disaster management using remote sensing and GIS, heritage documentation, and improving education.

FADLY ISAACS
Lecturer: Architecture. (Measuring) urban settlement quality, integrating strategic urban infrastructure investment.

TANIA KATZSCHNER
Lecturer: Planning. Education for sustainable development, sustainable urban systems, creating and nurturing educational systems that serve human needs while also protecting our resources for future generations, trans-disciplinarity and systems thinking.

SIMONE LE GRANGE
Lecturer: Architecture. Architectural design, Academic Development Lecturer.

MIKE LOUW
Lecturer: Architecture. Sustainable architecture and urbanism, architectural history and materiality.

PROFESSOR IAIN LOW
Architecture. Space and transformation; critical thinking / practice and the ‘re-writing’ of architectural type; post apartheid South African condition: urbanism, the ‘new’ public realm, contemporary dwelling and architectural pedagogy.

LIANA MULLER
Lecturer: Landscape Architecture. Heritage and management of cultural landscapes, heritage landscapes and representation, specifically focussing on people’s connection with the environment and landscape as an anchoring point for memory and meaning.

PROFESSOR JO NOERO
ARCHITECTURE.

DR NANCY ODENDAAL
Senior Lecturer: Planning. Relationship between Information and Communication Technology and urban transformation, metropolitan planning, planning theory and infrastructural transitions in cities of the Global South. Commissioned research on planning and transformation, land use management and planning standards.

STELLA PAPANICOLAOU
Lecturer: Design, the tension between meaning and the production of space in architectural practice and education; developing tools for critical thinking to enhance the creative process in architectural education.

PROFESSOR EDGAR PIETERSE
Director: African Centre for Cities, and holder of a DST/NRF SARChI Research Chair. Promoting new approaches to urban development in South Africa and Africa, in collaboration with partners from the global South.

PROFESSOR GORDON PIRE
Deputy Director: African Centre for Cities. Geographer, principal research field of transportation and travel.

DR TOM SANYA
Senior Lecturer: Architecture. Sustainable Habitat Innovations (SusHI), systems theory in sustainable architecture evaluation with particular focus on Africa. Sustainability evaluation tool (emerging from PhD). Design and making Epistemology – in Search of an Afro-centric perspective via the African Informal Settlement.

DR GEORGE SITHOLE
Senior Lecturer: Laser altimetry, photogrammetry, 3D object reconstruction.

ASSOCIATE PROFESSOR JULIAN SMIT
Geomatics. Application of remote sensing, photogrammetry and geographic information systems for land and environmental management.

ASSOCIATE PROFESSOR ALTA STEENKAMP
Director: School of Architecture, Planning & Geomatics. History and theory of Southern African architecture and its relation to the global environment.

PROFESSOR VANESSA WATSON
Planning. Planning theory; governance; housing; urbanization; large city planning.

ASSOCIATE PROFESSOR JENNY WHITTAL
Geomatics. Land tenure and cadastral systems, specialising in land for the urban poor and fiscal cadastral systems and reform.
DR TANJA WINKLER
Senior Lecturer: Planning. Current research interests include critically assessing “the voice of the poor” in urban governance and public decision making processes. Ongoing research on civil society, poverty, and inner city regeneration.

Research Associates

EMERITUS PROFESSOR JULIAN COOKE
Contemporary South African architecture.

EMERITUS PROFESSOR DAVID DEWAR
Former Deputy Dean of the Faculty of Engineering and the Built Environment; BP Chair of Planning; urban structure and form; place making; informal housing; housing policy; informal economic development; public space; regional planning and development.

EMERITUS PROFESSOR LUCIEN LE GRANGE

EMERITUS PROFESSOR FABIO TODESCHINI
Architect, city planner, urban designer, heritage practitioner.

EMERITUS PROFESSOR HEINZ RÜTHER
Digital close range and aerial photogrammetry; precise engineering surveying; geographic information systems; visualisation and 3D modeling.

EMERITUS ASSOCIATE PROFESSOR CHARLES MERRY
Earth’s gravity field; global positioning system; co-ordinate transformations.

MR BARIE GASSON
Ecologically sustainable cities; regional planning and development.

Contact Details

School of Architecture, Planning and Geomatics, University of Cape Town, Private Bag X3, Rondebosch, 7701, Republic of South Africa
Telephone and Fax: Architecture: Tel: SA (21) 650-2374 and Fax: SA (21) 650-2383
Planning: Tel: SA (21) 650-2359 and Fax: SA (21) 689-9466
Geomatics: Tel: SA (21) 650-3577 and Fax: SA (21) 650-3572
Webpage: http://www.apg.uct.ac.za

Research output

Edited books


Chapters in books


---

**Articles in Peer-reviewed Journals**


Peer-reviewed published conference proceedings


Artistic works

Master’s degrees (by research)


Department of Chemical Engineering
(Including the Centre for Bioprocess Engineering Research (CeBER), the Centre for Catalysis Research, c*change – DST-NRF Centre of Excellence in Catalysis, HySA/catalysis – National Hydrogen Catalysis Competence Centre, the Centre for Minerals Research, the Centre for Research in Engineering Education and the Crystallization and Precipitation Research Unit)

HEAD OF DEPARTMENT: PROFESSOR ALISON E LEWIS

Departmental Profile
The vision of The Department of Chemical Engineering is to be “A Beacon in Education and Research”, which we aim to fulfil through our combined undergraduate and postgraduate programmes. The undergraduate programme is accredited by the Engineering Council of South Africa, whilst the undergraduate and postgraduate programmes both have national and international recognition for their high quality graduates.

Our postgraduate programme is the largest academic research activity in Chemical Engineering in Africa and is based on a strong link between fundamental research and its application to the solution of industrial and applied problems.

The research programme is focussed around five University-accredited research groupings in Bioprocessing, Catalysis, Crystallization & Precipitation, Engineering Education and Minerals Processing. The department also has strong research interests in Environmental Process Engineering and Process Modelling. The Chemical Engineering Department also hosts the DST-NRF Centre of Excellence in Catalysis, the DST Hydrogen Catalysis Centre of Competence, the South African Minerals to Metals Research Institute (SAMRI), four DST/NRF SARChI chairs: Minerals Beneficiation, Bioprocess Engineering, Nano-Materials for Catalysis and Reaction Engineering, as well as the Anglo American Platinum Chair in Minerals Processing.

Noteworthy research-related achievements in 2012
Dr Dyllon Randall, from the Crystallization and Precipitation Research Unit in the Department of Chemical Engineering, was one of three South African scientists to receive the renowned “Green Talents” sustainability prize in a competition organised by the German Federal Ministry of Education and Research in Berlin.

A first-of-its-kind convention dedicated to synthesis gas conversion - one of the key industrial technologies underpinning the South African economy - took place in Cape Town in April. The event was hosted by c*change, the Department of Science and Technology and the National Research Foundation’s Centre of Excellence in Catalysis at UCT, in association with Sasol, PetroSA and other sponsors.

Professor Alison Lewis was awarded the Department of Science and Technology’s Distinguished Women Scientist Award in the 2012 South African Women in Science Awards.

Dr Adeniyi Isafiade received NRF Y2 rating.

Chemical Engineering had its highest-ever number of graduating students in 2012 – 99, 25 more than in 2011, and 43 more than in 2010.

Departmental Statistics

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<th>Role</th>
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<tr>
<td>Technical &amp; Scientific Staff (permanent &amp; Long-term Contract)</td>
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</table>
Technical & Support Staff (contract) 15
Administrative and Clerical Staff (permanent) 20
Administrative and Clerical Staff (contract) 7
Total 104

Honorary Staff
Honorary Professor 1
Honorary Adjunct Professors 2
Total 3

Students
Doctoral 54
Master’s 111
BSc(Eng) 508
Total 673

Research Fields and Staff
Permanent Academic Staff

MR PAUL BEPSWA
Centre for Minerals Research - Heuristic-based methods for precision accounting of material flows in mineral processing systems

DR MEGAN BECKER
Centre for Minerals Research, Process Mineralogy: using mineralogy to understand and predict the effect of mineralogy on minerals beneficiation (liberation, separation and disposal of valuable minerals from gangue).

MR WALTER BÖHRINGER
Centre for Catalysis Research - Acid catalysis.

DR ROALD BROSIOUS
Centre for Catalysis Research - Diesel selective and gasoline/ kerosene selective catalytic synthetic fuel processes; noble metal promoted zeolite catalysts for Fischer-Tropsch compatible hydrocracking catalysts; hierarchically and/or nano-structured zeolite catalysts for combined FT synthesis and fuels upgrading in micro-channel and continuously stirred tank reactors.

PROFESSOR JENNI CASE
Centre for Research in Engineering Education – Student experience of learning in science and engineering, gold catalysis.

PROFESSOR MICHAEL CLAEYS
Centre for Catalysis Research – Director DST/NRF Centre of Excellence in Catalysis (c²change), Fischer Tropsch synthesis, in-situ catalyst characterization, nano-materials.

DR KIRSTEN CORIN
Centre for Minerals Research - Mineral Processing, Flotation Chemistry: chemical interactions between reagents and minerals.

PROFESSOR DAVE DEGLON
Centre for Minerals Research and Anglo Chair - modelling of mechanical mineral flotation cells, computational fluid dynamics, hydrodynamics, gas dispersion, solids suspension.

HONORARY PROFESSOR MARK DRY
Centre for Catalysis Research - Fischer Tropsch (FT) catalytic processes, production of synthesis gas.

DR CARYN FENNER
Centre for Bioprocess Engineering Research - Production of fine chemicals and commodity bioproducts through combining research into process kinetics, product optimisation and induction. Production of affordable, modern biopharmaceuticals and chemicals; production of industrial enzymes with commercial applications; and the development and optimisation of bio-analytical procedures.

DR BELINDA MCFADZEAN
Centre for Minerals Research - Mineral processing: Flotation reagents such as collectors, frothers and depressants.

PROFESSOR JACK FLETCHER
Director of the Centre for Catalysis Research – Contract Director National Hydrogen Catalysis Competence Centre (HySA/catalysis) - catalysis by noble metals, zeolite catalysed conversion of phenol and derivatives, wax hydrocracking, shape selectivity in zeolites and molecular sieves, hydrogen processors and fuel cells.

PROFESSOR JEAN-PAUL FRANZIDIS
SA Research Chair in Minerals Beneficiation, Director: Minerals to Metals Signature Theme - Integrating and expanding capacity in minerals beneficiation research.

MR MARTIN HARRIS
Centre for Minerals Research – flotation, modelling, simulation

PROFESSOR SUE HARRISON
SA Research Chair in Bioprocess Engineering, Deputy Dean Research EBE, Director of the Centre for Bioprocess Engineering Research – Interaction of micro-organisms with the biochemical, thermal and hydrodynamic environment. Microbial community dynamics in planktonic and sessile environments. Biokinetics and metabolic modelling of the biomass and bioproduct components, applied to alkane biotechnology, human
health products, mineral bioleaching through heap and tank processes, AMD prevention and remediation, algal bioprocesses for bioenergy and fine chemicals. Bioprocesses for sustainable process engineering.

MR HILTON HEYDENRYCH

MR NABEEL HUSSAIN
Centre for Catalysis Research - Design and development of catalytic components and devices for low temperature fuel cells

DR ADENIYI ISAFIADE
Environmental and Process Systems Engineering – Process design and optimization.

DR PIETER LEVEQUE
Centre for Catalysis Research - Electrocatalysts for fuel cells and high throughput catalyst preparation

PROFESSOR ALISON LEWIS
Director of the Crystallization & Precipitation Research Unit – Industrial precipitation and crystallization, product and particle analysis, process control for optimised product quality; crystallization process development; aqueous chemistry modelling of speciation, thermodynamic equilibria, hydrodynamic and population balance modelling of precipitation systems; water treatment through crystallization, eutectic freeze crystallization.

MR NIELS LÜCHTERS
Centre for Catalysis Research - high throughput experimentation, parallel preparation of heterogeneous catalysts, high throughput methodology for fuel processing research.

DR AUBREY MAINZA
Centre for Minerals Research – Comminution and classification, positron emission particle tracking, discrete element method, computational fluid dynamics.

MS RETHABILE MELAMU

PROFESSOR KLAUS MÖLLER

PROFESSOR CYRIL O’CONNOR
Director of the Centre for Minerals Research Flotation, reagent evaluation, cell design.

DR JOCHEN PETERSEN
Centre for Bioprocess Engineering Research – Hydrometallurgy, especially heap (bio) leaching of low grade minerals, heap reactor characterisation and modelling, bio-leaching processes.

DR DYLLON RANDALL
Crystallization and Precipitation Research Unit

DR RANDHIR RAWATLAL
Reactor Engineering with focus on modelling and simulation, mass transfer modelling in the activation of alkanes, multiphase flow, population balances and applications of segregation and compartment models in flow reactors for minerals bio-leaching and polymerization

DR MARCOS RODRIGUEZ PASCUAL
Crystallization and Precipitation Research Unit - Design and implementation of reactors for crystallization and precipitation processes applying thermo-fluid dynamics and non-intrusive optical techniques

MRS JEANNETTE SWEET
Centre for Minerals Research - Comminution and flotation

MRS RENE TOERIEN
Engineering Education - Chemical Engineering Schools Project: Resource material development for secondary school science teachers; science education research; schools liaison.

PROFESSOR ERIC VAN STEEN
Centre for Catalysis Research/DST-NRF Centre of Excellence in Catalysis C*Change - Fischer-Tropsch synthesis, nano-materials, molecular modelling of heterogeneous catalytic systems, reaction kinetics.

MR JACOBUS VAN DER MERWE
Engineering Education

MR ANDRIES VAN DER WESTHUIZEN
Centre for Minerals Research Comminution as used on mineral processing operations for the liberation of valuables. Applied process optimisation through plant
campaigns, mass balancing, model fitting, and simulations. Fine grinding through stirred milling.

**DR ROB VAN HILLE**
Centre for Bioprocess Engineering Research – Mineral biotechnology, algal biotechnology, microbial ecology, carbon cycling, sulphide chemistry and bioremediation.

**ASSOCIATE PROFESSOR HARRO VON BLOTTNITZ**
Environmental and Process Systems Engineering – Industrial ecology especially Life Cycle Assessment, waste management and bioenergy, for sustainable development.

**DR MARK WILLIAMSON**

**MRS JENNIFER WIESE**
Centre for Minerals Research - Flotation chemistry

**Honorary Staff**

**HONORARY PROFESSOR DEE BRADSHAW**
Centre for Minerals Research – Process mineralogy, froth flotation including machine vision systems and chemical interactions.

**HONORARY ADJUNCT PROFESSOR ALEXANDER STEWART LAMBERT**

**HONORARY ADJUNCT PROFESSOR DAVID WILLIAM WRIGHT**

**Postdoctoral Fellows**

**DR ABOYADE AKINWALE**
LCA of syngas from co-gasification

**DR MAYELI ALVAREZ-SILVA**
An investigation into the role of the froth phase in the flotation of UG2 ore using a laboratory column flotation cell

**DR OLUWATOSIN AZEEZ**
Synthesis of heat exchanger networks involving multiple utilities

**DR THERESA FELTES**
Preparation and characterization of nano-materials for Fischer-Tropsch synthesis

**DR MELINDA GRIFFITHS**
Large scale production of spirulina

**DR ROBERT HENKEL**
Two-dimensional gas chromatography GCxGC-TOF, Magnometer

**DR RENE LARYEA-GOLDSMITH**
Thermal conversion of biomass

**DR PETER MALATJI**
Development of bimetallic precious metal catalysts for steam reforming of methane

**DR RAMOSHIBIDU MOGOROSI**
Metal solutions indicators

**DR RUSHANAH MOHAMED**
Membrane electrode assembly development for PEM fuel cell application

**DR QILING NAIDOO**
Synthesis core-shell platinum group metal electrocatalysts by different approaches

**DR SUZANA ANNA SAVVI**
Biological oxidation of alkanes for maximising use of this resource

**DR ANGELA STOTT**
Developing interactive quizzes for improving conceptual learning in science education.

**International Visitors**

**Centre for Catalysis Research**

Professor Hans Niemantsverdriet - Eindhoven University of Technology, Netherlands
Professor Guenther G. Scherer - Paul Scherrer Institut, Switzerland
Professor Calvin H Bartholomew - Brigham Young University, USA
Dr Hanene Zazoua - Technical and Scientific Research Centre of Physico-Chemical Analysis, Algeria
Dr Lerari Djahida - Technical and Scientific Research Centre of Physico-Chemical Analysis, Algeria
Dr Sanjiv Malhotra (CEO) - Oorja Protonics, USA
Professor Thomas Schmidt - ETH Zurich and Paul Scherrer Institut, Switzerland
Professor Hubert Gasteiger - Technical University Munich, Germany
Professor Graham Hutchings - Cardiff University, United Kingdom
Dr Andrew York - Cambridge University, United Kingdom
Gessie Brisard - Sherbrooke University, Canada
Professor Hubert A. Gasteiger - Technische Universität, Germany
Centre for Bioprocess Engineering Research

Centre for Minerals Research

Crystallization and Precipitation Research Unit

Engineering Education

Minerals to Metals Initiative (MtM)

Resignation

Retirement

Appointments

Contact Details
Research Output

Chapters in books

Articles in Peer-reviewed Journals


Gudiminchi, R.K., Randall, C., Opperman, D.J., Olaofe, O., Harrison, S.T.L., Albertyn, J. and Smit, M. 2012. Whole-
cell hydroxylation of n-octane by Escherichia coli strains expressing the CYP153A6 operon. Applied Microbiology and Biotechnology, 96: 1507-1516.


Peer-reviewed published conference proceedings


Department of Civil Engineering

HEAD OF DEPARTMENT: ASSOCIATE PROFESSOR NEIL ARMITAGE

Departmental Profile

The Department of Civil Engineering currently has an establishment of 15 permanent full-time academic positions and 3 Research Officers, supported by a dedicated complement of 13 technical and administrative staff. It offers a four-year BSc (Civil Engineering) degree programme and several taught postgraduate programmes, as well as supervised research studies leading to Master's and Doctoral degrees. The current enrolment is about 425 undergraduate students and 210 postgraduates – giving a total of 635 students.

Postgraduate teaching and research is conducted within the framework of well-established research groups in the areas of Structural Engineering and Mechanics, Geotechnical Engineering, Concrete Materials and Technology, Hydraulic Engineering, Water Quality Engineering, Urban Water Management, Urban Engineering and Management, Transport Studies and GIS. Members of staff also interact with research groups in other departments, such as the Centre for Research in Computational and Applied Mechanics (CERECAM) and the Africa Centre for Cities (ACC). The Department has fruitful collaborative links with several local and overseas universities, and with local industry. Much of the work done by members of staff finds application in industry.

The high quality of the research undertaken by the Department is evidenced by the considerable number of peer-reviewed publications in ISI-accredited international journals produced by members of staff annually, and the international recognition that members of staff enjoy in their areas of research. Members actively participate on the committees of local professional bodies, provide expert advice to industry, and serve on the editorial and advisory boards of various international journals and conferences.
Departmental Statistics

Permanent and Long-Term Contract Staff

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Emeritus and Honorary Staff

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<td>Emeritus Associate Professors</td>
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Students

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</table>

Research Fields and Staff

Permanent and Long-Term Contract Staff

PROFESSOR MARK ALEXANDER
Concrete durability and deterioration; concrete materials; concrete service life; sustainability of concrete construction; applications to structural design and construction.

ASSOCIATE PROFESSOR NEIL ARMITAGE
Urban water management including: Water Sensitive Urban Design (WSUD), Sustainable Drainage Systems (SuDS) and the provision of water services to informal settlements.

ASSOCIATE PROFESSOR ROGER BEHRENS
Activity-based travel analysis; local movement network configuration and management; non-motorised transportation; policy analysis in the fields of urban passenger transport; land use-transport interaction.

ASSOCIATE PROFESSOR HANS BEUSHAUSEN
Concrete materials; structural engineering; repair of concrete structures.

DR KIRSTY CARDEN
Urban water management; sustainability assessment; integrated approaches geared towards sustainable urban development and water sensitive cities.

MR MICHAEL CHAMPANIS
iCOMMS: Information for Community Oriented Municipal Services. Role of ICTs in water service delivery and management.

MS FARIDAH CHEBET
Geotechnical engineering

PROFESSOR GEORGE EKAMA
Chemical and biological wastewater treatment; physical and biological process modelling.

DR DENIS KALUMBA
Geotechnical engineering: Ground Improvement, Waste Minimisation, Foundations/Soils Interaction, Electrokinetics, Geosynthetics, and Soil Remediation

PROFESSOR PILATE MOYO
Structural health monitoring and testing.

ASSOCIATE PROFESSOR ULRIKE RIVETT
iCOMMS: Information for Community Oriented Municipal Services. Role of ICTs in water service delivery and management.

MR HERRIE SCHALEKAMP
Road-based public transport policy and regulation; institutional and operational reform processes in passenger transport systems; qualitative methods of investigation in the transport arena

DR SEBASTIAN SKATULLA
Multiscale Methods; Biomechanics; Electromechanics; Meshfree Methods; High-Performance Computing.

ASSOCIATE PROFESSOR MARIANNE VANDERSCHUREN
Assessment of urban transport systems; urban transport decision-making; transport policy.

ASSOCIATE PROFESSOR MARK VAN RYNEVELD
Urban Engineering

ASSOCIATE PROFESSOR KOBUS VAN ZYL
Hydraulics; urban water management; water demand analysis; distribution networks.

MS NICKY WOLMARANS
Academic development; teaching and learning; mechanics of solids.

PROFESSOR ALPHOSE ZINGONI
Shell structures; space structures; structural mechanics; applications of group theory; finite element modelling; vibration and structural dynamics; structural analysis and design.
Honorary Research Associates

**MS LISA KANE**
Transportation engineering and planning.

**PROFESSOR MANU SANTHANAM**
Concrete materials and technology; concrete diagnosis, service life design

**MR VERNON COLLIS**
Integrated structural design; sustainability solutions; concrete repair and rehabilitation

Contact details
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Department of Civil Engineering, University of Cape Town,
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Fax: +27 21 689 7471
E-mail: civil@ebe.uct.ac.za
Web: http://www.civil.uct.ac.za/
UCT general phone number: +27 21 650 9111
UCT web site: http://www.uct.ac.za

Research output

Chapters in books


Articles in Peer-reviewed Journals


Peer-reviewed published conference proceedings


Research and allied scholarly work in the Department falls under two broad themes of property and construction. Five research groups examine issues related to infrastructure delivery, construction industry development, wellness in construction, emerging property markets, and facilities management. A number of cross cutting themes provide diversity and smaller research interest groups; these themes include sustainability, project management, human development, procurement, entrepreneurship, and teaching and learning.

Strong research links exist with academic institutions in the United Kingdom, Australia, United States of America, Central and East Africa, and India, as well as with institutions within South Africa.

During 2012, papers were presented at key international conferences in Durban, Port Elizabeth, Cape Town, Abuja, Edinburgh, Sydney, Elmina, and Montreal. In addition, a number of papers were published in peer-reviewed local and international journals, frequently with international co-authorship, underlining the Department’s international profile and collaborative research philosophy.

Nationally, the Department continues its engagement with local and international organisations. These include:

- The Association of South African Quantity Surveyors on the Standard System and Chapter Committees,
- The South African Council for the Quantity Surveying Profession as Council Members and on the Education Standards and Research Sub-Committee,
- The Royal Institution of Chartered Surveyors on the World Regional Board, the Education Standards Board and on the EMEA Region Education Standards Board,
- The South African Facilities Management Association,
- The South African Property Owners Association, and,
- The Construction Industry Development Board.

Research endeavours by individual staff have been good in terms of higher degree graduates, attracting research funding, and producing research outputs. The staff received research funding from a variety of sources in 2012, namely: the University Research Committee, the National Research Foundation (NRF), and the Construction Industry Development Board. In addition, the department boasts a “B2” NRF-rated researcher.
Departmental Statistics

Permanent and Long-term Contract Staff

| Professors | 2 |
| Associate Professors | 2 |
| Senior Lecturers | 9 |
| Lecturer | 1 |
| Administrative and Clerical Staff | 5 |
| Departmental Assistant | 1 |
| TOTAL | 20 |

Students

| Doctoral | 6 |
| Master's | 91 |
| Postgraduate Diploma | 23 |
| Honours | 61 |
| Undergraduate | 425 |
| TOTAL | 606 |

Research Fields and Staff

Permanent Staff

PROFESSOR K.S. CATTELL
Head of Department: Value management; workplace facilities management; learning spaces; the impact of HIV/AIDS on the South African construction industry; corruption in the construction industry; and stress management for built environment professionals.

PROFESSOR P.A. BOWEN
Value management; project procurement; project briefing as an interpersonal communication process; the sustainability assessment of buildings; the impact of HIV/AIDS on the South African construction industry; corruption in the construction industry; and stress management for built environment professionals.

ASSOCIATE PROFESSOR K.A. MICHELL
Facilities management as a social and community enterprise in low-income areas of cities; urban facilities management; work space planning and management in buildings; learning spaces.

ASSOCIATE PROFESSOR F. VIRULY
Urban economics; property development; property feasibility studies; property and building cycles; property and the macro economy; econometric forecasting of the commercial and residential property markets; institutions and the structure of property markets.

MRS E. EDWARDES
Senior Lecturer: Education in construction studies; enhancement of skills required for construction studies.

MRS K. EVANS
Senior Lecturer: Work with the African Centre for Cities Research Laboratory; innovative financing of medium to low-income housing from the perspective of end-users; working capital, bridging finance and wholesale finance.

MR I. JAY
Senior Lecturer: Project Management – particularly in the area of project strategy and project portfolio (Programme) management. Application of value models to portfolio balancing, and enterprise wide project management structures and systems. Value Management – particular focus on client values, determination of project measures of success (success criteria) and modelling of client values.

MRS K. LE JEUNE
Senior Lecturer: Gender related issues within the Built Environment professions; green buildings; service learning and application in construction education; social responsibility and construction education.

MR J. MARKS
Senior Lecturer: Entrepreneurial thinking; skills migration, learning spaces; experiential learning; integrated learning.

MR M. MASSYN
Senior Lecturer: Skills and competencies of SME’s within the construction industry; procurement systems using in housing delivery with particular emphasis on the PHP delivery system.

MR R. MCGAFFIN
Senior Lecturer: The relationship between land economics and planning; property markets and value-capture; Housing and affordable housing markets.

DR M. MOOYA
Senior Lecturer: Informal/Low income property markets; property market process; property valuation theory and practice; epistemology and methodology in property market research.

DR A. WINDAPO
Senior Lecturer: Contractor performance and development studies; housing procurement and development studies; risk and quality management processes on construction projects and health, safety and environmental issues.
DR E. HURST
Academic Development Lecturer: Academic literacies; student-centred learning and assessment; identity and agency; the sociolinguistic study of the links between language, style and identity.

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E-mail: Mareldia.Fagodien@uct.ac.za
Web: http://www.cons.uct.ac.za

Research output
Chapters in books

Articles in Peer-reviewed Journals


Peer-reviewed published conference proceedings


Department of Electrical Engineering

HEAD OF DEPARTMENT: EMERITUS PROFESSOR B.J. DOWNING

Departmental Profile

The Department of Electrical Engineering has 24 permanent academic staff, 131 MSc students and 53 PhD students. The research activities and projects are largely industrially based. The main funding sources are Eskom, Sasol, Telkom, Siemens, De Beers, Mintek, Water Research Commission, Anglo Platinum, Department of Trade and Industry, South African National Defence Force, SunSpace, IQS and the NRF.

The Department has seen a growth in the number of undergraduate students over the past 10 years, which is expected to result in higher postgraduate numbers. There are seven large research groups in the Department, which attract 80% of the postgraduate students. These are:

1. Broadband, Wireless, Communication, and Networks
2. Electrical Machines and Power Electronics
3. Image Processing and Vision Systems
4. Control and Instrumentation
5. Power Engineering
6. Remote Sensing and Radar
7. Robotics and Mechatronics

Departmental Statistics

Permanent and Long-term Contract Staff

<table>
<thead>
<tr>
<th>Professors</th>
<th>6</th>
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<tbody>
<tr>
<td>Associate Professors</td>
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<td>Senior Lecturers</td>
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<tr>
<td>Lecturers</td>
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<tr>
<td>Research Staff</td>
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<tr>
<td>Technical Support Staff</td>
<td>6</td>
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<tr>
<td>Administrative and Clerical Staff</td>
<td>6</td>
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<tr>
<td>Departmental Assistants</td>
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<td>Total</td>
<td>43</td>
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Students

| Doctoral       | 53 |
| Master’s       | 131|
| Undergraduates | 710|
| Total          | 894|

Research Fields and Staff

Permanent Staff

PROFESSOR M. BRAAE
Multivariable control; mineral extraction control applications; computer-based education

PROFESSOR A. BAGHAI-WADJI
Electronics and Computational Engineering

PROFESSOR C.T. GAUNT
Electricity delivery networks

PROFESSOR M.R. INGGS
Radar remote sensing; synthetic aperture radar; software defined radio; parallel computing

PROFESSOR J. TAPSON
Instrumentation and measurements; ultrasonics; microactuators; probe microscopy

PROFESSOR P. PILLAY
Electrical machines and drives

ASSOCIATE PROFESSOR S.P. CHOWDHURY

ASSOCIATE PROFESSOR M.E. DLODLO
3G mobile and future communication systems

ASSOCIATE PROFESSOR K. FOLLY
Power system stability, control, grid integration of Renewable Energy, Intelligent grid, applied Computational Intelligence and HVDC Transmissions Systems

ASSOCIATE PROFESSOR M.A. KHAN
Electrical machines and drives

ASSOCIATE PROFESSOR A.J. WILKINSON
Signals and image processing, radar; SAR interferometry; tomography, Bayesian interference; inverse problems; RF power amplifiers
ADJUNCT ASSOCIATE PROFESSOR M. MALENGRET
Power electronics; remote area power supplies and rural electrification

DR P.S. BARENTSE
Senior Lecturer; Electrical machines and drives

DR S. CHOWDHURY
Senior Lecturer, Power & Energy

DR O.E. FAHLOWO
Senior Lecturer, Communications

MR S.I. GINSBERG
Senior Lecturer, Digital systems

DR M. HANIF
Senior Lecturer, Power Electronics

DR A. MISHRA
Senior Lecturer; Radar Signal Processing and Machine Learning

DR A. MURGU
Senior Lecturer, Telecommunications, Networks, IP and Network Reliability

DR F.C. NICOLLS
Senior Lecturer; Image processing, signal processing and computer vision

MR I. KHAN
Adjunct Senior Lecturer, High frequency power electronics, induction heating

MRS K.E. AWODELE
Lecturer, Power System Reliability

MR A. PATEL
Lecturer, BioRobotics and Control

MS R. SMIT
Lecturer, Engineering Education

MR M.S. TSHEOEU
Lecturer, Control and Instrumentation

MS R.A. VERRINDER
Lecturer, Robotics: navigation, localisation and mapping; control and instrumentation

MR S. WINBERG
Lecturer, High Performance Computing & Software Defined Radio

Research Staff

DR R. HERMAN
Senior Research Officer, Statistical Techniques in Power Systems

DR A. VAN DER BYL
Research Officer, Reconfigurable computing for signal processing applied to SDR

MR M.J.E. VENTURA
Senior Research Officer, Broadband communications & applications; digital systems

Honorary/Emeritus Professors

EMERITUS PROFESSOR B.J. DOWNING
Microwave Systems and Circuits

EMERITUS PROFESSOR G. DE JAGER
Image processing; machine vision and image compression

EMERITUS PROFESSOR A. PETROIANU
Power system analysis; operation and control

EMERITUS PROFESSOR K.M. REINECK
Antennas

EMERITUS ASSOCIATE PROFESSOR J.R. GREENE
Computational Intelligence

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E-mail: ElecEng@uct.ac.za
Web: http://www.ee.uct.ac.za

Research output

Chapters in books

Articles in Peer-reviewed Journals


Peer-reviewed published conference proceedings


Soubachov, B. and Ventura, N.M. 2012. NC-OFDM cognitive radio optimal pilot placement for the LS estimator.


Doctoral dissertations


Van Der Byl, A. 2012. A parallel framework for spectral based computations. 128pp. Supervised by Inggs, M.

Master’s degrees (by research)


Bruintjies, M. 2012. PD trending and TVA test readings are good indicators of the condition of aged Stator Bar insulation. MSc (Eng). 104pp. Supervised by Gaunt, C.


Khwambala, P. 2012. The importance of selecting the optimal number of principal components for fault detection using principal component analysis. MSc(Eng). 85pp. Supervised by Braae, M.


P. Omar, S. 2012. Target tracking using multisensor data fusion for an unmanned aerial vehicle sense and avoid system. MSc(Eng). 88pp. Supervised by Winberg, S.

Oyedokun, T. 2012. Sea clutter simulation. MSc (Eng). 90pp. Supervised by Inggs, M.

Paverd, A.J. 2012. Enhanced mobile computing using cloud resources. MSc(Eng). 98. Supervised by Inggs, M.


Patents


Department of Mechanical Engineering

(Incuding the Blast Impact and Survivability Research Unit (BISRU), the Centre for Materials Engineering (CME), the Centre for Research in Computational and Applied Mechanics (CERECAM), the Energy Research Centre (ERC), and the SASOL Advanced Fuels Laboratory (SAFL)).

HEAD OF DEPARTMENT: PROFESSOR CHRISTIAAN REDELINGHUYS

Department Profile

The Department of Mechanical Engineering includes the following recognized research groupings: Blast Impact and Survivability Research Unit (BISRU), the Centre for Materials Engineering (CME), the Centre for Research in Computational and Applied Mechanics (CERECAM), the Energy Research Centre (ERC) and the SASOL Advanced Fuels Laboratory (SAFL). The research interests of BISRU cover all engineering aspects of blast and impact scenarios, including the impact/blast process, structural response and material characterisation of structural components, as well as human bio-mechanical response under impact conditions. Research in CME is directed at an understanding of the relationships between the production processes and structure, properties and performance of engineering materials. CERECAM focuses on mathematical modelling of complex material behaviour, simulation of processes of deformation and failure of engineering components and artefacts, development of stable and accurate computational solution techniques and computational fluid dynamics. The ERC researches energy efficiency, energy modelling, climate change issues and sustainable energy. The SAFL
is arguably the most sophisticated engines laboratory undertaking fuels research in the country. A number of smaller research groupings focus on areas such as advanced manufacturing, aeronautics, orthopaedics, composite materials engineering, computational fluid dynamics, engineering education, engineering management, fracture and fatigue, non-destructive testing and robotics.

Departmental Statistics

Permanent and long-term contract staff (excluding research officers)

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<tr>
<th>Position</th>
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<td>Professors</td>
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<tr>
<td>Adjunct Professors</td>
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<td>Emeritus Professor</td>
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<tr>
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<td>Teaching Assistants</td>
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<td>Technical Support Staff</td>
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<td>Workshop Apprentices</td>
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Students

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<td>Master’s</td>
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<td>Honours</td>
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<tr>
<td>Undergraduate</td>
<td>627</td>
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<td>Total</td>
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</table>

Research Fields and Staff

PROFESSOR KEVIN BENNETT
Director, Energy Research Centre; Energy research.

MS TRACY BOOYSEN
Chief Scientific Officer; Electro Mechanical engineering, robotics and agents.

ASSOCIATE PROFESSOR BRANDON COLLIER-REED
Director of the Centre for Research in Engineering Education (CREE); the sociocultural characterization of the student experience; social aspects of technology; technological literacy of adolescents; podcasting in engineering education.

MR TREVOR CLOETE
Senior Lecturer; BISRU, CERECAM; deformation and tearing of blast loaded metal plates; high strain rate plasticity; constitutive modeling.

MR DIRK FINDEIS
Senior Lecturer; non-destructive testing; portable ESPI and shearography.

DR WIM FULS
Senior Lecturer; Centre of specialisation in energy efficiency; power plant process flow modelling

DR REUBEN GOVENDER
Senior Lecturer; BISRU; high strain rate material characterisation; composite materials; blast and impact loading of structures and materials.

EMERITUS PROFESSOR JASSON GRYZAGORIDIS
CERECAM; heat transfer and refrigeration; combined absorption and compression refrigeration cycles; optical techniques in non-destructive testing; holographic interferometry; ESPI; shearography; materials properties evaluation.

MR ERNESTO ISMAIL
Lecturer; BISRU, CERECAM; meshless methods, non-linear elasticity.

ADJUNCT PROFESSOR LOUIS JESTIN
Power Generation systems design and operation

PROFESSOR DORA KARAGIOZOVA
Honorary Professor; BISRU; analytical and computational analysis of dynamic systems.

ASSOCIATE PROFESSOR FRANZ-JOSEF KAHLLEN
Lean/advanced manufacturing; laser materials processing; laser diagnostics.

DR BRUCE KLOOT
Academic Development Lecturer; sociology of education; higher education studies; foundation and extended curriculum programmes; student success and progression.

ASSOCIATE PROFESSOR RAMESH KUPPUSWAMY
Advanced manufacturing; micro/nano systems.

PROFESSOR ROBERT KNUTSEN
Deputy Head of Department; Director, Centre for Materials Engineering; physical metallurgy; thermo-mechanical processing; texture; microstructure; microscopy.

ASSOCIATE PROFESSOR GENEVIEVE LANGDON
BISRU; CREE; blast response of structures and materials; high strain rate behaviour; structural impact.
ASSOCIATE PROFESSOR ARNAUD MALAN
Computational Fluid Dynamics

Mr STEPHEN MARAIS
Senior Lecturer; Electro Mechanical design.

PROFESSOR GERALD NURICK
Director, BISRU; structural impact; crashworthiness; high strain rates; impact biomechanics.

MR RODGER NKUMBWA
Lecturer; advanced manufacturing processes, manufacturing IT integration, lean & green manufacturing, Engineering Management

PROFESSOR CHRIS REDELINGHUYS
Head of Department; autonomously guided parafoils, airliners in formation flight.

MR PAUL SCHABERG
Lecturer, SASOL Advanced Fuel Lab, engines and fuels research.

MS CORRINNE SHAW
Senior Lecturer, Engineering Management; management and engineering education, systems theory and practice.

PROFESSOR ROBERT TAFT
Centre for Materials Engineering; fracture mechanics; fatigue; assessment of residual stresses in structural components; applied non-destructive testing.

DR GEORGE VICATOS
Senior Lecturer; heat transfer and refrigeration; combined absorption and compression refrigeration cycles; bioengineering prosthesis design.

ASSOCIATE PROFESSOR CHRIS VON KLEMPERER
Composite materials; processing and modelling of composite materials and structures.

DR CHRIS WOOLARD
Site leader; Sasol Advanced Fuels Laboratory; fuels chemistry; polymeric materials; thermal analysis.

PROFESSOR ANDY YATES
Adjunct Professor, SASOL Advanced Fuels Lab, engines and fuels.

Contract Research Staff

MR VICTOR BALDEN
Research Officer, BISRU; impact dynamics.

MS ANYA BOYD
Assistant Research Officer, ERC; energy, environment and climate change.

MS L CHILIOANE
Research Officer, ERC; energy efficiency, measurement and verification

DR STEEVE CHUNG KIM YUEN
Research Officer, BISRU; structural dynamics, blast response, crashworthiness.

DR GARETH FLOWEDAY
Projects co-supervisor, SASOL Advanced Fuels Lab, engines and fuels.

MR ANDREW HIBBERD
Energy Efficiency Engineer, ERC; measurement and verification.

MS ALISON HUGHES
Senior Research Officer, ERC; energy efficiency; energy modeling.

MR RICHARD LARMOUR
Research Officer, ERC; climate change.

MR THAPELO LETETE
Research Officer, ERC; climate change.

DR ANDREW MARQUARD
Senior Research Officer, ERC; energy and climate change team.

MS MASCHA MOORLACH
Energy Efficiency Engineer, ERC; measurement and verification.

MR ALFRED MOYO
Research Officer, ERC; energy & climate change group.

DR GISELA PRASAD
Chief Research Officer, ERC; energy, poverty and development.

DR SEBATAOLO RAHLAO
Researcher, ERC; energy, environment and climate change.

DR B RENNKAMP
Research Officer, ERC; energy and climate change.

Mrs M SENATLA
Research Officer, energy systems analysis & planning.

UCT RESEARCH REPORT 2012
DR DEBBIE SPARKS
Senior Research Officer, ERC; energy and climate change.

MR AC STONE
Senior Research Officer, ERC; energy systems analysis, modelling.

DR MIRA TOPIC
Senior Research Scientist, iThemba Laboratory for Accelerator Based Sciences, Centre for Materials Engineering; solid-state phase transformation, thin films and coatings, materials characterization by nuclear microprobe, X-ray, neutron and synchrotron diffraction techniques.

DR M T ORRES GUNFAUS
Chief Research Officer, ERC; climate change.

MR AJAY TRIKAM
Research Officer, ERC; energy efficiency; greenhouse gases; mitigation modeling.

PROFESSOR HARALD WINKLER
ERC; climate change (economics, mitigation & policy) and environmental economics.

MS HOLLE WLOKAS
Assistant Research Officer, ERC; energy, poverty & development group.

Contact Details
Postal Address: Department of Mechanical Engineering, University of Cape Town, Private Bag X3, Rondebosch, 7701
Telephone: +27 21 650 3231
Facsimile +27 21 650 3240
E-mail: MEC-mechanicalengineering@uct.ac.za
Web: http://www.mecheng.uct.ac.za/

Research output
Chapters in books


Articles in Peer-reviewed Journals

Boyd, A. 2012. Informing international UNFCCC technology mechanisms from the ground up: using biogas technology in South Africa as a case study to evaluate the usefulness of potential elements of an international technology agreement in the UNFCCC negotiations process. Energy Policy, 51: 301-311.


Peer-reviewed published conference proceedings


Creative writing: Short story published in a journal


Doctoral dissertations

Ahmad, M.S. 2012. Study of dynamic behaviour of multi-layered structures subjected to blast loading. Supervised by Nurick, G.N. and Langdon, G.S.


Geretto, C. 2012. The effects of different degrees of confinement on the deformation of square plates subjected to blast loading. Supervised by Nurick, G.N. and Chung K. Yuen, S.

Shaw, C. 2012. Learning systemic management practice. Supervised by Ryan, T.B.

Master’s degrees (by research)


Bizinos, N. 2012. Passenger comfort during formation flight within atmospheric turbulence. MSc(Eng). Supervised by Redelinghuys, C.

Boachie-Yiadom, K. 2012. An extended analysis of the BISRU sled tester’s dynamic response. MSc(Eng) Mechanical. Supervised by Balchin, K. and Nurick, G.


Cross, B.A. 2012. An investigation into the effects of diesel fuel properties on the injection characteristics of a common rail injection system. MSc(Eng) Mechanical. Supervised by Schaberg, P.


Dreyer, E. 2012. Development of robotic platform for the exploration of hazardous environments. MSc(Eng). Supervised by Marais, S.

Henson, P. 2012. The development of a low-backlash robotic manipulator arm. MSc(Eng) Mechanical. Supervised by Marais, S.

Isaacs, D. 2012. The barriers to lean implementation in high mix, low volume manufacturing - a marine diving engineering case study. MSc (Eng). Supervised by Kahleen, F.-J.

Johnston, O. 2012. Analysis of energy in South Africa’s primary mineral industry: a focus on gold. MSc(Eng). Supervised by Cohen, B. and Von Blottnitz, H.
Knowles, C. 2012. Residue stress measurement and the structural integrity evaluation of SLM TiG 4V. MSc(Eng). Supervised by Tait, R. B.

Leisegang, D. 2012. Study into the feasibility and design of a renewable energy portfolio for the Klein Constantia wine estate. MSc(Eng). Supervised by Hibberd, A.C.M. and Bennett, K.


Makhetha, W. 2012. Phase transformation in platinum-based coatings. MSc(Eng). Supervised by Lang, C.I. and Topic, M.


Mudd, R. 2012. Exploring the range of motion between the acetabular component and the femoral component in hip resurfacing. MSc(Med) Biomedical Engineering. 116pp. Supervised by Vicatos, G. and Sivarasu, S.


Pougnet, M. 2012. New product development as an approach to remain viable in a stagnant market: a case study of a company with technologically (ITS) focused products in South Africa. MSc(Eng). Supervised by Shaw, C.B.


Richardson, N. 2012. An investigation into aspects of rate-independent single crystal plasticity. MSc(Eng) Mechanical. Supervised by Reddy, B.


Tembo, B. 2012. Policy options for the sustainable development of the power sector in Zambia. MSc (Eng). Supervised by Hughes, A. and Merven, B.

Thiart, A. 2012. CFD study of fuel evaporation and related thermofluid dynamics in the inlet manifold, port and cylinder of the CFR octane engine. MSc(Eng) Mechanical. Supervised by Floweday, G. and Meyer, C.


**Patents**


Centre for Higher Education Development

The research mission of the Centre for Higher Education Development (CHED) is to ensure that its educational development work is based on rigorous and ethical research that will serve the objectives of providing equitable access to higher education, enabling social redress through higher education, and strengthening the quality of teaching and learning in higher education at UCT, in South Africa, and in countries with similar needs.

Dean’s Report

This report attests to the commitment of CHED and its staff to the scholarship of teaching and learning, and to higher education as an emerging field of research and policy. CHED research arises from individual interest, as well as institutional and national imperatives. In 2012, CHED staff published research that was geared to investigating and developing educational theories and practices that contribute to continual improvement in the quality of higher education and educational development. Accordingly, the research dealt with educational development issues such as multimodality, the role of writing centres, academic writing and student voice, language and academic achievement, and sociocultural perspectives on learning.

The research also reflects on innovative strategies adopted by CHED staff and those from other faculties to improve teaching and learning. Some of the research demonstrates the ways in which research and inquiry into aspects of teaching and student learning is being integrated in an iterative way into the curriculum design and development. This is clearly demonstrated by articles on educational technology aspects, such as mobile learning, digital literacies, and podcasting. This increased focus on educational technology in CHED research is very important, given the worldwide recognition of the role of technology in higher education.

It is also important to note that much of CHED research for 2012 was published in peer-reviewed, accredited local journals such as the SA Journal of Higher Education, South African Journal of Accounting Research, South African Medical Journal, Per Lingua, and Southern African Linguistics and Applied Language Studies, and international journals such as the Journal for Higher Education, Teaching in Higher Education, Educational Technology & Society, and Higher Educational Research & Development. A research highlight attesting to the standard and quality of CHED research is the recent inclusion of Dr Lucia Thesen’s 1997 TESOL Quarterly article in the SAGE Benchmarks in Language and Linguistics, which presents collections that bring together the most authoritative and influential research in language and linguistics. The series is edited by world-leading experts in their fields and presents the ‘gold standard’ for university libraries throughout the world, who are seeking to solidify their linguistics reference collections.
In 2012, CHED continued its strong contribution to the scholarship of teaching and learning by organising the Conference on Teaching and Learning, which took place on 25 October 2012. The papers presented at this conference reflected the diversity of research in CHED, and UCT as a whole, in educational development and higher education in general.

Besides conventional research, CHED also undertook institutional research that resulted in different types of research outputs. An example of such research is the Large Classes Project, which was led by Associate Professor Jeff Jawitz. This was an inter-institutional research project that aimed to identify the key mechanisms needed to improve students’ learning in the context of large-class teaching in each of the four case studies. The project concluded at the end of 2012 and its findings were disseminated through institutional seminars, a national symposium, and the publication of articles. Another example is the international project focused on Closing the skills gap in South Africa, commissioned by the World Bank. Although this project was undertaken in 2010 by Professor Ian Scott, in collaboration with Glen Fisher, an education consultant, it is cited here to highlight the role of CHED research in advancing higher education scholarship on both the national and the international level.

To enhance their research capacity, many CHED academic staff continued to develop and maintain productive associations with individuals, institutions, and scholarly bodies abroad. Some staff members were invited to present keynote addresses at international conferences. Associate Professor Suellen Shay, for example, was invited to give a keynote address at the Society for Research in Higher Education Conference in Newport, Wales, UK, on 13 December 2012. Associate Professor Rochelle Kapp was a keynote speaker at the Thomas R. Watson Conference on The Economies of Writing, University of Louisville, USA, in October 2012.

CHED staff also participated in research development programmes, such as the Emerging Researcher Programme and a Writers’ Workshop initiated by the Department of Research and Innovation. The Writers’ Workshop entailed a series of workshops with emerging researchers to develop their skills in research writing and preparation of research papers for publication. Approximately 22 staff members signed up for this programme in 2012. The programme concluded with a two-day Writing Development Workshop hosted at Mont Fleur, Stellenbosch, where participants were given the opportunity to finalise their research papers. It is hoped that this intervention will not only result in an increase in research publications, but will also generally increase research activity in the faculty.

Another highlight of CHED research is in relation to research contracts. In 2012, CHED research contracts increased in number from 16 to 28 and also in value from R2.57 million to R7.33 million. Although the number of contracts is still low compared to 2010 (31), the significant improvement made during the past year is likely to have a positive impact on CHED research output in the next few years, and we look forward to building on this base in 2013.
Academic Development Programme

DIRECTOR: PROFESSOR IAN SCOTT

Departmental Profile

Over the last decade the focus of the Academic Development Programme (ADP) has changed from primarily providing direct assistance to individuals from educationally disadvantaged groups to efforts to improve the effectiveness of mainstream academic programmes in catering for student diversity. This involves such means as curriculum restructuring, integrating AD approaches into mainstream courses, and seeking to enable regular academic teaching staff to refine their practice in accordance with the changing environment of Higher Education. The research interests of ADP staff are, in the main, focused on understanding and improving key aspects of learning, teaching and assessment in Higher Education, analysing conditions at institutional and national level that affect learning and teaching, and contributing to educational policy development and implementation. Many ADP staff members have a particular interest in the effects of students’ prior educational experiences.

Departmental Statistics

Permanent and Long-term contract staff

<table>
<thead>
<tr>
<th>Role</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professors</td>
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<tr>
<td>Associate Professors</td>
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<td>Lecturers</td>
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<tr>
<td>Part-time Lecturers</td>
<td>4</td>
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<tr>
<td>Professional and Administrative Staff</td>
<td>26</td>
</tr>
<tr>
<td>Total</td>
<td>71</td>
</tr>
</tbody>
</table>

Research Fields and Staff

MS MICHELLE ABRAMS
Academic Development Officer, Education Development Unit, Faculty of Commerce. Impact of mentoring and student leadership.

ASSOCIATE PROFESSOR SAAUH ALLIE
ADP Co-ordinator, Faculty of Science. Curriculum Development; Physics Education Research.

MS MELANIE ALPERSTEIN
Senior Lecturer; Curriculum Development Officer, Education Development Unit, Faculty of Health Sciences. Introducing Primary Health Care in clinical teaching and assessment; Problem based learning; Inter-professional community-based education/service learning; new graduates in rural health community service.

DR ARLENE ARCHER
Senior Lecturer; Co-ordinator, Writing Centre, Language Development Group. Academic Literacies; Multimodality; Cultural Studies.

MR MOEAIN AREND
Lecturer, Language Development Group. Academic literacy; Language and literacy across contexts; Apprenticeship and collaborative learning practices.

DR ABONGWE BANGENI
Lecturer, Language Development Group. Academic Literacy; Writing in the Disciplines; Postgraduate literacies; Multilingualism; Language Development; Writing and Identity.

MS ANITA CAMPBELL
Lecturer, ASPECT, Faculty of Engineering and the Built Environment. Factors affecting first year success; Dr Math tutoring; facilitation of learning groups using mobile technology; e-learning.

MR JUMANI CLARKE
Lecturer, Numeracy Centre. Excel as a learning environment; Academic literacies. Student identities in academic writing.

DR ALAN CLIFF
Senior Lecturer, Alternative Admissions Research Project (AARP). Academic Literacy and Student Learning; Students’ Conceptions of Learning; Admissions Testing; Diagnostic Profiling of Students’ Academic Literacies and Numeracies.

DR TRACY CRAIG
Senior Lecturer, ASPECT, Faculty of Engineering and the Built Environment. Tertiary mathematics education; Mathematical problem-solving; Language and mathematics; Engineering mathematics education.

ASSOCIATE PROFESSOR BETTE DAVIDOWITZ
Chemistry; Convener: General Entry for Programmes in Science (GEPS). Chemical Education; Curriculum Design; Learning in Laboratories; Writing across the Curriculum; Improving Adjustment to Higher Education, Using student-generated drawings to probe understanding of basic concepts in chemistry.

MISS BONANI DUBE
Student Development Officer, Education Development Unit, Faculty of Commerce. Social and academic support needed by students on academic probation.
MS CARLA FOURIE
Academic teaching post

MS VERA FRITH
Senior Lecturer, Co-ordinator Numeracy Centre. Quantitative Literacy in Higher Education curricula; Academic Literacies.

MS TARRYN GRINAKER
Lecturer, Financial Reporting 2 (Commerce). Financial Reporting—IFRS for SMEs; Higher Education in Accounting; Teaching Methodology; Teaching and Learning Structures; Action Research.

DR NADIA HARTMAN
Senior Lecturer, Director: Education Development Unit, Faculty of Health Sciences. Curriculum and Institutional Development; Social Responsiveness; Health Professional Development.

PROFESSOR NIKOLAAS J HENDRI HEIDEMAN
Lecturer, Mathematics, Academic Development Programme (ADP) Science.

DR ADITI HUMNA
Assistant Lecturer, Foundation courses tutoring and evaluation; research into curriculum development for the teaching of reading and writing in the Humanities.

MS CATHERINE HUTCHINGS
Lecturer, Language Development Group. Academic Literacy; Mentorship in Education; Language and Diversity; Writing, language and Identity; Narrative theory; Reflective Literacy.

MR JACOB JAFTHA
Lecturer, Numeracy Centre. Online learning environments (supporting tutorial activities); Adaptive feedback; Operator theory and its applications.

Associate Professor Rochelle Kapp
First-Year Experience Project and Language Development Group. Academic Literacy; English as a Second Language; student development

MR PIERRE LE ROUX
Lecturer, ASPECT, Faculty of Engineering and the Built Environment. Engineering Physics Education; Teaching and Learning.

DR KATE LE ROUX
Senior Lecturer, Numeracy Centre. Mathematics education research; School/university transition; Mathematics learning in extended curricula; Contexts in the teaching and learning of mathematics.

MS PAM LLOYD
Lecturer (part-time), Numeracy Centre. Curriculum Development for quantitative literacy in higher education.

MR TIM LOW
Senior Lecturer, Statistics/Mathematics, Education Development Unit, Faculty of Commerce. Mathematics Education; Technology for teaching and learning mathematics.

MS JEAN LUYT
Clinical Psychologist and Student Development Practitioner, Education Development Unit, Faculty of Commerce. Impact of affective factors on student success and student support and development practice.

ASSOCIATE PROFESSOR KATHY LUCKETT
Director, EDU, Faculty of Humanities; Curriculum Development, Educational Evaluation, Sociology of Knowledge and curriculum, Functional Linguistics.

DR DUNCAN MHAKURE
Lecturer, Numeracy Centre. Mathematics Education research; Quantitative/ mathematical Literacy research; Teacher Education.

MR DANIEL MUNENE
Lecturer, ADP Co-ordinator: Education Development Unit, Faculty of Commerce. Teaching and Learning; Disadvantage and Support; Culture, identity and learning; Institutional Economics; Economics Education; Financial markets and regulation.

MS NISREEN NARKER
Lecturer, Economics. Education Development Unit, Faculty of Commerce. Economics Education.

MS KALPANA NATHOO
Lecturer, ASPECT, Faculty of Engineering and the Built Environment. Teaching and Learning in Mathematics and Engineering Education; Effective learning systems.

MR GIDEON NOMDO
Lecturer, Language Development Group. Academic Literacy; Language and Identity; Curriculum Development; Mentorship.

DR BOB OSANO
Senior Lecturer, Mathematics. Mathematics Education Research; Theoretical Cosmology.
ASSOCIATE PROFESSOR MORAGH PAXTON
Language Development Group. Impact of prior discourses on acquisition of new discourses; Literacy Practices in Higher Education; Multilingualism for learning; Affordances and Barriers to acquisition of postgraduate research genres.

DR HOWARD PEARCE
Senior Lecturer, Co-ordinator, ASPECT, Faculty of Engineering and the Built Environment. Quantitative and Qualitative Learning in Physics; Assessment of student learning in Mathematics, Physics and Engineering; Mathematics for Engineering students; Curriculum development.

MR ROBERT PRINCE
Deputy Director, Academic Development Programme. Algebraic Number Theory; Commutative Algebra; Mathematics Education; Computers in Teaching Mathematics and Quantitative Literacy, Admissions Testing.

ASSOCIATE PROFESSOR JUNE PYM
Director: Education Development Unit, Faculty of Commerce. Barriers to learning; Effect of prior educational experience and context on student learning; the impact of the teaching and learning environment, Identity and agency.

MS SHEENA RUGHUBAR-REDDY
Lecturer, Numeracy Centre. Mathematics Education; Quantitative/Mathematics Literacy; Curriculum Development; Student learning (Extended programmes); Teacher development.

MS MEGAN RILEY
Writing Consultant (part-time), Education Development Unit, Faculty of Commerce. Academic literacy.

PROFESSOR IAN SCOTT
Director, Academic Development Programme. Higher Education Policy related to Teaching and Learning; Widening Participation in Higher Education; Curriculum Development; Professional Development.

MS MEKE SHIVUTE
Lecturer, Information Systems (ADP), Telemedicine, Medical Informatics and competence-based curriculum development for higher institutions.

MS RIASHNA SITHALDEEN
Lecturer, Biological, Earth and Environmental Sciences.

DR LEONARD SMITH
Senior Lecturer, Economics. Education Development Unit, Faculty of Commerce. Economics Education; Academic development.

MS SHERRY STUART
Academic Development Officer, Education Development Unit, Faculty of Commerce. Impact of affective factors on student success.

MR GARY STEWART
Lecturer, Computer Science. Computer Education.

MS DALE TAYLOR
Lecturer, Physics. Physics Education Research; Teacher Education.

DR LUCIA THESEN
Senior Lecturer, Language Development Group. Access to Academic Literacies; Postgraduate literacies; Multimodal communicative practices.

MR STUART TORR
Lecturer, Mathematics, Education Development Unit, Faculty of Commerce. Mathematics Education; Contextual priming and mathematical abstraction.

DR MATHILDE VAN DER MERWE
Lecturer, Language Development Group. Postgraduate quantitative literacies, Postgraduate publication patterns: Biological Sciences.

DR ERMIE VAN PLETZEN
Senior Lecturer and Coordinator, Language Development Group. Academic Literacy; Medical Education; Public Health.

MS EVELYN VICATOS
Lecturer (part-time), ASPECT, Faculty of Engineering and the Built Environment. Introduction to academic literacy and scientific writing for 1st year engineering students in the academic support programme.

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Research output

Chapters in books


Articles in peer-reviewed journals


ICTs; academic literacies; learning design; mobile learning; lecture recording and podcasting; innovation by educators; teaching with new media; the educational technology profession; open educational resources; open research; communities of practice in staff development; the effects of organisational cultures on technology adoption; the rhetoric of staff development; and online conferences for professional development. Together with the UCT Research Office, CET hosts the Scholarly Communication in Africa Programme which is a three-year, IDRC-funded initiative aimed at increasing African universities’ contribution to regional and global knowledge production.

Departmental Statistics

<table>
<thead>
<tr>
<th>Permanent and Long Term Contract Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Associate Professors</td>
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<tr>
<td>Senior Lecturers</td>
</tr>
<tr>
<td>Lecturers</td>
</tr>
<tr>
<td>Support, administrative and technical staff</td>
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<tr>
<td>TOTAL</td>
</tr>
</tbody>
</table>

Research Fields and Staff

**MR LUBABA LO BADI**
Learning Technologies Consultant: promotion of and support for the use of educational technologies among staff.

**DR CHERYL BROWN**
Lecturer: digital identity, first year students’ experiences of ICTs at university, discourses of ICTs and access to ICTs.

**MR ROGER BROWN**
Educational Technology Consultant; promotion of and support for the use of educational technologies among staff.

**MR TONY CARR**
Senior Lecturer; Co-ordinator Staff Development; on-line conferences, online communities of practice, use of interactive computer-mediated approaches for teaching and learning.

**MS RULISHA CHETT Y**
Digital Learning Materials Designer; use of video in curriculum development.

**MS GLEND A COX**
Lecturer; Curriculum Projects; teaching and learning with technology, curriculum development; Open Education Resources.

**ASSOCIATE PROFESSOR LAURA CZERNIEWSICZ**
Seconded to OpenUCT; open scholarship broadly, scholarly communication, students’ digitally-mediated practices, digital identities and the field of learning technology as a scholarly domain.

**MR ANDREW DEACON**
Instructional Designer; learning environments, evaluation of interactive computer mediated approaches for teaching and learning, learning analytics.

**ASSOCIATE PROFESSOR CHERYL HODGKINSON-WILLIAMS**
Online learning design, interactive whiteboards, open scholarship, open education resources and electronic portfolios.

**MR DAVID HORWITZ**
Online Learning Environments developer, design of interactive environments and the effective use of databases to support interactive computer-mediated approaches for teaching and learning.

**MS SETA JACKSON**
Learning Technologies Consultant: promotion of and support for the use of educational technologies among staff.

**DR CATHY KELL**
Research Lead, Scholarly Communication in Africa Programme; scholarly Communication.

**MR STEPHEN MARQUARD**
Acting Director; Learning Technologies Coordinator; design, implementation and support of online environments for effective teaching and learning, group collaboration and personal workspaces and portfolios, higher education ICT strategy and governance.

**MS DESIREE MCKIE**
Coordinator: ICT Literacy Project, ICT proficiency training, assessment and integration into learning and teaching, ICT policy, multilingualism and technology.

**MR EDMORE MOYO**
Online Learning Environments developer, design of interactive environments and the effective use of databases to support interactive computer-mediated approaches for teaching and learning.

**ASSOCIATE PROFESSOR DICK NG’AMBI**
Coordinator – postgraduate programme (ICT in Education); mobile learning, ubiquitous technologies, emerging technologies, open educational resources, podcasting, social networking, and informal learning.

**MR IAN SCHROEDER**
Staff development, use of interactive computer-mediated approaches for teaching and learning, peer instruction and collaborative learning.
MS STACEY STENT
Graphics and animation designer: teaching with images, visual literacy.

MS MICHELLE WILLMERS
Programme Manager, Scholarly Communication in Africa Programme; scholarly Communication.

Honorary Research Associate
MS EVE GRAY
Conducts donor-funded research projects on policy and strategy for ICT and scholarly communications in Africa, with a specific focus on open access and new publishing models.

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Research output
Chapters in books

Articles in Peer-reviewed Journals
Hodgkinson-Williams, C.A. and Paskevicius, M. 2012. The role of postgraduate students in co-authoring open educational resources to promote social inclusion: a case study at the University of Cape Town. Distance Education, 33(2): 253-269.

Peer-reviewed published conference proceedings


Higher and Adult Education Studies and Development Unit

UNIT HEAD: ASSOCIATE PROFESSOR LINDA COOPER

Unit Profile

The Higher & Adult Education Development & Studies Unit forms part of the Centre for Higher Education Development at the University of Cape Town. HAESDU supports the on-going professional development of both higher education professionals and adult education practitioners through a range of courses, research and development projects. HAESDU recognizes the importance of its work being research-led, and all staff are actively engaged in research. There are two NRF rated researchers in the unit – Associate Professors Suellen Shay and Jeff Jawitz.

Unit Statistics

Permanent and long-term contract staff

<table>
<thead>
<tr>
<th>Position</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Associate Professors</td>
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<tr>
<td>Senior Lecturers</td>
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<td>Lecturers</td>
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</tr>
<tr>
<td>Administrative and Clerical Staff</td>
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</tr>
<tr>
<td>Total</td>
<td>9</td>
</tr>
</tbody>
</table>

Research Fields and Staff

DR ALAN CLIFF
Senior Lecturer: Academic literacy and student learning; admissions testing; diagnostic profiling of students’ academic literacies and numeracies; understanding how adults learn; assessment of academic potential. MCQ assessment: design and impact; assessment and evaluation in adult and continuing education contexts.

ASSOCIATE PROFESSOR LINDA COOPER
Theorising different forms of knowledge; impact of changes in the broader political economy and labour markets on knowledge and pedagogy; relationship between higher education and the workplace; RPL and continuing professional education within higher education; worker education and training; the role of education in workplace and social change.

DR JEANNE GAMBLE
Senior Lecturer: The relation between knowledge and practice in curriculum, pedagogy and assessment; vocational and professional education; education and training policy

DR SALMA ISMAIL
Senior Lecturer: Adult education curriculum and changing student needs, challenges of retaining a critical transformative educational practice and inclusion of feminist pedagogy; relationship of indigenous knowledge to adult education; learning in social movement contexts; staff experiences of institutional culture in a changing university context.

MS KASTURI BEHARI-LEAK
Lecturer: Academic identity and social agency; nascent academics – ‘being and becoming’; knowledge and knower structures; social inclusion and difference; structure, culture and agency; the power of performative texts.

ASSOCIATE PROFESSOR JEFF JAWITZ
Professional development of academics in teaching; the impact of race on academic practice; the academic identity and the academic workplace; educational development initiatives and large class teaching.

DR JANICE McMILLAN
Senior Lecturer: Social responsiveness in teaching and learning; building university-community partnerships; citizenship and ethics in service learning; role of critical reflection in service learning; theorizing service learning from a social justice perspective.

MS JUNE SALDANHA
Lecturer: Understanding the challenges which women encounter when trying to pursue further learning in formal and informal contexts; investigating the opportunities that exist for adult learners who have completed the Diploma in Education.

ASSOCIATE PROFESSOR SUELLEN SHAY
Developing an understanding of assessment as a socially-situated practice; understanding the formative influences on curriculum which influence what is valued in assessment; the relationship between disciplinary knowledge and curriculum; curriculum differentiation and progression.

Contact Details

Postal Address: Centre for Higher Education Development, Suite 7.38 PD Hahn Building, North Lane, Upper Campus, University of Cape Town, Private Bag X3, Rondebosch, 7701
Tel: SA (21) 650-3478
Fax: SA (21) 650-5045
E-mail: kashiefa.hearne@uct.ac.za
Web: http://www.haesdu.uct.ac.za/
Research output

Chapters in books


Articles in Peer-reviewed Journals


Centre for Open Learning

ACTING DIRECTOR: MEDEÉ RALL

Centre Profile

The Centre for Open Learning comprises two divisions: the Third Term and the Public and Continuing Education Divisions. The Public and Continuing Education Division is responsible for the annual Summer School programme. This programme encourages a diverse community of students to enjoy adult study by making University research available to the general public, by drawing on different disciplines and by stimulating debate about important issues. The Public and Continuing Education Division also offers continuing education opportunities to the general public, work-related courses aimed at career development and customised courses designed for specific organisations. It also makes focused interventions in the adult education and cultural sector, working with other partners. The Third Term Division offers University accredited courses to University students during the University’s winter and summer vacations. This division draws on the University’s academic resources for its courses.

Centre Statistics

Permanent and long-term contract staff

<table>
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<th>Role</th>
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<tbody>
<tr>
<td>Professor</td>
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<tr>
<td>Senior Lecturers</td>
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<td>Technical and Support Staff</td>
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<tr>
<td>Administrative and Clerical Staff</td>
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<tr>
<td>Total</td>
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</table>

Research Fields and Staff

DR KEVIN WILLIAMS
Senior Lecturer: Social agency and student learning; Heideggerian insights on being in relation to research ethics.

PROFESSOR INGRID FISKE
Adult education provision, adult education practices at cultural institutions such as museums, contemporary South African literary practices, poetry writing.

MEDEÉ RALL: SENIOR LECTURER: Adult education provision, multimodality, museum studies.

Contact Details

Postal address: Centre for Open Learning, Kramer Law Building, Middle Campus, University of Cape Town, Private Bag X3, Rondebosch, 7701
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Fax: + 27 21 650 2893
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Research output

Articles in Peer-reviewed Journals


Creative writing

Anthology of poems


Poems in journals

De Kok, I. 2012. Three poems in The Common 4 (Amherst) The poems are ‘Today I do not love my country’ (p129), ‘Histoplasmosis’ (pg130) and ‘Shards’ (pp131-3).


**Dean’s Office**

**Profile**

Apart from its central leadership, management and administrative role in CHED, the Dean’s Office houses special projects, including the Multilingualism Education Project, headed by Associate Professor Mbulungeni Madiba, the OpenUCT Initiative (OUI) under the directorship of Associate Professor Laura Czerniewicz, the Confucius Institute, and student fellowship and scholarship programmes that comprise the Equity Development Programme.

**Office Statistics**

**Permanent and long-term contract staff**

<table>
<thead>
<tr>
<th>Associate Professors</th>
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</thead>
<tbody>
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<td>Total</td>
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</tbody>
</table>

**Research Fields and Staff**

**ASSOCIATE PROFESSOR MBULUNGENI MADIBA**

Language policy and planning; sociolinguistics; terminology and terminography; corpus linguistics, human language technology, concept literacy, language acquisition, politics of language; phonology.

**ASSOCIATE PROFESSOR LAURA CZERNIEWSICZ**

Educational technology in higher education; academics’ and students’ digitally mediated scholarship and educational practices; scholarly communication.

**MS NOLUBABALO TYAM**

Second language acquisition; second language teaching; intercultural communication; code-switching.

**Contact Details**

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Fax: +27 21 650 5045
E-mail: nan.yeld@uct.ac.za
Web: http://www.ched.uct.ac.za

**Research output**

**Articles in Peer-reviewed Journals**


**ASSOCIATE PROFESSOR NAN YELD**

Admissions, educational measurement; academic literacy; higher education policy.
Contributors

One Hundred Years of Health Sciences
Dr Tracey Kolbe-Alexander, Prof. Jonathan Blackburn, Prof. Keertan Oosthuizen, Dr Yolande Harley, Prof. Vicki Lambert, Prof. Valerie Mizrahi, Prof. Dan Stein, Dr Katherine Sorsdahl, Prof. Carolyn Williamson, Prof. Heather Zar

Poverty and Inequality
Prof. Murray Leibbrandt, Prof. Diane McIntyre, Morné Oosthuizen

Our World at Risk
Emlyn Balarin, Dr Anja Boyd, Prof. Anusuya Chinsamy-Turan, Dr Åke Fagereng, Rob Little, Prof. Mark New, Britta Rennkamp, Matthew Scarborough, Prof. Judith Sealy, Prof. Les Underhill, Prof. Harald Winkler

Reaching for the Stars
Prof. Claude Carignan, Prof. Thomas Jarrett, Dr Jeff Murugan, Dr Amanda Weltman, Prof. Patrick Woudt

Every Drop Counts
Prof. Neil Armitage, Dr Kirsty Carden, Prof. Alison Lewis, Prof. Martine Visser

Sustainable Cities
Prof. Roger Behrens, Gordon Pirie, Prof. Vanessa Watson

Being Human
Prof. Carrol Clarkson, Prof. Ana Deumert, Prof. Carolyn Hamilton, Prof. Shamil Jeppie, Prof. Rajend Mesthrie

The Green Economy
Prof. Harro von Blottnitz, Prof. Rachel Wynberg

Engineering the Future
Prof. Hans Beushausen, Prof. Sue Harrison, Prof. Komla Folly, Prof. Genevieve Langdon

Law in Context
Prof. Jaco Barnard-Naudé, Prof. Hugh Corder, Prof. Salvatore Mancuso, Dr Sindiso Mnisi-Weeks, Prof. Hanri Mostert, Prof. Clifford Shearing, Prof. Dee Smythe, Prof. Danie Visser

Commerce Beyond the Numbers
Prof. Don Ross

Global Partnerships, Local ICT Solutions
Prof. Thomas Franz, Prof. James Gain, Prof. Gary Marsden, Prof. Kevin Naidoo, Prof. Daya Reddy, Prof. Jean-Paul van Belle

Other Contributors
Dr Andrew Bailey, Faridah Chebet, Prof. Graeme Cumming, Dr Guy Lamb, Barbara Smid, Grant Smith

Photos

pp. 46, 119 – National Research Foundation
p. 48 (top) – Prof. Anusuya Chinsamy-Turan
p. 50 – Department of Science and Technology
pp. 52, 100 – Graeme Cumming
p. 53 – National Science and Technology Forum
p. 59 (left) – Proff. Willem Hanekom
p. 60 (left) – Prof. Nicola Mulder
p. 62 – Prof. Willem Hanekom
p. 63 – Prof. Heather Zar
p. 64 (bottom) – Prof. Jonathan Blackburn
p. 82, 83, 86-89 – Prof. Diane McIntyre
p. 92 – Photo by Dr Johann Diener, which shows MSc student David McGibbon (front), followed by Dr Åke Fagereng and Sukey Thomas (MSc student).
p. 98 (left) – Pavs Pillay
p 98 (right) – Dr Laura Blamey
p. 100 (bottom) – David Nkosi
p. 101 – Kevin Drummond Hay
p. 102 – Ben Smit
p. 104 – Lloyd Edwards
p. 105 (top) – Dr Åke Fagereng
p. 107 – Matthew Scarborough
p. 109 – Grea Wessels
pp. 112, 114, 114 (bottom), 115 (bottom) – images courtesy of SKA Africa
pp. 116, 118, 121 – Images courtesy of SKA Organisation/ Swinburne Astronomy Productions
p. 115 – Prof. Patrick Woudt
p. 120 – Dr Jeff Murugan
p. 123 – Dr Kirsty Carden
p. 127 – Prof. Neil Armitage
p. 130 – Prof. Vanessa Watson
pp. 145, 181, 190 – Prof. Hanri Mostert/Dirk van der Merwe
pp. 151,152 – Prof. Ana Deumert
p. 153 – Prof. Fritha Langerman
pp. 160, 164 – Prof. Rachel Wynberg
p. 165 – Prof. Edwin Muchapondwa
p. 179 – TEDx
p. 188 – Nikki Campbell
pp. 196, 209 – Haajirah Esau

Other contributors for images: Pauline Alexander, Vaun Cornell, Mary Hilton, Clare Hofmeyr, Sue Kuyper, Christine Olsen, Chantel Reed, Shereen van der Brock, Lamize Viljoen, UCT Monday Paper.

Editorial Team: Haajirah Esau and Christina Pather

Design and Layout: Rothko: www.rothko.co.za
What does it mean to imagine Africa at the centre of the world map? And to suggest a shift in geographical conventions that enables new possibilities to emerge? Through its Afropolitan mission, the University of Cape Town (UCT) aspires to leverage much more out of its historical and geographical location than before in contributing to new knowledge and the resolution of problems of African and global significance. As a hub of internationally recognized scholarship, the university is strengthening strategic alliances in Africa and the global South to become a pivot in multi-cornered partnerships involving North-South collaborations. As the pursuit of knowledge and the delivery of learning become increasingly international, UCT – as one of the top ranked African universities – is rising to the challenge of rapid change in the higher education environment. Establishing a niche through which the university can claim its place as a global player involves extending our links in Africa and building on collaborative research initiatives with selected international partners around mutually agreed research themes. It also requires optimising our special natural environment as well as our location in a region, where finding solutions to the social, political and economic development imperatives that beset us, offers lessons of broader relevance internationally. Within such a framework, UCT is well positioned to increase the university’s international profile and to consolidate its identity as a sought after destination for knowledge and expertise on Africa. Through nurturing research links and exchanges of all kinds – whether academic, cultural or commercial – UCT pursues strategic alliances with selected international partners based on shared knowledge, mutual learning and ongoing dialogue.