

NATIONAL DIPLOMA: NATURE CONSERVATION

Qualification code: NDNA04 - NQF Level 6

Campus where offered: Pretoria Campus (dayclasses)

Last year of new intake: 2019

Teach-out (phase-out) date: 31 December 2023

Students registered for this qualification should complete their studies according to the teach-out date prescribed for the qualification, subject to the stipulations of Regulation 3.1.11 and 3.1.13 in the Students' Rules and Regulations.

Information on phased-out programmes can be obtained from the TUT website, www.tut.ac.za.

Key to asterisks:

- * Information does not correspond to information in Report 151.
(Deviation approved by the Senate in August 2005 and May 2012)

CURRICULUM

Consult the 2019 Faculty Prospectus for the full contents of the qualification.

FIRST YEAR

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
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FIRST SEMESTER

ANS111T	Animal Studies I	(0,100)	
BON101T	Conservation Development I	(0,100)	
WNB101T	Conservation Ecology I	(0,100)	
WPS101T	Plant Studies I	(0,100)	

TOTAL CREDITS FOR THE SEMESTER: 0,400

SECOND SEMESTER

Any two subjects from the first semester should be passed for conditional acceptance.

ANS211T	Animal Studies II	(0,100)*	Animal Studies I
RMG101T	Resource Management I	(0,100)	
SSC101C	Soil Science I	(0,100)	
WNB201T	Conservation Ecology II	(0,100)	Conservation Ecology I
WPS201T	Plant Studies II	(0,100)*	Plant Studies I

Field Trip 1 - KwaZulu-Natal

TOTAL CREDITS FOR THE SEMESTER: 0,500

TOTAL CREDITS FOR THE FIRST YEAR: 0,900

SECOND YEAR

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
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FIRST SEMESTER

BKO101T	Conservation Communication I	(0,125)	
CGI101T	Conservation Legislation I*	(0,125)*	
CUS101T	Computer Usage I	(0,100)	
RMG201T	Resource Management II	(0,125)	Resource Management I
WPS301T	Plant Studies III	(0,125)	Plant Studies II



Field Trip 2 - Mpumalanga Escarpment/Lowveld and Kruger National Park

TOTAL CREDITS FOR THE SEMESTER: 0,600

SECOND SEMESTER

ANS311T	Animal Studies III	(0,125)	Animal Studies II
BKO201T	Conservation Communication II	(0,125)	Conservation Communication I
RMG301T	Resource Management III	(0,125)	Resource Management II
WNB301T	Conservation Ecology III	(0,125)	Conservation Ecology II

Field Trip 3 - Suikerbosrand Nature Reserve

TOTAL CREDITS FOR THE SEMESTER: 0,500

TOTAL CREDITS FOR THE SECOND YEAR: 1,100

THIRD YEAR

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
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FIRST SEMESTER

EXP1NCV	Work-Integrated Learning I (on completion of all subjects)	(0,500)	
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TOTAL CREDITS FOR THE SEMESTER: 0,500

SECOND SEMESTER

EXP2NCV	Work-Integrated Learning II	(0,500)	Work-Integrated Learning I
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TOTAL CREDITS FOR THE SEMESTER: 0,500

TOTAL CREDITS FOR THE THIRD YEAR: 1,000

TOTAL CREDITS FOR THE QUALIFICATION: 3,000

SUBJECT INFORMATION (OVERVIEW OF SYLLABUS)

The syllabus content is subject to change to accommodate industry changes. Please note that a more detailed syllabus is available at the Department or in the study guide that is applicable to a particular subject. At time of publication, the syllabus content was defined as follows:

A

ANIMAL STUDIES I (ANS111T)

1 X 3-HOUR PAPER

(Subject custodian: Department of Nature Conservation)

Taxonomy and systematic, phylogeny and evolution. Invertebrate Zoology (free living and parasitic species, general characteristics, physiology, body structure, ecological roles and life cycles). Animal diseases: Introduction to microbes and reckettsias, indigenous and exotic diseases: symptoms, control treatment. (Total tuition time: ± 75 hours)

ANIMAL STUDIES II (ANS211T)

1 X 3-HOUR PAPER

(Subject custodian: Department of Nature Conservation)

Overview of the animal kingdom. Classification and systems of the following vertebrates: Mammalia, Aves, Reptilia, Amphibia, Pisces, with special reference to birds and mammals. (Total tuition time: ± 75 hours)



ANIMAL STUDIES III (ANS311T)**1 X 3-HOUR PAPER****(Subject custodian: Department of Nature Conservation)**

The ethology of vertebrates and, particularly, habitat selection, social behaviour, and feeding and mating behaviour. Adaptations of animals, zoogeography and applied population genetics. (Total tuition time: ± 75 hours)

C**COMPUTER USAGE I (CUS101T)****CONTINUOUS ASSESSMENT****(Subject custodian: End User Computing Unit)**

Students have to acquire theoretical knowledge (computing fundamentals) and practical skills as an end-user in operating systems and MS Office Suite applications (MS Word, MS Excel and MS PowerPoint) on an introductory level. Students will do online and computer based tests. The modules are mapped with SAQA and IC3 Essential Skills for Digital Literacy (international certification). (Total tuition time: ± 40 hours)

CONSERVATION COMMUNICATION I (BKO101T)**1 X 3-HOUR PAPER****(Subject custodian: Department of Nature Conservation)**

Introduction to the nature, objectives and functions of conservation communication. Important fields such as interpretation, community development and environmental education, play a major role in equipping students to fulfil the true role of a nature conservator. Skills and knowledge pertaining to oral presentations and the preparation of visual aids are emphasised and put into practice. The credibility as well as the attitude of the nature conservator will be enhanced. Aspects pertaining to human behaviour, as well as behavioural change, will be discussed against the background of the adoption and diffusion of innovations. Students will be actively involved in presenting an Environmental Education Awareness programme (EEAP) and talks to various target groups. This subject is very "hands-on". (Total tuition time: ± 75 hours)

CONSERVATION COMMUNICATION II (BKO201T)**1 X 3-HOUR PAPER****(Subject custodian: Department of Nature Conservation)**

Important fields such as interpretation, community development and environmental education, are enhanced and executed at a higher Level for an allocated target group. The dynamics of groups, including the group process and leadership, are discussed and applied in an Environmental Education Awareness Programme (EEAP). Applicable techniques/activities will be enhanced, developed and put into practice. There will be practical marketing pertaining to conservation aspects. Problem solving and environmental problems/issues will be conceptualised and dealt with through the process of programme planning and development (Total tuition time: ± 75 hours)

CONSERVATION DEVELOPMENT I (BON101T)**1 X 3-HOUR PAPER****(Subject custodian: Department of Nature Conservation)**

The extent and importance of the conservation of natural resources, biotic diversity and essential biochemical cycles. The following aspects are covered: conservation history in South Africa and elsewhere, conservation philosophies, conservation strategies, environmental conservation and the utilisation of natural resources. (Total tuition time: ± 75 hours)

CONSERVATION ECOLOGY I (WNB101T)**1 X 3-HOUR PAPER****(Subject custodian: Department of Nature Conservation)**

Ecobiological principles, components of an ecosystem, energy in the ecosystem, productivity and the ecosystem, limiting factors in the ecosystem and climatology. (Total tuition time: ± 75 hours)

CONSERVATION ECOLOGY II (WNB201T)**1 X 3-HOUR PAPER****(Subject custodian: Department of Nature Conservation)**

Population ecology dealing with aspects such as mortality and natality, population growth and density, population organisation and evolution, ecological co-actions such as herbivory and predation, parasitism, commensalism and saprobism, competition and mutualism. (Total tuition time: ± 75 hours)

CONSERVATION ECOLOGY III (WNB301T)**1 X 3-HOUR PAPER****(Subject custodian: Department of Nature Conservation)**

Biomes of the world – their net primary productivity and associated abiotic conditions as well as plant and animal adaptations. Aquatic systems – freshwater ecology, estuarine ecology, marine ecology. Environmental ecology, human ecology, and integrated environmental management. (Total tuition time: ± 75 hours)



CONSERVATION LEGISLATION I (CGI101T)

1 X 3-HOUR PAPER

(Subject custodian: Department of Nature Conservation)

Administrative procedures, legislation and law enforcement, personnel management, tourism management and conservation economy. (Total tuition time: ± 75 hours)

F

FIELD TRIP 1 – KWAZULU-NATAL

(Subject custodian: Department of Nature Conservation)

This field trip takes place during September, and the KwaZulu-Natal north coast, Midlands and Drakensberg reserves are visited. Students take part in various practical activities and are exposed to management and research procedures. The field trip often overlaps the international coastal clean-up activities. The involvement of local communities in the activities of the KwaZulu-Natal Wildlife Service and other environmental education actions are also noted. (Duration: ten to twelve days)

FIELD TRIP 2 – MPUMALANGA ESCARPMENT/LOWVELD AND KRUGER NATIONAL PARK

(Subject custodian: Department of Nature Conservation)

Students are exposed to biomes of the region, in particular bankenveld, grassland and savannah. In-depth discussions are conducted and field demonstrations provided on the abiotic components, such as soils and the plants or animal assemblages of each. This includes visits to Verloren Vallei Nature Reserve, with special emphasis on its role as a conservation area for wattled cranes and rare plant species, as well as a practical field trip to fen wetlands to see peat and various graminoid plants (Duration: not available).

This is followed by a visit to the Lydenburg Fisheries Station, and practicals on aquaculture. Moving to the Lowveld, students undertake field practicals on the catena effect in savannahs with the relevant plant or soil associations. This includes field-monitoring techniques, followed by field demonstrations on the soils, underlying geology and plant associations of the major landscapes of the Kruger National Park. Students attend a series of specialist lectures on predators, disease epidemiology (TB, theileriosis, foot-and-mouth disease, anthrax, rinderpest, encephalitis and myocarditis), management plans, alien plants, TB in lions and vegetation monitoring at the Kruger National Park. Students actively participate in environmental education, interpretation demonstrations and field trips at Lydenburg, Bourke's Luck and Skukuza. Students also attend lectures and field demonstrations on amphibians, rare plant cultivation and problem animal control. (Duration: ten days)

FIELD TRIP 3 – SUIKERBOSRAND NATURE RESERVE (

(Subject custodian: Department of Nature Conservation)

During this field trip, the emphasis is particularly on the activities of a nature conservationist in a provincial conservation organisation. Students are exposed to a variety of practical aspects pertaining to conservation, i.e. resource management, environmental education, interpretation, law enforcement, cultural services and ecological processes or activities. Also included are recommendations on game numbers and species, water provision, supplementary feeding and game capturing. The provision of infrastructure, fire breaks and veld management are also emphasised. (Duration: five days)

P

PLANT STUDIES I (WPS101T)

1 X 3-HOUR PAPER

(Subject custodian: Department of Nature Conservation)

The structure and germination of different seed types, the external structure and functions of the various plant organs, as well as all the morphological modifications found in nature. The internal (anatomical) structure of roots, stems and leaves, as well as the physiological reactions that take place in plants. (Total tuition time: ± 75 hours)

PLANT STUDIES II (WPS201T)

1 X 3-HOUR PAPER

(Subject custodian: Department of Nature Conservation)

Attention is given to basic taxonomic principles. These include definitions, taxonomic systems, taxonomic methods, dynamics of taxonomy and criteria used in classification. The evolutionary development of the flowering plants, as well as a wide range of indigenous flowering plant families, is discussed with reference to characteristics for identification. The development and management of a small herbarium are discussed. (Total tuition time: ± 75 hours)



PLANT STUDIES III (WPS301T)**1 X 3-HOUR PAPER****(Subject custodian: Department of Nature Conservation)**

Management principles for South African vegetation / veld in wildlife areas. Basic vegetation survey and vegetation monitoring principles and techniques. Veld evaluation principles and techniques used in South Africa. Application of fire as a veld management tool. The management of alien invasive plants and bush encroachment. The threats to rare and endangered plants in African ecosystems, and management thereof. (Total tuition time: ± 75 hours)

R**RESOURCE MANAGEMENT I (RMG101T)****1 X 3-HOUR PAPER****(Subject custodian: Department of Nature Conservation)**

Monitoring of numbers, distribution and density of species, as well as the monitoring of condition and population dynamics, which includes age determination, sex ratios and natality and mortality percentages. Principles of data collection, processing and interpretation. Basic statistics, as applicable to the nature conservation field, as well as the scientific method. Principles and methods of animal monitoring, with the emphasis on ungulates. Determination of animal numbers, age and condition. (Total tuition time: ± 75 hours)

RESOURCE MANAGEMENT II (RMG201T)**1 X 3-HOUR PAPER****(Subject custodian: Department of Nature Conservation)**

Introduction to freshwater ecology. Management of rivers, wetlands and estuaries. Management of predators, herbivores and mega herbivores. Game feeding and supplementation. (Total tuition time: ± 75 hours)

RESOURCE MANAGEMENT III (RMG301T)**1 X 3-HOUR PAPER****(Subject custodian: Department of Nature Conservation)**

The planning and management of wildlife areas (physical and biological), game breeding, game recommendations, harvesting, game capture and translocation, game feeding, supplements, managing hunters. Planning and management of infrastructure in wildlife areas. (Total tuition time: ± 75 hours)

S**SOIL SCIENCE I (SSC101C)****1 X 3-HOUR PAPER****(Subject custodian: Department of Nature Conservation)**

Basic field geology, with emphasis on rock identification, and understanding the role of geology in ecosystems and as soil forming factor. Application of soil science principles and knowledge in wildlife area management. Understanding soil forming factors. The study of characteristics of soil and application thereof in wildlife areas. Practical soil classification, soil profile description and soil mapping for wildlife areas. (Total tuition time: ± 75 hours)

W**WORK-INTEGRATED LEARNING I (EXP1NCV)****WORK-INTEGRATED LEARNING****WORK-INTEGRATED LEARNING II (EXP2NCV)****WORK-INTEGRATED LEARNING****(Subject custodian: Department of Nature Conservation)**

Work-integrated learning is done with an accredited employer and is overseen by a mentor and a departmental lecturer. A compulsory syllabus is followed and two reports (progress and final report) must be submitted. Students may be visited at their place of employment. A student may be subjected to a final oral examination at the end of the period. (Total tuition time: six months)

