7.7 ADVANCED DIPLOMA IN NATURE CONSERVATION

Qualification code:	20530
Offering:	Full-time George Campus (02)
Aligned NQF Level:	7
Total NQF Credits for qualification:	120

ADMISSION REQUIREMENTS

Applicants must be in possession of a three-year Diploma in Nature Conservation or equivalent qualification (e.g. Diploma in Game Ranch Management or Diploma in Wildlife Management). Candidates with a cognate qualification in the fields of ecology and natural resource management (e.g. BSc with majors Botany, Zoology or Ecology) can horizontally enter into this advanced diploma.

The minimum entry requirement for the Advanced Diploma is a 60% average for the Diploma, or 60% average for majors in the case of cognate qualifications like BSc.

STATUTORY AND OTHER REQUIRMENTS

Brief description:

The Advanced Diploma: Nature Conservation qualification consists of six modules. All these modules are compulsory.

Application, selection and registration:

Candidates must apply before the first closing date for applications of the preceding year. Facilities at George Campus are limited and this necessitates a selection process.

Seminars and projects:

As a general guideline, three major projects/seminars have to be submitted per module and will contribute towards a qualifying module mark. Tests written during the year supplement such a module mark.

A qualifying mark of 40% must be obtained per module to qualify for entry to examinations. Students need to arrange for access to information from a commercial game ranch in order to do the projects/ seminars for the module Game Ranch Economics IV.

Tutorial materials:

George Campus will endeavour to arrange that prescribed books are available for each of the modules concerned. Candidates are, however, expected to obtain for themselves the literature listed as prescribed in each module. Supplementary reference material should be obtained through library services.

General note:

The Instructional Design is subject to change without prior notice. Students concerned will, however, be notified about any changes or impending changes as soon as possible.

SELECTION PROCEDURE

- Admission is subject to Departmental selection.

RE-ADMISSION REQUIREMENTS

Progress-based re-admission criteria apply as approved by Senate.

DURATION

The qualification shall extend over one year of full-time study only (all instructional offerings are compulsory).

CURRICULUM (Full-time)

		Presented	Module Code	Credit Value
Compulsory modules:				
	Research Methodology	Year	FAB400	20
	Resource Management	Year	NRM400	20
	Conservation Management	Year	NCM400	20
	Animal Studies	Year	NAS400	20
	Plant Studies	Year	NPS400	20
	Community Conservation	Year	NCS400	20
	Total Credits			**120**

Curriculum:

Module Name	Module Code	When Presented	Credit Value	NQF Level
Core modules:				
Resource Management	NRM	Full Year	20	7
Research Methodology	FAB400	Full Year	20	7
Conservation Management	NCM	Full Year	20	7
Animal Studies	NAS	Full Year	20	7
Plant Studies	NPS	Full Year	20	7
Community Engagement		Full Year	20	7

Syllabuses of all modules as it will appear in the prospectus

MODULE CODE	MODULE NAME	CREDIT VALUE
NRM	Resource Management	20

PURPOSE
The purpose of the module is to provide the students with knowledge and skills to devise and implement ecological resource management and monitoring plans.

LEARNING OUTCOMES
After successfully completing this module, the students will be able to:
- Apply the philosophy and principles of ecological stability, resilience and ecological thresholds to natural resource management scenarios.
- Critically analyse strategic adaptive management and its application in social-ecological systems.
- Estimate the abundance of the main biotic drivers of change in a social-ecological system that will maintain the ecological integrity of the system.
- Explain how fire, water provisioning, game translocation and bush encroachment impact the heterogeneity of natural resources and therefore the resilience of ecosystems.
- Design a monitoring program for a social-ecological system that is able to measure changes in ecosystem resilience and define "Thresholds of Potential Concern".
- Develop an annual plan of operations based on an existing conservation management plan.
- Explain the techniques, constraints and costs of restoring degraded natural resources.
- Explain the application of remote sensing and related technologies for the management of natural resources.
- Use Geographic Information Systems to analyse spatial databases relevant to resource management.
- Explain the relevance of statutory regulation and environmental certification to the sustainable management of natural resources.

CORE CONTENT
- Ecosystem management
- Ecosystem resilience
- Ecological monitoring and data analysis
- Environmental policy, regulation and certification
- Restoration ecology
- GIS and remote sensing technologies

ASSESSMENT
1 x 1.5 hour examination in November; 70% class mark + 30% examination mark.

MODERATION
External

PRE-REQUISITES FOR THIS MODULE
None

MODULE CODE	MODULE NAME	CREDIT VALUE
FAB400	Research Methodology	20

PURPOSE

The focus of this module will be to equip graduates with key skills related to the research process, including that of appropriate data collection, and the collation, analyzing and/or interpretation of that data, such that informed management related decisions can be made as part of their professional development/careers. This module will also provide initial research training for those students intending to further their studies at a post-graduate research level.

Note: The Research Methodology module is shared among all five of the new Advanced Diploma qualifications (see section 1.2) offered by the School. All these Advanced Diplomas (except Nature Conservation) have been approved by CHE, and as such the learning outcomes and core content have been developed as follow:

LEARNING OUTCOMES

After successfully completing this module, the students will be able to:

- Describe the components that make up the research process and the sequential steps that need to be followed from inception to final outcome.
- Differentiate between different types of data specific to the natural sciences, their sources, and usefulness pertinent to the natural sciences.
- Distinguish the attributes associated with each of these data sources/types.
- Collect and collate targeted data in an appropriate manner such that it can be analysed and interpreted.
- Analyse and interpret data through the use of relevant descriptive statistical techniques.
- Summarise and present data in a manner such that it can be used for evidence-based decision making.

CORE CONTENT

- Describe the core components (problem identification, literature search, developing research questions) involved with the research process which includes:
  - Identify and convert a problem statement into key a research question (hypothesis)
  - Design the research to be conducted such that the methods used for data acquisition align the research question with the final outcome
- Differentiate between different types of data (qualitative vs. quantitative; continuous vs. discreet; parametric vs. non-parametric; nominal/ordinal/interval/ratio etc.) and link these to data source
- Understand the importance of data quality, together with ways to reduce and/or account for variability
- Use a standard suite of sampling techniques for the collection of data appropriate for the SNRM disciplines
- Develop a data collection strategy so as to include:
  - what information needs to be collected in order to answer a question?
  - the source of the information
  - how the information should be collected (methodology)?
  - how much data should be collected, including timing?
- Use basic statistical procedures (and tools), summarise, analyse and determine the importance and implications of these findings
- Assign meaning to these findings together with the presentation of the outcomes in a meaningful way (written, basic tabulation and/or graphical techniques)
- Use data for evidenced-based decision making so as to:
  - inform policy, planning or in decision making
  - generate new knowledge
  - justify or raise additional resources
  - improve quality of services provided

ASSESSMENT

1 x 3 hour examination in November; 50% class mark + 50% examination mark.

MODERATION
External

PRE-REQUISITES FOR THIS MODULE
None

MODULE CODE	MODULE NAME	CREDIT VALUE
NCM	Conservation Management	20

PURPOSE
The main purpose of the module is to integrate knowledge of social-ecological systems in order to maintain functional and resilient ecosystems in which biodiversity is conserved.

LEARNING OUTCOMES
After successfully completing this module, the students will be able to:
- Explain the historical foundations and guiding principles of Conservation Biology
- Define different levels of biodiversity and describe its instrumental and intrinsic value
- Apply understanding of global biodiversity patterns and processes to conservation management and conservation planning
- Describe and understand the relative importance of biodiversity losses and various types of threats to biodiversity, including climate change
- Understand and apply IUCN system for rating the conservation status of species or ecosystems
- Explain relevant approaches to manage threats to biodiversity, such as habitat transformation, degradation, overexploitation, species invasions, climatic change and genetic loss
- Differentiate among species, population, and ecosystem approaches to conservation
- Describe the role of protected areas to promote resilient and functional ecosystems and how management effectiveness is measured
- Draw up a restoration plan for a threatened population, species, habitat type or protected area to demonstrate the role of ecological restoration/rehabilitation in conservation
- Analyse the integration of conservation science and policy

CORE CONTENT
- Conservation biology
- Biodiversity
- Ecosystem functioning
- Social ecological systems
- Restoration ecology
- Conservation policy and planning

ASSESSMENT
1 x 1.5 hour examination in November; 70% class mark + 30% examination mark.

MODERATION
External

PRE-REQUISITES FOR THIS MODULE
None

MODULE CODE	MODULE NAME	CREDIT VALUE
NAS	Animal Studies	20

PURPOSE
The main purpose of this module is to provide students with advanced knowledge of large mammal conservation ecology and management

LEARNING OUTCOMES
After successfully completing this module, the students will be able to:
- Explain the principles of herbivores' and plants' evolutionary adaptations to foraging.
- Explain the principles of predators and their prey's evolutionary adaptations for co-existence.
- Describe the ecological processes that influence and are influenced by large herbivores and carnivores.
- Describe the influence of anthropogenic factors on large mammal ecosystems at different scales e.g. global, continental, local and fine scale.
- Describe the ecosystem services provided by large mammals and potential consequences of loss.
- Critically evaluate current practices and challenges in large mammal management in wildlife areas and recommend appropriate management interventions for different scenarios.
- Apply appropriate techniques for monitoring large mammals in wildlife systems.

CORE CONTENT
- Herbivore and carnivore traits
- Herbivory and plant traits
- Herbivore and carnivore feeding ecology
- Ecological processes
- Large mammal response to anthropogenic factors
- Trophic cascades
- Scale in large mammal ecology
- Impact and role of ecosystem engineers
- Ecosystem services
- Large mammal management case studies
- Monitoring techniques

ASSESSMENT
1 x 1.5 hour examination in November; 70% class mark + 30% examination mark.

MODERATION
External

PRE-REQUISITES FOR THIS MODULE
None

MODULE CODE	MODULE NAME	CREDIT VALUE
NPS	Plant Studies	20

PURPOSE
The purpose of this module is to provide students with advanced knowledge of the vegetation management aspects related to fire ecology and invasion biology.

LEARNING OUTCOMES
After successfully completing this module, the students will be able to:
- Predict fire behavior based on an analysis of the influence of ignitions, weather, topography and fuels.
- Develop appropriate fire management strategies based on an understanding of fire regimes in different biomes.
- Explain the adaptations of plants to fire, and the effects of fire on biome boundaries and plant community structure and composition.
- Critically assess the extent to which fire management approaches can influence fire as an ecological process.
- Predict potential interactions between fire and alien plant invasions.
- Assess the invasion status of an alien species or population and develop an appropriate management response.
- Describe the most important invasive alien plant taxa in southern Africa and biomes where they pose a threat.
- Critically evaluate current practices and challenges experienced in invasive alien plant management and regulation.

CORE CONTENT
- Fire behaviour
- Ecological fire regimes
- Vegetation response to fire
- Biological invasion
- Invasive plant management
- Invasive species regulation
- Reviewing and interpretation skills
- Field data collection techniques
- Descriptive statistical techniques

ASSESSMENT
1 x 1.5 hour examination in November; 70% class mark + 30% examination mark.

MODERATION
External

PRE-REQUISITES FOR THIS MODULE
None

MODULE CODE	MODULE NAME	CREDIT VALUE
	Community Engagement	20

PURPOSE
To enable students from various backgrounds to work effectively with communities and stakeholders in the context of natural resource management and conservation.

LEARNING OUTCOMES
After successfully completing this module, the students will be able to:
- Describe the importance and value of engagement with communities and stakeholders within a conservation and natural resource management context.
- Compare different community and stakeholder engagement mechanisms and their implementation.
- Critically discuss the importance of values and ethics in community and stakeholder engagement.
- Plan, execute and evaluate a community or stakeholder engagement project.

CORE CONTENT
- Community and stakeholder engagement in protected areas and natural resource management
- Community and stakeholder engagement mechanisms (e.g. stewardship, community based natural resource management, conservancies, adaptive co-management, conflict resolution)
- Values and ethics in community and stakeholder engagement
- Planning and implementing community and stakeholder engagement projects and programmes
- Monitoring and evaluation of community and stakeholder engagement projects and programmes

ASSESSMENT
1 x 1.5 hour examination in November; 70% class mark + 30% examination mark.

MODERATION
External.

PRE-REQUISITES FOR THIS MODULE
None