WITS UNIVERSITY

School of Geography, Archaeology and Environmental Studies

Programme Handbook 2027

MSc Environmental Sciences

Coursework & Research Report

1. Welcome

Congratulations on being accepted into the MSc Environmental Sciences (CWRR) at the University of the Witwatersrand. This is a highly competitive programme, and we receive over 100 applications each year. The MSc Environmental Sciences (CWRR) degree provides you with advanced training in specialised fields of Environmental Science and develops your research and analytical skills. This programme is formally accredited by the Environmental Assessment Practitioners Association of South Africa (EAPASA), providing you with a streamlined entry into the fields of Environmental Assessment and Management. As a postgraduate student, you have an increased responsibility for your academic success and time management. This handbook contains information that will be of value throughout the year, so keep it somewhere safe! Good luck for this degree!

2. Structure of the Degree

In line with the Rules and Syllabus Book of the Faculty of Science, guided by the Senate Standing Orders of the University of the Witwatersrand, an MSc by coursework and research report (CWRR) in the faculty (programme code SCA00) including this one (plan code SFAENVS60), requires that a candidate shall:

1) Attend, perform the work, and where applicable attend the examination for the courses prescribed in the syllabus
2) Be required to obtain credit in every requisite course on first attempt. If a course is not passed, a candidate can complete an alternate elective course on offer
3) Conduct, under the guidance of a supervisor appointed by the university, research on a topic approved for that programme, and shall submit a Research Report for examination.

The above for this programme comprises the compulsory research report (total of 90 credits) and three elective courses (each with a total of 30 credits). This results in a combined total of 180 NQF Credits, with an NQF Exit Level of 9. If you do not pass a course, you will need to take an additional elective course from the list and pass this to obtain sufficient credits to complete your degree. To qualify with distinction, you will need to obtain a minimum average of 75% for your three elective courses, AND pass your research report with a minimum of 75%.

You may select *any* three of the elective courses offered within this programme, but some of these do require specific technical background and prior learning. If in doubt, please reach out to the specific course coordinator to determine whether you have the requisite skills to succeed in that specific elective, and if not, select another option from the list. Full time students must complete all of their coursework (ie. *three* 30-credit modules) in the first year of registration. Part-time students may complete their coursework (ie. *three* 30-credit modules) across the two years of registration, and can decide their distribution of courses across the two years (eg. 2 courses in year 1, and the remaining course in year 2, or all 3 courses in year 1).

In accordance with the University Teaching and Learning Strategy all courses are taught predominantly face-to-face with no more than 30% of content delivered online. The mode of delivery differs between courses and can include block releases, field trips, and lectures held weekly. Both full-time and part-time students need to make appropriate arrangements to attend all contact sessions and in-person assessments for the courses they choose to register for.

For full time students, the research report is completed under the course code GAES7003A in ONE academic year. For part time students, the research report is completed across TWO academic years: you will be registered for GAES7008A in year 1 and GAES7009A in year 2 and complete your project by the end of the second year. Please ensure that you register correctly for the research project course code/s according to whether you are full- or part-time. All students will be presenting their project proposals in April of the first year of their study, and thereafter complete these proposals for submission to faculty by mid-May of the first year.

Course information

Course Code	Course Description	Credits	Academic Block
GAES7003A	Research Report: Environmental Sciences Full Time	90	Full Year
OR			
GAES7008A	Research Report: Environmental Sciences Part Time I	45	Full Year (1)
AND			
GAES7009A	Research Report: Environmental Sciences Part Time II	45	Full Year (2)
AND ANY 3 OF:			
GAES7001A	Environmental Monitoring and Assessment	30	Block 1
GAES7007A	Knowledge, Society, Precarity: Science and Communication in an Era of Climate Crisis	30	Block 1
GAES 7000A	Globalisation of Food	30	Block 2
GAES7010A	Environmental Science Research: Masterclass and Case Studies	30	Block 2
GAES7005A	Sustainable Tourism	30	Block 3
GAES7006A	People and Palaeoecology	30	Block 4
GAES7002A	Landscapes and Climate Change	30	Block 4

3. Elective Course Descriptions

The key benefit of enrolling for an MSc by CWRR, as opposed to an MSc by Research, is that you are able to take courses to advance your knowledge on the topic of interest. For this MSc in Environmental Science, you may choose *any three* of the elective courses for this degree. A reminder that some of these courses require specific academic skills, strengths and

backgrounds. Please carefully consider the course descriptions below. If in doubt, please contact the course coordinator *before* registering to ensure that you will be able to succeed in that specific course. You may also enquire with the course coordinators regarding the mode of delivery and timetabling.

You are allowed to make changes to your selected courses up until the second week of the academic block in which it is taught. This is undertaken through completing a postgraduate amendment form, to be signed off by the MSc Environmental Sciences programme coordinator. Please note that this will still appear on your academic transcript as a course that has been 'dropped'. For a cleaner academic transcript it is therefore advisable to think carefully ahead of registration to ensure the optimal selection of courses.

GAES7001A Environmental Monitoring and Assessment

Course Coordinator: Prof Mulala Simatele (Mulala.Simatele@wits.ac.za)

Environmental monitoring and assessment refer to decision-making tools, legislative instruments and formalised environmental management processes that are designed to observe a natural environment, characterize its quality, and establish the environmental parameters, to accurately quantify the impacts of anthropogenic processes on the environment. Environmental monitoring and assessment exist to enable precautionary measures to be integrated into project design, implementation and policy planning for the protection of the environment, humans and economic systems. Environmental monitoring and assessment, therefore, allows the determination of the potential impacts of development on environmental quality, social wellbeing and regional and/or national economies.

The overall objective of this course is to provide students with:

- A working knowledge of current trends in environmental, social and economic impacts and methods relating to environmental monitoring and assessment in a broader context and drawing examples from South Africa, and consider in detail how these tools can be used for social, economic and environmental sustainability.
- Provide students with an overview of environmental management systems including the legislative framework of environmental governance and auditing process, as well as evaluate their operations in South Africa and where possible other countries, thus providing examples of techniques used in impact assessment relating to a wide range of environmental topics.
- Provide an opportunity for students to review and appraise the environmental impact and auditing process and associated techniques through investigation of case studies, and develop practical skills to conduct screening, scoping, report review stages in environmental assessments, write reports, analyse and synthesise previous environmental assessments and auditing processes
- Allow students to explore their existing skill base and identify what skills require further work, and Provide a context (in the form of a field excursion) within which to start thinking about environmental and sustainability issues, some key thematic concepts and principles

in environmental management including an investigation of what inter-disciplinarity entails.

GAES7007A Knowledge, Society, Precarity: Science and Communication in an Era of Climate Crisis

Course Coordinator: Dr Alex Wafer (Alex.Wafer@wits.ac.za)

This course provides and advanced competency in communicating and debating scientific concepts across disciplines and with broader groups within society: civil society, government, political parties and interest groups, and community-based organisations. Candidates get the opportunity to develop their own theoretical, ethical and practical competencies in engaging, communicating with and developing active and collaborative trans-disciplinary alliances within and across society. Specifically, they are presented with several real-world scenarios concerning different elements of global change as they relate to the global south context including inter alia: the social and political implications of climate-induced migration and urban change; emerging forms of climate inequality; emerging social divisions related to age, gender and race concerning climate change; the resistance of powerful groups to real adaptation and political responses to climate change; and the possibilities for new modes of knowledge production that cross social boundaries. The course involves critical engagement with debates about the role of science in society: what is the role of expert knowledge; how might knowledge be embedded in co-productive processes? Finally, it entails a practical application of these learnings through the realisation of collaborative public output (in the form of eg. an exhibition, an edited collection of writing, a series of podcasts, etc.)

GAES7000A Globalisation of Food

Course Coordinator: Prof Mary Evans (Mary.Evans@wits.ac.za)

This course critically examines the global food system from production through to consumption. It introduces the issues of food production in relation to the challenges faced by modern agriculture and focuses on the physical parameters of soil fertility, climate change and crop selection. The course explores the socio-political nature of food that stems from the unequal organisation of food systems and distribution of resources, and from contestations over ways to address food challenges. It engages with a range of contemporary issues in food and development at global and local levels, across the global North and South, as an improved understanding of global and local agro-food networks is essential to stimulate sustainable production of healthy food and renewable resources. The course further investigates key environmental and development concerns about the disparity in consumption of food globally and the treatment of food waste as well as the role of agriculture in reducing hunger, malnutrition and undernutrition and contributing to the economic development of low-income nations, the sustainability of agricultural, food supply systems, and food security

GAES7010A Environmental Sciences Research: Masterclass and Case Studies

Course coordinator: Prof Jasper Knight (Jasper.Knight@wits.ac.za)

This course introduces students to key overarching ideas in Environmental Science in a southern Africa context, through a case studies approach in which different environmental research themes are presented weekly, focusing on the rationale, methods and outcomes of research endeavours in different environmental contexts. This will allow students to take a synoptic overview of the nature, diversity and different research approaches undertaken in Environmental Science, and to position their own research studies into a wider academic and environmental context.

GAES7005A Sustainable Tourism

Course coordinator: Prof Dominic Stratford (Dominic.Stratford@wits.ac.za)

This course provides a holistic background on sustainable tourism, focusing on a balance between tourists' needs for authentic experience as frequently dictated by popular culture, and conservation of different environmental, cultural heritage and ecological resources. The course focuses on the socially, environmentally, and politically complex landscape of the Cradle of Humankind to critically analyse and evaluate resources and sites that are currently utilised as tourist attractions. The goal of the course is to develop skills necessary to develop realistic and sensitive African sustainable tourism management strategies that consider dynamic local and international perceptions and experiences of heritage, environments, ecosystems, popular culture and conservation.

GAES7006A People and Palaeoecology

Course Coordinator: Dr Malebogo Mvimi (malebogo.mvimi@wits.ac.za)

This course examines the role that technology and ecology played in human development in the past and explores the development and origins of technology and its links to human ecology as the technological response to climate change through time. The course then investigates palaeoenvironmental data such as faunal and plant remains regarding how these are used as proxies for palaeoecological change. Candidates are shown the basics of palaeozoological and palaeobotanical data analyses so they can understand their utility in environmental science and related fields. These key topics are used to explore the development of the human ecological niche and how this links to current issues in environmental science.

GAES7002A Landscapes and Climate Change

Course Coordinators: Prof Jasper Knight (Jasper.Knight@wits.ac.za) and Prof Stefan Grab (Stefan.Grab@wits.ac.za)

This course examines the composition and workings of landscape systems (including climate, weathering/erosion, hydrology, geomorphology, sediment system dynamics and ecology), and

their sensitivity to climate and environmental changes, both in the past and present. It explores the climatic, geomorphological and anthropogenic controls on landscape development, over different spatial and temporal scales, with specific reference to southern Africa but set in a global context. The course then examines the relative influence of different forcing factors on landscape dynamics and properties, and concepts of sensitivity and considers contemporary examples of landscape geomorphic change in southern Africa.

4. Research Report

A Research report forms an integral, and compulsory, component of this MSc Environmental Sciences. The Research Report is worth 90 credits, which is equivalent to the total of your three elective courses. It should therefore be a key focus of your time and energy during your MSc. It is not, however, a research Dissertation. Students enrolled for an MSc in Geography, Archaeology and Environmental Studies by Research complete a Dissertation. This is worth the full 180 credits of the MSc degree, and those students focus only on their research with no coursework. A Research Report is therefore considerably smaller in scope than a full dissertation. It is important to keep this in mind when conceptualising a topic with your supervisor, and during your proposal presentations, many comments may relate to the size and scope of the project accordingly.

Supervision

Each student will be allocated a supervisor for their Research Report at the beginning of their first year of study. Students will have the opportunity during orientation week to select *one* possible supervisor from *each* of the three core thematic areas of Environmental Sciences in the School of Geography, Archaeology and Environmental Studies, and every effort will be made to ensure each student be appointed *one* of these chosen supervisors. These three core thematic areas are physical environmental sciences, social environmental sciences (present and past) and heritage in environmental sciences. Any student enrolled in this programme should be able to work in projects under *any* of these three themes. You will need to work on a project that is within the area of expertise of your allocated supervisor – if a supervisor has specific expertise in an area that you do not have any background in, please do not select this person as one of your three choices. As an MSc student, it is your responsibility to explore the research backgrounds of each member of staff. Once supervisor allocation has been completed, you will work with your supervisor to develop a topic that is within their field of expertise. A reminder that the purpose of the Research Report is to develop your skills in academic writing, data collection, analysis and interpretation. This can be done through any topic offered in the school, and all research projects cover the core competencies of EAPASA in this regard. If you have a very specific project or supervisor in mind, or your funding is linked to a specific project, you are strongly encouraged to register instead for the MSc in Geography, Archaeology and Environmental Studies by Research. In a taught masters, these specific requests cannot be accommodated, nor are they the focus of the training programme.

Supervisors and thematic areas

Physical	Social (present and past)	Heritage
Dr Simone Dahms-Verster	Dr Sam Challis	Dr Keneiloe Molopyane
Prof Mary Evans	Prof Jennifer Fitchett	Dr Malebogo Mvimi
Prof Stefan Grab	Dr Serge Kubanza	Dr Catherine Namono
Prof Jasper Knight	Prof David Pearce	Prof Thembiwe Russell
Dr Matt Lotter	Dr Sarita Pillay	Prof Alex Schoeman
Prof Paida Mhangara	Dr Alex Wafer	Prof Dominic Stratford
Dr Jerome Reynard		Prof Sarah Wurz
Prof Craig Sheridan		

Short biographies of the supervisors are in Appendix 1 and you are encouraged to look up the research profiles of these staff members to understand their research. Once you have been allocated your supervisor for your project, you will work with them in developing your research project topic. It is important to decide on your topic as early into the year as possible so that you can begin working on your proposal. Throughout the year, it is your responsibility to schedule times to meet with your supervisor, and to ensure that you are receiving the support that you need in completing your project. To be able to give you valuable feedback, your supervisors need to be afforded sufficient time to read drafts of the chapters of your research report long in advance of the final deadline. Please manage your time effectively, and communicate regularly with your supervisor, to facilitate this.

Proposal

Prior to commencing your study, you are required to write up a research proposal. The Faculty of Science Guidelines for MSc CWRR is a document with a total length of 1500-1800 words. This needs to be submitted to faculty within FOUR months of the start of registration (ie. Mid-May). Prior to submission to faculty, your proposal needs to be orally presented and defended to the School of Geography, Archaeology and Environmental Studies. This takes place on a day of parallel sessions during mid-April, where you will present PowerPoint slides guiding the audience through the key components of your proposed research. It is essential to attend and complete this. Thereafter you will have a month to implement the suggested changes, and refine your proposal to the satisfaction of your supervisor. You will then submit your proposal, Turnitin report for your proposal, proposal submission form and staff-supervisor agreement to the relevant postgraduate coordinator representative for the School who is responsible for this programme to sign off. You need to ensure, thereafter, that your proposal is submitted to faculty.

You should aim to have a full draft of your proposal written and reviewed by your supervisor prior to the proposal presentations so that you are able to make the most of this opportunity for feedback. As soon as your revisions are completed after this, you may submit to faculty. Earlier proposal submission expedites your progress on your project.

Your proposal should include the following key components:

1. Introduction
    1.1. Background to the study
    1.2. Rationale
    1.3. Aim and Objectives
2. Literature Review (a brief overview)
3. Study site
4. Methods
    4.1. Data collection
    4.2. Data analysis
    4.3. Ethics
    4.4. Workplan (Gantt chart)
5. Reference list

Remember that this should be a concise document; many of these sections will be expanded on in your full Research Report into individual chapters.

Ethics

For every MSc Research Report you will need to apply for either an Ethics Waiver (if your study does not involve human subjects) or Ethics Clearance, through the School of Geography, Archaeology and Environmental Studies. This will take place once you have a finalised proposal, and you will submit the proposal to the ethics committee together with any relevant supporting documentation – for example, questionnaires, consent forms, participant information forms. The Chair of the School Ethics Committee will explain this process to you. You should not commence data collection prior to obtaining your ethics waiver or clearance, as the Ethics committee has the responsibility to determine whether a waiver or full clearance is most appropriate. Moreover, a strong study requires a well-conceptualised proposal and research instruments prior to data collection.

There are a series of deadlines for ethics throughout the year. The sooner you make your application to ethics, the sooner you'll be able to commence with your data collection. Note that ethics clearance cannot be granted retrospectively.

Training and Support in Research Methods

At a Masters level we expect students to come into the programme with the fundamental skills in research, including basic methodological skills. Your supervisors will provide you with further training in methods very specific to your study, as needed. The University of the Witwatersrand offers a range of online short-courses on research methods through GOLD. This is offered via the Ulwazi platform. At the end of each module, you will receive a certificate of completion. In addition to this, the Wits Writing Centre, based in Watenweiller Library, and Stats Central offer further support.

MSc Research Report

Your MSc Research Report is the sole document on which your 90 credits of your degree are graded. This is not marked by your supervisor, but instead by two independent academics within the field of your study, one of which is external to Wits University. Your mark for the research report is approved through Faculty Graduate Studies Committee, as the average between the two examiner's marks. An MSc research report is typically around ~150 pages all inclusive, but there is no fixed word or page limit. Please consult the Faculty of Science Style Guide when compiling your research report. You will need to submit an intention to submit form to Faculty ±3 months before submission, at which point your supervisor will nominate your examiners. On submission, you will need to provide an AI declaration, a Turnitin report for your full research report, an acquiescence for submission form and a first submission form. All requisite forms, throughout your MSc, are available on the Faculty of Science Webpage: https://www.wits.ac.za/science/postgraduate/forms/. Following the submission of your MSc Research Report, your examiners will be afforded 6 weeks to provide feedback and grade your work. Following this, you will receive feedback from Faculty, through your supervisor, which indicates either the award of the degree following minor revisions, or the award of the degree with major revisions. Major revisions are subject to re-examination; minor revisions are completed to the satisfaction of the Head of School. All corrections are necessary to be able to qualify with your degree, and need to be completed within the requisite time period.

5. Referencing and Plagiarism

At postgraduate level plagiarism is not tolerated and will be referred for disciplinary processes. At Wits we use Turnitin through Ulwazi. A Turnitin score of >15% will be flagged as plagiarism. Most courses will allow you to submit your work through Turnitin multiple times ahead of your submission date, so if you do have a problem, you can rectify this. Please make sure that you submit assignments through the correct Turnitin portal for that course, as otherwise your lecturer will not have access to the report. You must indicate every instance in which an idea, words or phrasing are not your own, and all sources that you have used in formulating your submitted work must be cited in the reference list. All statements of fact must be supported by references. If you refer to the same source in two consecutive sentences you must cite it at the end of each of those sentences, and not just in one of the sentences.

You may not submit the same piece of work for more than one assignment (eg. a paragraph that you use in two different essays for two different courses will count as plagiarism), and you may not submit the same piece of work for two different degrees (eg. an essay you submitted in undergraduate or Honours cannot in part or in whole be submitted in Masters).

This course introduces students to key overarching ideas in Environmental Science in a southern Africa context, through a case studies approach in which different environmental research themes are presented weekly, focusing on the rationale, methods and outcomes of research endeavours in different environmental contexts. This will allow students to take a

synoptic overview of the nature, diversity and different research approaches undertaken in Environmental Science, and to position their own research studies into a wider academic and environmental context.

The Environmental Sciences programme uses Harvard referencing. Individual lecturers may give you specific requirements for the referencing for their courses. In all other instances, please use the format below.

In Text Referencing

One source, one author: (Brown, 1993)
One source, two authors: (Xie and Mahlangu, 2014)
One source, three or more authors: (Mbiwa *et al.*, 2011)
Multiple sources: (Brown, 1993; Mbiwa *et al.,* 2011; Xie and Mahlangu, 2014) *date order
Multiple papers by the same author: (Brown, 1993, 200, 2017; Mbiwa *et al.,* 2011)
Multiple papers by the same author in the same year: (Brown, 1993a,b; Mbiwa *et al.,* 2011)

Reference list

Reference list must appear in alphabetical order, be indented (see below), and should not segregate different types of sources. If you have more than one entry for a particular author, order them by date. Each reference should have a 10 point spacing below it.

Journal article

Adeola, A.M., Olwoch, J.M., Botai, J.O., Rautenbach, C.D., Kalumba, A.M., Tsela, P.L., Adisa, O.M. and Nsubuga, F.W.N. (2017). Landsat satellite derived environmental metric for mapping mosquitoes breeding habitats in the Nkomazi municipality, Mpumalanga Province, South Africa. *South African Geographical Journal*, 99(1): 14-28.

Book Chapter

Massey, R. and Gunter, A. (2019). Housing and shelter in South Africa. In Knight, J. and Rogerson, C. M. (Eds.) *The Geography of South Africa: Contemporary Changes and New Directions,* Springer: Cham, 179-185.

Book

Diamond, J. (2017). *Guns, Germs and Steel: The Fates of Human Societies.* W.W. Norton & Company: New York, 75-93

Website

World Meteorological Organization (2017). WMO drought initiatives: High Level Meeting on National Drought Policy (HMNDP) and Integrated Drought Management

Programme (IDMP). Accessed on 10 December 2018 from http://www.wmo.int/pages/prog/wcp/drought/index_en.php

* Try to find the author of the specific page, otherwise use the organization. Look at the bottom of the page to find the year it was last updated.

6. Access to Bernard Price Building

As an MSc student you are welcome to work in the Masters room in the Bernard Price building, where a number of desks are available on a first-come first-served basis. There are many work spaces in the foyer of Bernard Price building. You are also welcome to work in lecture venues such as BP001 and BP112 when they are not in use. Please be mindful of your fellow students when using these spaces: work quietly, go outside of the room to take phone calls, and do not leave a mess when you leave. To ensure card access to the building, if you have not have a chance to do so during orientation week, please contact Thandizwe Nsimbi and provide him with your ICAM number and proof of registration. You are also allowed to work in the Bernard Price (Geography) building after hours, provided that you adhere to the after hours guidelines:

- The Bernard Price building postgraduate areas are for the sole use of GAES postgraduate students, who are registered and have been given access to the building. No other person is allowed in the building in the evenings, over the weekend or during holidays, at any time. You may not admit people into the building who are not permitted to be there. No card access, no entry.

- SGAES postgraduate students must follow the Rules and Regulations of Wits University and the School's standing orders, including the Code of Conduct for Staff and Students.

- SGAES postgraduate students must sign in and out in the register if they are in BP building outside of standard working hours. This register is located in the foyer area of BP building on the table adjacent to room BP001. Your full printed name, student number and time in/out must be listed. Please sign with your signature when you leave. SGAES postgraduate students must sign the register each time they use the building after hours, over the weekend or during holidays, on entry and exit. One signature to cover a number of days is not acceptable. No one may sign on behalf of another person.

- SGAES postgraduate students are allowed to remain in BP building at night but only for work purposes. Any use of PG rooms for sleeping overnight is not allowed; please make use of the appropriate channels if you are struggling with accommodation and contact the Dean of Students Office or the WCCO who may be able to assist (Jerome September on jerome.september@wits.ac.za or Karuna Singh on Karuna.Singh@wits.ac.za). The Dean of Students is also the correct channel should you be struggling with access to food.

- All windows and doors must remain closed and locked out of hours and when you leave the building. Lights must be switched off.

- In case of an emergency, alert all people in your surroundings and then contact Campus Control on 011 717 4444/011 717 6666. State your name and department and give a brief account of what has happened. Explain concisely what is happening and more specifically, the type of help you require. For a medical emergency, contact 011 717 9111.

6. Where to Find Help

For general administrative queries, please contact the postgraduate administrator, Sindiswa Tilane. She is located on the first floor of the Origins Building, and can be contacted by email on Sindiswa.Tilane@wits.ac.za

To change courses or to get advice regarding the MSc curriculum please contact the programme coordinator:

Prof Sarah Wurz
Sarah.wurz@wits.ac.za
011 717 6587
Room 222, Origins North Building, East Campus

Should you have a concern regarding a lecturer or your supervisor, please in the first instance attempt to address this issue with them directly. Should you not have a satisfactory response, you can then escalate the matter to the Head of School (Prof Paida Mhangara). Should you feel that you need support in this process, please contact the GAES student council:

council.gaes@students.wits.ac.za

The Science Faculty Learning Success Centre is located in the TW Kambule Mathematical Sciences Building and provides writing and learning support.

For writing and academic skills support and development contact:

Akulina Chihobo
Akulina.Chihobo@wits.ac.za
If you feel unwell or are injured while on campus, the Campus Health and Wellness Centre is a registered medical practice located in the basement of the Matrix.

https://www.wits.ac.za/campushealth/
011 717 9111 or 011 717 9113
Should you require short-term counselling or career assessment, the CCDU is located on West Campus just east of Science Stadium. You can walk in and make an appointment, or contact them on:

011 717 9140 or 011 717 9132
info.ccdu@wits.ac.za
https://www.wits.ac.za/ccdu/
Should you require longer-term counselling, the Emthonjeni Centre is located behind the Biology Building on East Campus. You can walk in and make an appointment or contact them on:

011 717 4513
paballo.lepota@wits.ac.za
Should you experience Gender-Based harm, please contact the Gender Equity Office:

info.geo@wits.ac.za
011 717 9790 or 076 827 4001 (after-hours hotline)

If you have any form of disability, temporarily or permanently, the Wits Disability Rights Unit is located on the first floor of Solomon Mahlangu Building. Please visit this office if you require disabled parking access, extra time on exams, or any learning support:

https://www.wits.ac.za/disability-rights-unit/
011 717 9154
If you feel unsafe on campus, or if you have lost any of your personal belongings, contact the Campus Protection Services:

011 717 4444 or 011 717 6666

Details of security initiatives on campus can be found on their website:
https://www.wits.ac.za/campus-life/safety-on-campus/

We hope that you have an enjoyable and fulfilling time during your MSc in the School of Geography, Archaeology and Environmental Studies. Best of luck!

Appendix 1

Physical	Social (present and past)	Heritage
Dr Simone Dahms-Verster	Dr Sam Challis	Dr Keneiloe Molopyane
Prof Mary Evans	Prof Jennifer Fitchett	Dr Malebogo Mvimi
Prof Stefan Grab	Dr Serge Kubanza	Dr Catherine Namono
Prof Jasper Knight	Prof David Pearce	Prof Thembiwe Russell
Dr Matt Lotter	Dr Sarita Pillay	Prof Alex Schoeman
Prof Paida Mhangara	Dr Alex Wafer	Prof Dominic Stratford
Dr Jerome Reynard		Prof Sarah Wurz
Prof Craig Sheridan		

Physical

Dr Simone Dahms-Verster

My research explores how pollutants affect freshwater ecosystems, with a focus on ecotoxicology, biomonitoring, and environmental risk assessment. I investigate contaminants such as heavy metals, microplastics, and emerging chemicals, and study their impacts on aquatic organisms using experimental approaches. I am particularly interested in developing innovative monitoring tools and methods that can inform sustainable water management and protect biodiversity. Students working with me will gain experience in laboratory analysis, field sampling, and interdisciplinary approaches to environmental science. Projects often combine applied research with broader questions of ecological health and sustainability, offering opportunities to contribute to both scientific understanding and practical solutions.

Professor Mary Evans

Prof Mary Evans is an Associate Professor in the School of GAES. She has over 25 years of experience in teaching and research in geology, geography, and geochronology. Her diverse research portfolio includes geochronology, geomorphology, climate science, food security and agriculture, water and sanitation, water quality, Fourth Industrial Revolution (4IR) technologies in the energy sector, and science education. I am willing to supervise projects in urban agriculture, food security, water and sanitation and water quality.

Professor Stefan Grab

Stefan Grab's longstanding passion for mountains, mountaineering and generally getting himself into cold and inconvenient places eventually led to a Master's and PhD in periglacial geomorphology. In 1996, he joined Wits University as a lecturer in geomorphology and has been there ever since—proof, perhaps, that academia can be surprisingly difficult to escape. His current main research passion is the reconstruction of historical climates and the investigation of the possible drivers of past climate variability and change. This has involved spending rather more time than is probably healthy reading nineteenth-century newspapers,

diaries, travel journals and old weather records in search of storms, floods, snowfalls and other meteorological oddities. Stefan is involved in a range of collaborative international research initiatives, particularly with colleagues and institutions in Europe and the Middle East. Possible themes for ES MSc projects include:
-Using instrumental weather records for climate reconstruction work (numerical and statistical skills are essential)
-Using documentary sources for climate and environmental reconstructive work (basic statistical skills are sufficient)
-Geomorphology projects of any sort
-Hazards and extreme weather research

Professor Jasper Knight

I am a geoscientist with research interests in the spatial and temporal variability in landscape system responses to climate and environmental changes during the late Pleistocene and Holocene, looking at sediments and geomorphology. I focus thematically on glaciers, rivers, coasts and mountains. I focus geographically on the UK and Ireland, northwest USA, Australia, European Alps, various locations in Asia, and across both southern and northern (Saharan) Africa. I am editor of three major international journals (Sedimentary Geology, Journal of Maps, Land Degradation & Development). My teaching and student supervision focuses on the interconnections between the physical and human environments, landscape change, and environmental resources of the past, present and future. I am a physical geographer dealing with climate and environmental change in Africa and beyond, and impacts of climate change on resources and communities. All of these can form the basis for MSc ES projects.

Dr Matt Lotter

I am a Senior Lecturer in the School of Geography, Archaeology and Environmental Studies, University of the Witwatersrand, South Africa, where I lecture first and second year courses on early complex societies and the Earlier and Middle Stone Age. I have a Y1-rating with the National Research Foundation of South Africa, and I am the Editor-in-Chief of Southern African Field Archaeology, an open-access peer-reviewed scientific journal. My research interests include African landscapes and stone tool technology, specifically within the Earlier Stone Age sequence of southern Africa, and geoarchaeological landscape-based studies investigating site formation. I am currently co-directing excavations at the Stone Age site of Wonderboom in Tshwane, as the site the co-permit holder, and I collaborate with international colleagues on lithic technology research during the Pleistocene in South China.

Possible themes for MSc ES projects include reviewing heritage impact assessments as part of environmental impact assessments, applying evaluation tools to EIA's, exploring the impact of modern processes on the preservation of archaeological materials through experimental studies, and exploring human-landscape interactions in the past through geospatial surveys/GIS-based analyses (students need to have preexisting experience working with GIS).

Professor Paida Mhangara

Professor Paida Mhangara is a Full Professor of Geoinformation Science and Earth Observation and Head of School for GAES. His research interests include land-atmosphere interactions, machine learning for land cover characterisation, and remote sensing modelling. He is keen to supervise projects in remote sensing and GIS applications such as land use and land cover classification, change detection, greenhouse gas emission monitoring, urbanisation, flood risk mapping, disaster and risk assessment, informal settlement mapping, water resource and water quality monitoring, vegetation biophysical parameters, and artisanal mining assessments.

Dr Jerome Reynard

I am a Senior Lecturer in the Archaeology Department at the University of the Witwatersrand. My current research focusses on subsistence behaviour and palaeoenvironmental change during the Late Pleistocene, specifically in the southern Cape of South Africa, taphonomy and the effects of trampling in archaeological sites. I am the PI for the Strathalan Cave Excavation project, the Director of Faunal Research for Klasies River, and the co-Director of the Grassridge Archaeological and Palaeoenvironmental Project (GAPP). For the MSc ES projects, I can supervise projects exploring environmental change in the past including using animals to examine changing palaeoenvironments between glacial and interglacial periods in various regions of southern Africa.

Professor Craig Sheridan

I am a chemical engineer with a passion for all things water-related. My research focuses on the processing and treatment of agricultural, industrial, and mine effluent streams, as well as sewage and potable water treatment. Water is a theme common to all living organisms, and I believe that researching ways to reduce or mitigate humanity's impact on water resources is my best contribution toward a sustainable future. All of my projects are water-related, reflecting my background as a scientist rather than a social scientist. Accordingly, candidates must have completed first-year mathematics and first-year chemistry as prerequisites, ensuring the scientific rigour these projects demand. For the MSc Environmental Studies programme in particular, project timelines will require a focus on mathematical modelling. For this reason, all candidates seeking my supervision must have this mathematical and scientific background.

Social (past and present)

Dr Sam Challis

Sam Challis is the Director of the Rock Art Research Institute and Associate Professor at the University of the Witwatersrand and has been living and working in Johannesburg for 27 years. He received his Doctorate from Oxford University, focusing on the impact of the horse on the hunter-gatherers of southern Africa. This took him to the mountains of KwaZulu-Natal, the Eastern Cape, Lesotho and in subsequent work to the central arid interior of the

Nama Karoo. His work has turned increasingly towards the New Animisms with their far-reaching explanatory power. He studies both historical and modern indigenous ontologies as well as cultural creolization following contact, largely from a rock art perspective. He also excavates to answer technological and environmental questions of the late Holocene. All of this working with, and training, local collectives. Sam is a fellow of the Royal Anthropological Institute and the Society of Antiquaries, an Honorary Research Fellow at the Department of Archaeology, University of Aberdeen, UK and a Research Affiliate at the Museum of Anthropological Archaeology, University of Michigan (UMMAA) USA. Sam can supervise on topics of Indigenous belief systems, traditional water procurement and socioeconomic adaptations to the environment in the Holocene and heritage impact assessments.

Professor Jennifer Fitchett

My research is situated within the discipline biometeorology, exploring the impacts of climate change on both the natural environment and human populations. My published research can be grouped into three main themes including long term climate and environmental change throughout the late Quaternary reconstructed from palaeoenvironmental proxy records; contemporary climate change over recent decades; and the impact of these climatic changes on tourism. Although my research is situated within the field of biometeorology, exploring climatic changes and their impacts on plants, animals and people, most of my projects focus on the latter, with available MSc ES topics including tourism and climate change, thermal comfort and human health. Students do not need to have any strong background in climatology.

Dr Serge Kubanza

Dr. Nzalalemba Serge Kubanza is a Senior Lecturer and Postgraduate Coordinator at the School of Geography, Archaeology and Environmental Studies at the University of the Witwatersrand (Wits) in Johannesburg, South Africa. Holding a Ph.D. in Geography and Environmental Studies and an M.Sc. in Development Planning from Wits, alongside a BA-Honours in Sociology and Anthropology from the University of Kinshasa, his expertise bridges human geography, systems analysis, and development planning. He has also served as a postdoctoral fellow at the Wits Global Change Institute and trained internationally at the IIASA in Austria. Dr. Kubanza supervises postgraduate research focused on sustainable solid waste management, environmental management, and urban sustainability. He is particularly interested in projects exploring community participation in informal settlements, informal recycling contributions, wastewater operations, and waste-to-energy transitions.

Professor David Pearce

David Pearce is a South African archaeologist based in the Rock Art Research Institute, School of Geography, Archaeology and Environmental Studies, University of the Witwatersrand. His primary research interest is in cognitive archaeology, specializing in southern African hunter-gatherers. He runs a multi-institutional research project on Later

Stone Age rock art and related archaeology in South Africa's Eastern Cape Province. He is also involved in long-term research on both hunter-gatherer and farmer rock art in the Mpumalanga highlands, and projects related to paint chemistry and radiocarbon dating in several parts of southern Africa. Possible themes for MSc ES projects include various aspects of the management and conservation of the Boomplaats engraving site (Mpumalanga) and issues related to physical environmental impacts on rock art sites.

Dr Sarita Pillay

Lecturer in the School of Geography, Archaeology and Environmental Studies (GAES), and member of the Centre for Urbanism and Build Environment Studies (CUBES) at the University of the Witwatersrand. Research interests in spatial inequality, real estate development and the multifarity of the state in the built environment. Supervises themes that fall within the scope of political ecology and critical geography, this includes topics related to the green economy, green real estate, climate (in)justice, and the socio-environmental consequences of Big Tech.

Dr Alex Wafer

I am senior lecturer in the department of geography, with a specialisation in urban and economic geography. My research is primarily focussed on informality, informal economies and the intersection of digital platforms with informal urban economies. I am also interested in the intersection of informality and climate vulnerability. I am happy to supervise all projects within the realms of urban and economic geography, including projects that look at the social aspects of climate vulnerability. I have previously supervised projects that look at: the impacts of mining on local communities; the impacts of climate events on informal settlement communities; migration, diversity and urban transformations; social movements and urban protest; infrastructure and service delivery; and the adoption of digital platforms among urban residents.

Heritage

Dr Keneiloe Molopyane

Keneiloe Molopyane is an archaeologist and biological anthropologist currently working in the Cradle of Humankind, South Africa. Molopyane serves as the Principle Investigator/Director of research for Gladysvale Cave one of several palaeoanthropological sites on the Greater Cradle Nature Reserve property. Gladysvale Cave is a significant site in the region pertaining to South Africa's fossil heritage. Her primary research focus is related to fossil material recovery (both hominin and faunal) to assist in the understanding of the complex history of the Gladysvale valley through paleoenvironmental reconstruction, via the fossil assemblage, and in addition the heritage significance of the region, via the investigation of archaeological material and/or structures located on the Greater Cradle Nature Reserve. Research themes for MSc ES projects will be focused on the systematic recording and mapping of stonewalled structures and conducting heritage impact assessments on the sites

located to assess their significance to the region. Focus is on providing answers to questions such as "What is our understanding of the archaeological history of the region? Who inhabited these areas? What can the potential stone walled sites on the GCNR tell us regarding the relationship between these communities and the landscape?

Dr Malebogo Mvimi

I am an archaeologist who specializes in archaeobotany. My research interests include ethnoarchaeology, human-ecological systems; plant use by past and present societies, spatial analysis, traditional architecture, and universal environmental evolution in Southern Africa from the Later Stone Age to the more recent farming communities' period. My research interests include archaeology, archaeobotany, ethnoarchaeology, and human–ecological systems, with particular emphasis on plant use by past and present societies, spatial analysis, traditional architecture, and human–environment interactions. My research broadly explores environmental and cultural change in Southern Africa, tracing the dynamic relationships between people, plants, landscapes, and environments from the Later Stone Age through to the emergence and development of farming communities and more recent periods. Possible MSc ES projects include:

- Urban agriculture, green infrastructure
- Invasive species ecology, biodiversity and environmental management
- Contemporary wild plant use, ethnobotany and environmental sustainability
- Indigenous and local ecological knowledge systems, language and environmental perspective

Dr Catherine Namono

Dr Catherine Namono is a rock art and heritage specialist whose research explores relationships between people, environments and heritage in south and eastern Africa. Her interdisciplinary focus encompasses cultural landscapes, environmental management, conservation, heritage legislation, community engagement, heritage tourism, archival research, and curation. Supervision areas include:
Landscapes, Heritage and Place
Rock Art, Conservation and Environment
Heritage Sustainability, Conservation and Management
Archives, Collections and Heritage Knowledge
Communities, Heritage Tourism and Place-Making

Professor Thembiwe Russell

I am an Associate Professor in the Archaeology Division of the School of Geography, Archaeology and Environmental Studies at the University of the Witwatersrand, Johannesburg, South Africa, where I lecture second and third year course on heritage and archaeology. My research interests include the arrival of domestic animals, agro-pastoralism and pastoralism into southern Africa during the Later Stone Age. I am particularly interested in developing techniques to visualise the archaeological data associated with these processes in the past. I have a number of field projects in Eswatini among contemporary Swazi

subsistence farmers to record and understand indigenous crops, their cultivation and storage. I also supervise projects at the public rock art site of Nsangwini in Eswatini, which is an interesting example of a community run rock art site. My research has overlaps with Environmental studies in a number of areas. I offer supervision in these areas: community engagement, indigenous knowledge and sustainability, climate threats to archaeological sites, and the role of social impact assessments (HIAs) in EIAs.

Professor Alex Schoeman

Associate Professor Alex Schoeman's research focuses on pre-colonial foodways, farming systems, and the social and environmental contexts in which specialist food systems developed in northeastern South Africa, while also contributing to the documentation and curation of Indigenous Knowledge in the present. She is the principal investigator of the multidisciplinary Tracing the Footprints of the Tlou-tle project, which explores the deeper history of this KiTama community in Mpumalanga, including the development of a wetland-based economy, and its entanglements with Bokoni and international trade networks. Possible themes for MSc ES projects include examining the impact of coal mining on KiTama, exploring the environmental contexts in which Bokoni and KiTama developed, and identifying and mapping the present-day occurrence of edible wild foods in these regions (only open to students with a botany background).

Professor Dominic Stratford

I am a geoarchaeologist focusing on stratigraphy and site formation processes on southern African archaeological and palaeoanthropological sites. I specialize in the study of cave and rock shelter sediments, but have worked on a diverse spectrum of fossil- and artefact-bearing sites, from arid, open landscapes to buried river gravels. One of the aspects I really enjoy about geoarchaeology is that it is fundamentally a multi-disciplinary field, often requiring the application of many different types of analyses drawn from archaeology and earth sciences to solve four dimensional puzzles. The goal is to be able to isolate human behavioral signals from the effects of abundant natural processes so we can better understand the wide range of human activities within their environments. As a geoarchaeologist, I apply these analyses to numerous southern African contexts, from the Namib Desert to numerous rockshelters and caves that contain deposits spanning the last 3.5 million years. Possible themes for MSc ES projects include engaging with heritage site risk management, tourism and heritage, and science communication and heritage.

Professor Sarah Wurz

Sarah Wurz is a Professor of Archaeology at the School of Geography, Archaeology and Environmental Studies, University of the Witwatersrand and she is affiliated with the Centre of Excellence on Early Sapience Behaviour at the University of Bergen. She is passionate about archaeological heritage management and previously filled positions at the Iziko Museums of Cape Town and the South African Heritage Resources Agency. She is currently the director of excavations and research at Klasies River main site situated on the

Tsitsikamma coast, a key site for understanding the origins of modern humans or Homo sapiens. Her academic background and expertise include archaeology, music education, music science and psychology. She combines palaeoanthropological and music science perspectives to research the evolutionary roots of musicality. She also investigates archaeological aspects such as lithic technology to trace the expression of typical human behaviors in the deep past. Possible themes for MSc ES projects include engaging with site sensitivity and archaeotourism, heritage impact assessments as part of environmental impact assessments, applying evaluation tools to EIA's