**MSc adverts**

The Applied Behavioural Ecology and Ecosystems Research Unit (ABEERU) at UNISA has various fully funded MSc positions on offer for 2024.

**Project 1: Investigating the impact of *Seriphium plumosum* encroachment on soil water dynamics**
Supervisors: Dr. Arnim Marquart (Unisa), Dr. Alan Barrett (Unisa), Prof. Leslie Brown (Unisa)

**Background:**
The crouching dwarf shrub *Seriphium plumosum* (commonly called bankrupt bush), native to mesic and semiarid grasslands of southern Africa, has been increasingly encroaching into various ecosystems with severe consequences for ecosystem services. It has been shown to significantly diminish the grazing capacity of grasslands, threatening the livelihoods of farming enterprises. However, the consequences of this encroachment on soil water dynamics remain poorly understood. This research seeks to address the gaps in knowledge by investigating the hydrological aspects of areas affected by *S. plumosum* encroachment in the Telperion Nature Reserve. In doing so, this project will try to answer the following questions:

1. What are the specific impacts of *S. plumosum* encroachment on water runoff after simulated rainfall events?
2. What is the effect of *S. plumosum* encroachment on water infiltration rates?
3. What is the effect of *S. plumosum* encroachment on rain interception, and how does it affect the overall water balance in the ecosystem?
4. How do soil properties, including texture, and compaction affect soil-water dynamics in regard to *S. plumosum* encroachment?

**Project 2: Evaluating the influence of *Seriphium plumosum* encroachment and sowed grazing lawns on termite communities and feeding activity.**

Supervisors: Dr. Arnim Marquart (Unisa), Dr. Alan Barrett (Unisa), Prof. Leslie Brown (Unisa)

**Background:**
*Seriphium plumosum*, commonly known as bankrupt bush, is gradually encroaching into natural grasslands, leading to a strong decline of grass biomass and diversity. Concurrently, the intentional establishment of sowed grazing lawns introduces a distinct vegetation composition compared to the naturally diverse grasslands. This research aims to assess both the impacts of grazing lawns, and *S. plumosum* encroachment on termite feeding dynamics and diversity. Specifically, the study aims to quantify harvester termite-driven grass biomass consumption during both wet and dry seasons, drawing comparisons across grazing lawns, natural grasslands, and areas influenced by *S. plumosum* encroachment in the Telperion Nature Reserve. Furthermore, the investigation extends to identifying and characterizing termite species composition within these areas.

**What we offer successful applicants:**

The successful candidate will register as a full-time student for the MSc in Nature Conservation at UNISA. In addition to a stipend of R80 000 per year, for a maximum of two years, ABEERU will provide housing at its Telperion Nature Reserve research site for the two-year duration of study, as well as access to a shared field research vehicle. Field equipment to undertake the proposed research project will also be provisioned. Successful applicants are encouraged to seek additional funding to supplement the stipend available.

The candidates will be expected to stay at the site on a full-time basis for the duration of their study and will have to present a poster in the first year and a presentation in the second year at the Oppenheimer conference held annually in Johannesburg in October.

Applicants for these projects will initially be assessed based on the documents that they submit. The supervisors will draw up a short-list of preferred candidates who will be requested to make themselves available for an interview. If non-South African candidates are included in the short-list, they will be interviewed via SKYPE (or an alternative online platform). The supervisors will then make a final decision and inform the candidates.

**What we require from applicants:**

- An NQF level 8 qualification with a suitable specialization, e.g., BSc (Hons) degree in Ecology, Environmental Science, Botany, or related fields, or a BTech / Post Graduate Diploma in Nature Conservation.
- Excellent academic record
- Proven experience with ecological field studies, statistical analyses, and scientific writing
- Written and verbal proficiency in English
- Valid driver's licence

**Applicants should send the following as a single pdf document to Dr A. Marquart (arnimm@unisa.ac.za), with either "MSc Soil Water Dynamics" (Project 1) or "MSc Termite project" (Project 2) in the subject line.**

- Cover letter indicating why you would be the ideal candidate for the project
- Academic Record
- Curriculum Vitae, incl. the names and contact details of two references
- Example of a recent publication / unpublished scientific report / thesis

**Applications should be submitted on or before the 31st of January 2024.**