

# Introduction to Honours at the School of Biological Sciences (BSc Honours Environmental Sciences)

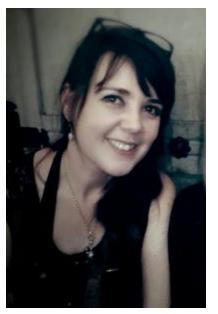
August 2022



#### Welcome

- Welcoming
- Brief information session
- Honours program leader:
  - Prof. J Bezuidenhout (current);
  - Dr C Cook (2023 onwards)
- Please note that the terms SBS (School of Biological Sciences) and UESM (Unit for Environmental Sciences and Management) may be used interchangeably.
- Also, some researchers may be involved in more than one program.







# **Program coordinators**

# **Ecological Interactions and Ecosystem Resilience**



Prof J Berner

# Biodiversity and Conservation Ecology



Prof L du Preez

# OneHealth (From 2023)



Prof V Wepener (Also refer to OneHealth PDF)



# **Program coordinators**

# Aquatic Ecosystem Health



Prof JJ Bezuidenhout (current)



Dr. K Malherbe (2023 onwards)

# Integrated Pest Management



Prof J van den Berg





Prof S Cilliers



Prof S Claassens



Prof K Kellner



Prof J Berner







Prof S Siebert



Prof M Maboeta



Prof R Adeleke



Dr K Lekota



Miss P Mokgokong

- Prof Sarel Cilliers
  - Urban ecology, Green Infrastructure Planning; Socio-ecological studies; Urban forestry
- Prof Sarina Claassens
  - Soil microbiology; microbial ecology; Microbial ecotoxicology
- Prof Klaus Kellner
  - Sustainable land management; Impact of climate, soil and animals on ecosystems; Social and economic impacts in rural areas; Rangeland degradation models; Restoration of degraded lands
- Prof Jacques Berner
  - Plant Ecophysiology; Weed Physiology; Stress Physiology; New Crop Development



- Prof S Siebert
  - Conservation of rare and endemic species and communities; Biomonitoring of rural and urban agro-ecosystems; Systematics of edaphic specialists
- Prof Frances Siebert
  - Community ecology; Vegetation dynamics; Forb Ecology
- Prof Mark Maboeta
  - Ecotoxicology; Organic waste management; Earthworms as bioindicators; Soil toxicological benchmarks
- Prof Rasheed Adeleke
  - Microbial ecology; Soil microbiology; Agricultural Biotechnology; Renewable energy; Beneficial epiphytic microorganisms; Bioinformatics



- Dr K Lekota
  - Zoonotic bacterial pathogens in livestock and animals; Microbial genomics; Bioinformatics; Medicinal plants as source of potential antimicrobial compounds
- Miss P Mokgogong
  - Microbial genomics, Conservation genetics



#### **Current/Future Projects**

#### Prof J Berner

- Responses of palmer amaranth to herbicides
- Quantifying cyclic electron transport in ivy plants
- Growth responses of tomatoes to varying light quality

#### Prof S Siebert

- Screening for phytoextractors in the Vredefort Dome.
- Investigating the relation between morphological features in plants and chemical composition in serpentine soils.
- Nursing potential of plants grown in mine tailings.
- Intraspecific variation in nickel tolerance and hyperaccumulation of plants among serpentine and post mining sites



#### **Current/Future Projects**

#### • Prof S Cilliers

- Indigenous knowledge systems
- Perceptions of different stakeholders about ecosystem services provided by gardens
- Co-production of knowledge role of THP's (traditional health practitioners)

#### Prof M Maboeta

• Utilising earthworms to assess the ecotoxicity of selected contaminated soils e.g. metals, pesticides and biopesticides (2 students).





Prof S Barnard



Prof S Siebert

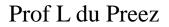


Prof F Siebert



Prof C Weldon







Prof H Bouwman



Dr C Cook



Dr M Struwig



Prof O Thekisoe

- Prof S Barnard
  - Phylogenetic relationships; Meta-barcoding; Molecular ecology
- Prof S Siebert
  - Conservation of rare and endemic species and communities; Biomonitoring of rural and urban agro-ecosystems; Systematics of edaphic specialists.
- Prof F Siebert
  - Community ecology; Vegetation dynamics; Forb Ecology
- Prof C Weldon
  - Geographic information systems; Herpetology; Coral reefs



#### Prof L du Preez

• Amphibian conservation and systematics; Bullfrog behaviour; Chemical compounds in amphibian skin secretions; Amphibian parasite diversity; Global threat posed by invasive parasites of amphibians and freshwater turtles; Amphibian chytrid fungus

#### Prof H Bouwman

• Bird ecology; Bird feather parameters; Reptile and avian eggshell parameters; Impacts of disturbances on biodiversity patterns; Associations of biodiversity with plastics; Marine biology

#### • Dr C Cook

- Blood parasites (Apicomplexan and Haemoflagellate) of reptiles and freshwater and marine fishes; Morphology and molecular phylogeny in descriptions of unknown and known species to determine taxonomy, modes of transmission and phylogenetic relationships of these organisms
- Ecology (life cycle elucidation, host preference and distribution of blood parasite species)



- Dr M Struwig
  - Plant taxonomy; Plant systematics; Curator of the North-West University Herbarium
- Prof O Thekisoe
  - Ecto- and endoparasites of zoonotic importance; Population genetics; Bioinformatics; Drug efficacy and resistance studies





Prof S Janse van Vuuren



Prof S Barnard



Prof J Taylor



Dr A Levanets



Prof R Pieters



Prof C Bezuidenhout



Dr L Molale-Tom



Dr C Mienie



Prof J Bezuidenhout



Dr W Malherbe



Dr K Malherbe



Prof V Wepener



Prof N Smit

- Prof S Janse van Vuuren
  - Freshwater algae ecologist and taxonomist; Ecology of phytoplankton populations
- Prof S Barnard
  - Phylogenetic relationships; Meta-barcoding; Molecular ecology
- Prof J Taylor
  - Freshwater diatom ecology and biomonitoring; Diatom taxonomy and study of museum specimens; Diatoms from extreme environments; Marine and near-shore diatoms
- Dr A Levanets
  - Biogeography of freshwater and soil algae; Ecology of freshwater and soil algae; Desmid taxonomy and diversity



#### Prof C Wolmarans

• Quality of surface waters in South African rivers; Diversity of macroinvertebrates; Physico-chemical factors in water and sediment as well as sediment minerals and metals; Study the process of phytoremediation by making use of an artificial wetland

#### Prof H Bouwman

• Persistent organic pollutants; Metal pollution; Plastics and microplastics; Pharmaceuticals; Birds, crocodiles, fish, sediments, algae; Corals, turtles, fish, zooplankton, dolphins, snails; Oceanic coral reef island

#### Prof R Pieters

• Endocrine disruption; Bio-assays to identify mechanisms of actions of chemical pollutants; Tissue cultures: reporter gene luminescence assays; viability assays; realtime growth curves; Chemical extraction and clean-up of environmental matrices; Instrumental quantification of selected organic compounds



- Prof C Bezuidenhout
  - Antibiotic and metal resistance; Ground and drinking water studies; Microbial water quality; Diversity and properties of indicator bacteria
- Prof J Bezuidenhout
  - Antimicrobial and resistance to antimicrobials; Data processing and modelling
- Dr C Mienie
  - Microbial molecular diversity; Whole genome sequencing; Bioinformatics
- Dr L Molale-Tom
  - Water; Sanitation and health; Molecular biology



- Dr W Malherbe
  - Riverine and wetland ecology; Aquatic invertebrates and fish; Ecological assessments and biomonitoring
- Dr K Malherbe
  - Marine parasitology; Parasitic crustacean biodiversity; Parasitic isopod taxonomy;
    Morphological and molecular characterisation
- Prof V Wepener
  - Nano-ecotoxicology; Estuarine and marine ecotoxicology; Socio-ecological assessments of multiple stressors; Ecological risk assessment
- Prof N Smit
  - Aquatic Ecology; Wildlife Parasitology



# **Members – Integrated Pest Management**



Prof J van den Berg



Prof H du Plessis



Prof D Fourie



Prof O Thekisoe

# **Members – Integrated Pest Management**

- Prof Driekie Fourie
  - Nematologist that specializes in nematode ecology and management, host plant resistance and evaluation of eco-friendly strategies to combat plant-parasitic nematodes
- Prof Oriel Thekisoe
  - Ecto- and endoparasites of veterinary importance; Molecular diagnostics; Bioinformatics; Drug efficacy and resistance studies
- Prof Hannalene du Plessis
  - Entomologist; Integrated pest management; Insecticide resistance
- Prof Johnnie van den Berg
  - Entomologist; Integrated pest management; Terrestrial ecology; Biodiversity and genetically modified crops

