

BSc Biodiversity & Ecology

This BSc degree programme offers broad training in Botany and Zoology. It focusses on the diversity, origin, and function of organisms in relation to their environment and provides a conceptual understanding of ecology, evolution, animal and plant forms and functions, biological changes on a global scale (climate change, invasive species, pollution, and anthropogenic factors) and remediation practices (applications). Both terrestrial and marine concepts are covered.

Major subject

Climate Change Ecology

Plant and Animal Biodiversity

Plants and Microbes

* Biodiversity and Ecology, a major subject in all focal areas can lead to postgraduate studies in Botany or Zoology)

Please note: Consult the latest Faculty of Science Yearbook (Part 5) for information on subjects and modules.

Do I qualify?

Minimum admission requirements

- A NSC average of **65%** (excluding Life Orientation)
- English OR Afrikaans (Home Language or First Additional Language): **50%**
- Maths: **60%**
- Physical Sciences: **50%**



More about your major subject:

Climate Change Ecology

The study of global change with a biological perspective brings together historical and current evidence for such change and summarises its main drivers. Topics include global climate change, human-made drivers such as pollution, invasion biology, land use and ecosystem change. Data at different spatial and temporal scales and at different levels of biological organisation are covered (from species to communities and ecosystems, and from micro to macroscales), highlighting the technologies and numerical techniques used to study these processes. Examples will have a strong African focus, including case studies from the Western Cape Province from both faunal and floral perspectives. Important areas of teaching include the relevance of understanding global climate change for African and, in particular, South African ecosystems. There is a strong emphasis on appropriate communication surrounding all the above topics among scientists, and between scientists and other stakeholders, including the general public.

Plant and Animal Biodiversity

This focal area aims to develop an understanding of the diversity, origin, and function of organisms in relation to the environment. This includes animal and plants on land, in fresh water, coastlines and the oceans. Studying plant and animal biodiversity within

a molecular context is essential for understanding the ecological relationships that sustain ecosystems and support human well-being. Biodiversity research contributes to conservation, habitat protection, and addressing global challenges such as climate change, food security, and disease prevention. By exploring the diversity of life, botanists and zoologists contribute to sustainable resource management, ecological restoration, and the discovery of new medicines and technologies. A degree in these fields equips students with the knowledge and skills to understand complex ecosystems, tackle pressing environmental issues and shape a more sustainable future.

Plants and Microbes

Microbiology forms an intrinsic part of climate and global change studies since impacts on microorganisms will influence macro-organisms. In particular, this can influence food security through affecting obligatory and facultative plant-microbe interactions and the spread and virulence of pathogens. Finally, understanding and predicting impacts on microbes will be further enhanced by understanding principles of ecology and evolution, and diversity and physiology of plants. This combination of modules will provide you with valuable skills to pursue cross-cutting careers and research in botany, microbiology, and plant pathology in a changing global context.

Why study BSc Biodiversity & Ecology?

- You will gain an understanding of the natural world and the role you can play in conserving it.
- You will gain insight into global challenges such as climate change and food security, helping to find solutions to help animals, plants, and humans.
- You will gain an intimate understanding of the physiology of animals, plants and microbes, their behaviour, evolution, and the aquatic, marine and terrestrial ecosystems in which they live.



Photo: Sara Andreotti

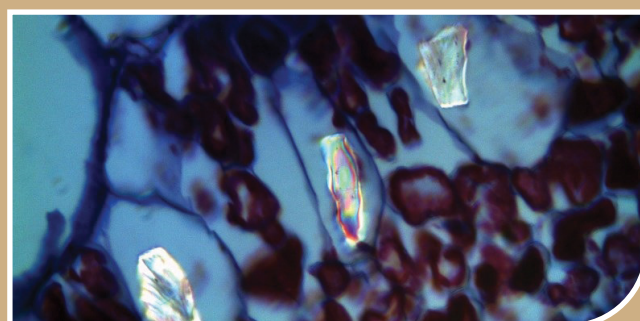
Why study Biodiversity & Ecology at Stellenbosch University?

- The Department of Botany and Zoology at SU is a leader in the field of evolutionary biology, with a specific focus on the unique opportunities offered by Africa's biodiversity. Our lecturers are world-recognised leaders in their fields, ranging from plant biotechnology, marine biology and zoology to climate science. You will gain exposure to all these fields so that you can make an informed and experienced decision as you decide how to shape your future career.
- We are home to the Centre for Invasion Biology, as well as the School for Climate Studies. These entities respond to existing and emerging issues in the management of invasive species, climate change impacts, adaptation and mitigation responses, thus supporting societal resilience to the impacts of climate change and global warming.

What can I do with a BSc Biodiversity & Ecology degree?

Agricultural advisor
Biologist
Botanist
Conservation scientist
Ecologist
Environmental assessment practitioner
Environmental consultant
Environmentalist
Land-use planner

Life Sciences teacher
Marine scientist
Plant biotechnologist
Plant specialist
Marine scientist
Plant biotechnologist
Plant specialist
Science communicator
Zoologist



"I have gained a better understanding of how the world works, from a molecular level up to ecosystems. This will help me to effect change."

– undergraduate BSc student

Contact details

Department of Botany and Zoology

Tel: (021) 808 3236

E-mail: botzoo@sun.ac.za

Website: www.su.ac.za/botany-and-zoology

Contact our Coordinator:

Student and Academic Affairs

at scienceadmin@sun.ac.za

Deadline: Apply with your grade 11 marks by 31 July

General admission and selection criteria

www.su.ac.za/ugrequirements

BSc Biodiversiteit en Ekologie

Hierdie BSc graadprogram bied 'n algemene opleiding in Plant- en Dierkunde aan. Dit fokus op die diversiteit, oorsprong en funksie van organismes in verhouding tot hul omgewing en verskaf 'n konseptuele begrip van ekologie, evolusie, dier- en plantvorms en -funksies, biologiese veranderings op 'n globale skaal (klimaatverandering, indringerspesies, besoedeling, en mensgemaakte faktore) en remediëringspraktyke (toepassings). Konsepte in beide landelike en mariene omgewings word gedek

Fokusareas

Klimaatverandering-ekologie

Plant- en Dierbiodiversiteit

Plante en Mikrobies

*Biodiversiteit en Ekologie, 'n hoofvak in al die fokusareas kan lei tot nagraadse studies in Plant- of Dierkunde.

Neem Kennis: Raadpleeg die nuutste jaarboek van die Fakulteit Natuurwetenskappe (Deel 5) vir inligting oor vakke, modules, en spesifieke toelatingsvereistes.

Voldoen ek aan die vereistes?

Minimum toelatingsvereistes

- 'n NSS-gemiddeld van **65%** (Lewensoriëntering uitgesluit)
- Engels OF Afrikaans (Huistaal of Eerste Addisionele Taal) **50%**
- Wiskunde **60%**
- Fisiese Wetenskappe **50%**



Fokusareas uiteengesit

Klimaatverandering-ekologie

Die studie van globale verandering met 'n biologiese perspektief bring historiese en huidige bewyse vir sulke verandering bymekaar en som die hoofdrywers daarvan op. Onderwerpe sluit in globale klimaatverandering, mensgemaakte drywers soos besoedeling, indringingsbiologie, grondgebruik, en ekosisteenverandering. Data op verskillende ruimtelike en tydelike skale en op verskillende vlakke van biologiese organisasie word gedek (van spesies tot gemeenskappe en ekosisteme, en van mikro- tot makroskale), wat die tegnologieë en numeriese tegnieke beklemtoon wat gebruik word om hierdie prosesse te bestudeer. Voorbeelde sal 'n sterk Afrika-fokus hê, insluitend gevallestudies uit die Wes-Kaap Provinsie vanuit beide fauna- en blomperspektiewe. Belangrike areas van onderrig sluit in die relevansie van die begrip van globale klimaatverandering vir Afrika en veral Suid-Afrikaanse ekosisteme. Daar is 'n sterk klem op toepaslike kommunikasie rondom al die bogenoemde onderwerpe tussen wetenskaplikes, en tussen wetenskaplikes en ander belanghebbendes, insluitend die algemene publiek.

Plant- en Dierbiodiversiteit

Hierdie fokusarea het ten doel om 'n begrip van die diversiteit, oorsprong, en funksie van organismes in verhouding tot die omgewing te ontwikkel. Dit sluit diere en plante op land, in varswater, kuslyne en die oseane in. Die bestudering van

plant- en dierbiodiversiteit binne 'n molekulêre konteks is noodsaaklik vir die begrip van die ekologiese verhoudings wat ekosisteme onderhou en menslike welstand ondersteun. Biodiversiteitsnavorsing dra by tot bewaring, habitatbeskerming, en die aanspreek van globale uitdagings soos klimaatverandering, voedselsekerheid, en siektevoorkoming. Deur die diversiteit van lewe te verken, dra plant- en dierkundiges by tot volhoubare hulpbronnbestuur, ekologiese herstel en die ontdekking van nuwe medisyne en tegnologieë. 'n Graad in hierdie rigtings rus studente toe met die kennis en vaardighede om komplekse ekosisteme te verstaan, dringende omgewingskwessies aan te pak en 'n meer volhoubare toekoms te vorm.

Plante en Mikrobies

Mikrobiologie vorm 'n intrinsieke deel van klimaat- en globale veranderingstudies aangesien impakte op mikroörganismes, makro-organismes sal beïnvloed. Dit kan veral voedselsekerheid beïnvloed deur verpligte en fakultatiewe plant-mikrobeinteraksies en die verspreiding en virulensie van patogene te beïnvloed. Laastens sal die begrip en voorspelling van impakte op mikrobies verder verbeter word deur die beginsels van ekologie en evolusie, en die diversiteit en fisiologie van plante, te verstaan. Hierdie kombinasie van modules sal jou van waardevolle vaardighede voorsien vir loopbane in plantkunde, mikrobiologie, en plantpatologie in 'n veranderende globale konteks.

Waarom Biodiversiteit en Ekologie studeer?

- Jy sal 'n beter begrip van die natuurlike wêreld verkry en die rol wat jy kan speel om dit te bewaar.
- Jy sal insig kry in globale uitdagings soos klimaatverandering en voedselsekureit, en help om oplossings te vind om diere, plante en mense te help.
- Jy sal 'n diepgaande begrip verkry van die fisiologie van diere, plante en mikrobies, hul gedrag en evolusie, en van die akwatiese, mariene en landelike ekosisteme waarin hulle leef.



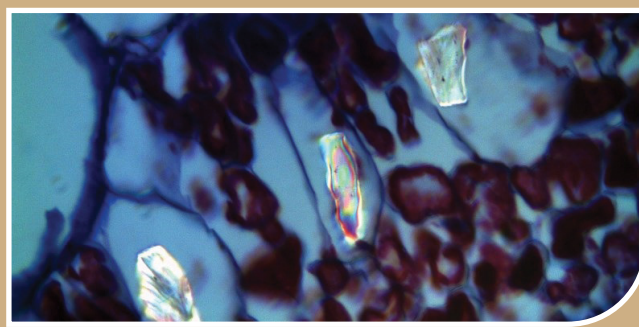
Waarom Biodiversiteit en Ekologie by die Universiteit Stellenbosch studeer?

- Die Departement Plant- en Dierkunde by die US is 'n leier op die gebied van evolusionêre biologie, met 'n spesifieke fokus op die unieke geleenthede wat Afrika se biodiversiteit bied. Ons dosente is internasionaal-erkende leiers in hul vakgebiede, wat wissel van plantbiotegnologie, mariene biologie en dierkunde, tot klimaatwetenskap. Jy sal blootstelling kry aan al hierdie vakgebiede sodat jy 'n ingeligte en deurdagte besluit kan neem oor jou toekomstige loopbaan.
- Ons is die tuiste van die Sentrum vir Indringerbiologie en die Skool vir Klimaatstudies. Hierdie entiteite reageer op bestaande en nuwe kwessies wat te voorskyn kom in die bestuur van indringerspesies, die impak van klimaatverandering, asook aanpassings- en versagtingsreaksies, en ondersteun sodoende die samelewing se veerkragtheid in reaksie op die impak van klimaatverandering en globale verwarming.

Wat kan ek doen met 'n graad in Biodiversiteit en Ekologie?

Bewaringswetenskaplike
Bioloog
Dierkundige
Ekoloog
Grondgebruikbeplanner
Landbou-adviseur
Lewenswetenskappe-
onderwyser
Mariene bioloog

Omgewingsassesserings-
praktisyn
Omgewingskonsultant
Omgewingskundige
Plantbiotegnoloog
Plantkundige
Plantspesialis
Wetenskaps-
kommunikeerder



"Ek verwag om 'n beter begrip te kry van hoe die wêreld funksioneer, van molekulêre vlak tot op ekosisteevlak. Dit sal my help om verandering teweeg te kan bring". – Voorgraadse BSc-student

Kontak ons

Departement Plant- en Dierkunde

Tel: (021) 808 3236

E-pos: botzoo@sun.ac.za

Webwerf: www.su.ac.za/botany-and-zoology

Kontak ons werwingsbeampte

by scienceadmin@sun.ac.za

Sperdatum: Doen aansoek met jou graad 11-punte teen 31 Julie

Algemene toelatings- en keuringskriteria

www.su.ac.za/ugrequirements