In May 2013 the Evolutionary Studies Institute (ESI) was officially opened by the then Vice-Chancellor and Principal, Professor Loyiso Nongxa.

Established through an amalgamation of the Bernard Price Institute for Palaeontological Research and the Institute for Human Evolution, and under the interim directorship of Professor Bruce Rubidge, the ESI is positioning itself as the leading centre in Africa for research and training in palaeontology and palaeoanthropology.

It unites the evolution of biodiversity with the later evolution of humans and culture to create a world-class interdisciplinary facility, which has a very vibrant and productive research programme on a variety of projects relating to the rich and diverse palaeoscience heritage of South Africa. The Institute is also the custodian of one of the largest and most significant fossil collections in the southern hemisphere.

The amalgamation is a strategic and practical move, as the various disciplines utilise the same type of laboratories and research equipment, and all have large palaeontological collections, which are communally managed by Collections Manager, Dr Bernhard Zipfel.

The home for the ESI is the recently revamped Palaeosciences Centre which has world-class fossil preparation, casting and curatorial facilities, as well as a recently purchased Micro CT Scanner with a virtual image processing laboratory, set up through the ESI’s Dr Kristian Carlson. He is partnering with several research projects involving image processing of a variety of fossils, including fossil hominins. These facilities, combined with the research capabilities of the ESI, place Wits at the forefront of palaeosciences research worldwide.

A new world-class fossil hominin vault is being built that will house all the fossil hominin collections of the University. The vault will be completed in the first half of 2014. To make space for this vault, at the end of 2013 the ESI moved the James Kitching Fossil Gallery from the Palaeosciences Building to the Origins Centre, which gives the public direct access to the fossil and archaeological heritage of South Africa. The ESI runs an active outreach programme, based largely around the James Kitching Fossil Gallery. During 2013 over 26 000 learners from greater Gauteng participated in the programme, which is led by Dr Ian McKay who also coordinated the highly successful Wits National Science Week Programme held at the end of July 2013.

Overall, Wits has been highly active in palaeosciences in 2013, including major new fossil and hominin site discoveries; a wide range of global research collaborations; training of numerous postgraduate students; school and public outreach activities and the development of palaeotourism activities in the Cradle of Humankind and Nieu Bethesda.

The Global Change and Sustainability Research Institute (GCSRI) was established to provide a vehicle for interdisciplinary science at Wits, recognising that such a cross-cutting approach is key to facing the challenges of global change in Africa.

Professor Belinda Bozzoli maintained the GCSRI’s momentum as acting director for most of 2013. At the end of 2013, Professor Barend Erasmus was appointed to the position of Director and Chair, to start on 1 April 2014.
The GCSRI gets most of its funding from four sources: the Exxarro Chairman’s Fund (ECF), the Carnegie Corporation of New York, the Open Society Foundation (OSF) and the German Society for International Cooperation (GIZ). ECF funding remains in place, funding the salaries of the Director, Project Manager, three postgraduate student projects, networking and training opportunities. With the appointment of a new director, there will be renewed interaction with the ECF, among other things, strategising about long-term research priorities.

The first round of funding from Carnegie ended in 2013, but was renewed until 2015 after a rigorous evaluation process. The renewal is worth R9.6 million, and funds 19 doctoral students (six of these are new awards for 2014), eight postdoctoral research fellows (three new appointments from 2014 onwards), workshops and training events. Research outputs from doctoral students in the first round of Carnegie funding include 40 conference contributions (18 of these at international conferences) and 26 publications, one of these in a 10.2 impact factor journal. At the end of 2013, a further six publications were in review or in preparation. Other successful activities included breakaway writing retreats for doctoral students, and a science communication workshop, presented by the well-known science commentator, Simon Gear.

Postgraduate research in the Carnegie programme has a strong interdisciplinary flavour. Alecia Ndlovu is researching how political institutions in Africa determine sustainable development pathways. Dr Kaera Coetzer, who did her PhD studies with Carnegie support, is exploring the environmental science-policy divide, and how it keeps society from implementing effective global change adaptation strategies. Tsepang Leuta recognises that green infrastructure is an integral part of sustainable urban planning, and is exploring the institutional and societal constraints to using local cemeteries as part of the urban green infrastructure portfolio.

OSF funding was renewed until 2015, to the value of R5 million. Previous funding from OSF supported the development of an interdisciplinary curriculum for masters level students during 2013, and the first students enrolled in this course at the beginning of 2014. The OSF renewal not only supports students enrolled in this course, but also a postdoc, five doctoral students, and three MSc students, all of whom work on projects related to global change and food security.

With GIZ funding, the Climate Leadership Programme (CLP) was developed, and the second incarnation of this programme, CL+, was successfully rolled out in 2013. The programme offers space for attendees to share different views, it nurtures individual growth for innovative action and it encourages transformations. The GCSRI has applied for renewal, specifically to tailor the CLP experience for business professionals.

Using leveraged funds from Wits’ internal fund for strategic purposes, Dr Michel Verstraete from the European Commission’s Joint Research Centre in Italy, visited Wits as a distinguished scholar in July and October 2013. During his visits he contributed seminars, discussions and student advice. He is now appointed as an honorary Wits staff member and he has taken up a permanent position at the newly-formed South African National Space Agency.

Looking forward, the GCSRI will focus on using the newly acquired funds to not only strengthen the emerging interdisciplinary communities of practice at Wits, but also to reach out and build networks across the continent, and beyond.
The philosophy of the Sydney Brenner Institute for Molecular Bioscience (SBIMB) is to promote excellence in scientific research, develop capacity in molecular bioscience research, enhance collaborations, and provide an enabling environment for researchers to focus on cutting-edge research in Africa.

The central research themes of the SBIMB, which are developed around principal investigators and collaborations, include: exploring the genomic and molecular underpinning of susceptibility to diseases in Africans in the context of a rise in diseases of lifestyle on the continent; identifying disease causing variants in African patients; and evolutionary medicine.

In 2013 the SBIMB moved from being a virtual institute with a footprint across the faculties of Health Sciences, Science, and Engineering and the Built Environment to its first home at 9 Jubilee Road in Parktown. This provided an opportunity to consolidate Wits Bioinformatics as a Division within the SBIMB, to bring together its genomics, and evolutionary biology research groups and an opportunity to establish a small laboratory and biobank.

Research collaborations are thriving with associate members based in the Wits faculties and with international colleagues. The SBIMB has a strong group of postdoctoral fellows and PhD students registered through the faculties.

On the path toward becoming a sustainable Wits 21st Century Research Institute, the Director, Professor Michèle Ramsay, has been awarded a DST/NRF South African Research Chair in Bioinformatics and Genomics of African Populations.

Dr Pierre Durand joined the SBIMB in June 2013 as a self-funded member with his evolutionary medicine research aimed at understanding fundamental processes and patterns of evolution to guide our understanding of health and disease.

Productive research collaborations and partnerships are being strengthened with the Developmental Pathways for Health Research Unit (DPHRU), the MRC/Wits Rural Public Health and Health Transitions Research Unit (Agincourt), and colleagues from the School of Clinical Medicine in the Divisions of Rheumatology (Professor Mohammed Tikly and Dr Nimmisha Govind), Ophthalmology (Dr Susan Williams and Professor Trevor Carmichael) and Nephrology (Professor Sarala Naicker and Dr Raquel Duarte). The Human Heredity and Health in Africa Consortium (H3Africa) is providing research opportunities across the African continent.

A multidisciplinary Collaborative Centre (abbreviated to “AWI-Gen”) project has rolled out into the field at Soweto (DPHRU) and will do so soon with their partner INDEPTH (International Network for the Demographic Evaluation of Populations and Their Health in low- and middle-income countries), including INDEPTH centres at Agincourt and Dikgale in South Africa, and Nairobi, Navrongo (Ghana) and Nanoro (Burkina Faso).

The core Wits team includes senior scientists from the Division of Human Genetics (Professor Himla Soodyall), the Department of Chemical Pathology (Professor Nigel Crowther) and the School of Molecular and Cell Biology (Dr Zane Lombard).

The AWI-Gen project aims to study genomic and environmental risk factors for cardiometabolic diseases and is harmonising with other projects to increase its future research potential. Wits, under the leadership of Professor Scott Hazelhurst, is a node of H3A BioNet, a pan-African bioinformatics network, and is contributing to the development of processes for large data storage and retrieval, and capacity development workshops.

A highlight for 2013 was a landmark paper (May et al.) on a high-density genome-wide assessment of genetic diversity among black South Africans resident in Soweto. These data have demonstrated that they are significantly differentiated from other sub-Saharan populations, in part because of early Khoisan admixture. The data is in the public domain to benefit the scientific community.

The CRG-Novartis-Wits Scientist Mobility Programme was launched in 2013 with three PhD students working in world-class molecular laboratories at the Centre de Regulacio Genomica (CRG) in Barcelona, Spain.

The SBIMB hosted several distinguished visitors in 2013: Dr David Landsman (Computational Biology Branch at the NCBI at the NIH, US); Professor Matt McQueen (Department of Integrative Physiology and Institute for Behavioral Genetics at the University of Colorado Boulder, US); Professor Richard Michod (University of Arizona, US;) and Professor Anne Bowcock (National Heart and Lung Institute at Imperial College London, UK).

The SBIMB continues to provide administrative support to the Wits Molecular Biosciences Research Trust (MBRT), which aims to strengthen the links between over 100 researchers in all fields of molecular bioscience across the University.
A striking feature of the rich landscape of urban-related research at Wits is that a significant amount of research on the city takes place in Schools and other entities whose primary focus is not the city.

A key reason for the establishment of a City Institute at Wits is to develop a systematic and purposeful focus on the city. The main purpose is to grow a stronger research environment around a common focus – that of the city and its complexities, especially in the conditions of democratic, middle-income countries in the 21st century.

The Wits City Institute is providing the platform to host, stimulate and produce innovative research on large and transdisciplinary questions to enable better understanding of the city and of city processes and dynamics; to support improved action in city development, positioning the city simultaneously as an object of investigation and as a location for intervention. The purpose of this is to develop a distinctive brand identity and unique position for Wits University in the city research landscape.

The Wits City Institute draws together the University’s urban scholars who conduct research across a wide range of fields, throughout each of its Schools and Faculties, into multidisciplinary programmes of research, teaching and graduate student support. It provides an intellectual hub around which scholars work in partnership on large-scale, city-related initiatives.

The three major research themes of the Wits City Institute are: democratic city life – governance and management; comparative urban development; and urban innovation. As one of its major research themes, the Wits City Institute is leading a research programme in the fields of architecture, critical spatial practice and interdisciplinary urban studies. This initiative intentionally teams up the humanities and architecture to work collaboratively on researching our inherited built world and its social meanings.

In 2013 the City Institute received US$1,449,000 from the Andrew W. Mellon Foundation.

Dr Mariët Westermann, Vice President of the Mellon Foundation, New York, said on 5 December 2013: “I am delighted to report that the Mellon Foundation’s Board of Trustees has approved the grant to the University of the Witwatersrand in support of the establishment of a Chair in Critical Architecture and Urbanism, whose primary appointment will be in the Wits City Institute.

Congratulations! We will be eager to follow the University’s contribution to the growing dialogue and collaboration at the intersection of architecture, urbanism, and the humanities.”

The funds will be used to appoint the first director of the City Institute who will also serve as the Chair of Critical Architecture and Urbanism.

Other achievements and activities of the City Institute in the 2013 period include gaining University Research Council recognition, co-ordinating three notable seminars and writing workshops on the theme of the city, and hosting leading South African and international urban scholars at Wits.
Mining is where Wits started and the University is located amongst some of the world’s richest mineral resources. The University grew out of the South African School of Mines, which started in Kimberley in 1896, later becoming the South African School of Mines and Technology in Johannesburg in 1911.

Throughout the 20th century Wits continued its legacy as one of the only leading higher education institutions in South Africa with dedicated mining-related research and teaching programmes. Wits has supplied South Africa and the global mining industry with geologists, mining engineers, metallurgists and managers, and has been generously supported by industry through endowments, student bursaries and research grants.

In the 21st century, mining remains vital to the South African economy. It contributes substantially to the South African GDP and export revenue, and more than half a million people are directly employed in mining, and another half million indirectly.

Yet the sector underperforms against potential, has limited value-adding beneficiation, and faces a range of threats, including cost increases, demands for nationalisation and the triple pressures of commercial survival, increasing labour and community benefits from mining, and protecting the natural environment.

Finding solutions to these and other issues, has revealed an urgent need for dedicated and multidisciplinary mining-related research. Wits is well positioned to lead this initiative and rose to the challenge by launching the Wits Mining Research Institute (WMRI) two years ago, which is dedicated to driving the mining research agenda forward in South Africa and the rest of the continent.

In 2013 the WMRI established the Wits Future of Mining Task Team, comprising multidisciplinary Wits academics and co-chaired by mining stalwarts Bobby Godsell and Dr James Motlati.

The purpose of this task team is to assert Wits’ position as the thought leader in mining-related research in South Africa and the continent in the 21st century, by prioritising what it perceives to be the most fundamental challenges facing the South African mining sector, whilst retaining world class academic rigour. This initiative will inform the development of the multidisciplinary research agenda taken forward by the WMRI.

Research will include exploration, safety in mining, economic geology and the efficient extraction of resources, environmental sustainability, deep-level mining, safety and occupational health, and the full spectrum of social impacts and mine rehabilitation.