



# CONSERVATION BIOLOGY

**Masters Course  
Handbook**

**FITZPATRICK INSTITUTE OF  
AFRICAN ORNITHOLOGY**

# 2022



**THE FITZPATRICK INSTITUTE OF AFRICAN ORNITHOLOGY** is recognised as a Centre of Excellence by the South African Department of Science and Innovation and the National Research Foundation. It is part of the Department of Biological Sciences at the University of Cape Town (UCT), with a focus on research and post-graduate education. Although the Institute focuses primarily on ornithological research, the Conservation Biology MSc Programme is broad-based, drawing on teaching expertise from across the academic spectrum at UCT and further afield .

Nestled on the slopes of Devil’s Peak, UCT overlooks the cosmopolitan city of Cape Town. It is South Africa’s oldest university, and is Africa’s leading teaching and research institution. UCT ranks among the top 200 universities in the world (155; Times Higher Education 2020/21 listings). It has more than 22,000 students, and attracts a large number of international students – currently 17% of the student population.

UCT has a strong tradition in conservation research. Situated in the heart of the Cape Floristic Kingdom, it is well placed for research in two global biodiversity hotspots, the Fynbos and the Succulent Karoo. In a 2008 review, UCT ranked top among Southern Hemisphere institutions in terms of the impact of its conservation research, equivalent to the fourth-placed institution in North America.





# introduction



Conservation biology is the study of how best to sustain and manage linked systems of people and nature. It builds on a range of existing disciplines, ranging from ecology and evolution to sociology and economics. Conservation biology is enormously important for human wellbeing as the impacts of human activities on the biosphere are significant and profound.

A programme in Conservation Biology was established at the FitzPatrick Institute of African Ornithology in 1991 to educate

students and conservation practitioners in the fast developing field of conservation science. The FitzPatrick Institute is housed within the Department of Biological Sciences in the Faculty of Science at the University of Cape Town. The Fitztitute promotes and undertakes scientific studies, mainly involving birds, that contribute to the theoretical and practical development of ecology, evolution, and conservation biology. The central focus of the conservation biology programme at the Fitztitute is an intensive MSc degree comprising seven months of coursework and a six-month individual research project.

South African society has seen significant changes in the last 25 years; much of the resulting dynamism and openness to new ideas is mirrored in South African conservation. The discipline of

conservation biology is undergoing a similar paradigm shift, in which notions of preservation and paternalism are being replaced by an ethic that recognizes the complexity of linked social and ecological systems and the critical need for solid interdisciplinary research. The FitzPatrick Institute is contributing to this disciplinary transformation through research and teaching, while also collaborating with others to support sound, action-oriented science.

## aims & objectives

The aims of the Conservation Biology MSc programme are to produce graduates with a broad understanding of conservation issues and to provide them with the scientific background and tools to be able to analyse and solve practical, conservation-related problems. A synthetic, holistic approach is encouraged to problem solving through exposure to a variety of disciplines. Emphasis is also placed on developing oral and written communication skills. We have found that this broad approach to postgraduate education produces graduates who compete successfully in the job market and go on to make a difference in the field. Although emphasis is given to solving conservation challenges in an African context, students are provided with a broad-based education that will stand them in good stead throughout the world.

## who is eligible to enrol?

Applicants to join the course must hold at least a BSc Honours (or equivalent qualification). Applicants will be drawn mainly from two groups: young people who have just obtained a degree and wish to become conservation biologists, and qualified, practising nature conservators who wish to update and/or expand their knowledge of the modern theory and practice of conservation biology. The course is intensive, and only a limited number of participants are accepted each year. Details regarding registration fees, and approximate accommodation and living expenses in Cape Town are available on request. Prospective applicants should

apply to the Director, FitzPatrick Institute, University of Cape Town, Rondebosch, South Africa, c/o Hilary Buchanan: [hilary.buchanan@uct.ac.za](mailto:hilary.buchanan@uct.ac.za). Applications must reach this address before the 31<sup>st</sup> of August each year to be considered for a place on the course in the following year.

Applicants from outside South Africa are encouraged to apply early so that they have plenty of time to apply for funding and study visas. Applicants should please consult the Checklist for Applicants for the relevant documents and information that must accompany applications.

The **INTRODUCTION** occupies the first three weeks and includes orientation, an overview of conservation biology, and a week studying the philosophy of science.

The **ECOLOGICAL CORE** includes modules in community ecology, population ecology, biodiversity basics, marine and freshwater ecology, conservation genetics, and invasion biology.

The **INTERDISCIPLINARY CORE** includes modules in spatial ecology and GIS, climate change, resource economics, societies and natural resources, urban conservation and conservation in practice.



## structure of the course

The coursework component is intensive and exacting, but represents a huge learning opportunity and the chance to interact with a wide range of excellent conservation biologists, both within and outside the university environment. It includes seven months of intensive coursework and a six-month individual research project.

Coursework consists of a series of modules, each taught by experts in their field. Modules typically include lectures, practicals, essays, discussion groups, seminars and field excursions. Reading lists are provided. Emphasis is placed on African examples and case histories, but material is globally applicable.

Modules fall into three different sections: an introduction, an ecological core, and an

interdisciplinary core. Each module lasts between one and three weeks. The coursework component of the course starts in mid-January and the modular component is completed by the end of August.

From September to mid-February, students conduct and write up a research project culminating in a paper on a research topic chosen by the student and supervised by a member of academic staff. The research report is in the format of a manuscript suitable for publication, which should facilitate the dissemination of results. These research reports are not equivalent to dissertations produced for the award of an MSc based on a thesis alone.

Modules are examined in April-May and August. Exams are

‘open book’, and emphasize the solving of practical problems with a full range of resources available to students. The MSc degree is awarded to students who achieve grades in excess of 50%, and is awarded with distinction if grades exceed 75% for both the coursework and project components of the course. There is a minimum requirement for the first examination to allow students to continue with the course.

**To the extent the pandemic situation allows, coursework will be conducted face to face in the classroom. However, we will follow national government and UCT guidelines regarding teaching during lockdowns and some online lessons may therefore be inevitable.**

# coursework outline (timings provisional)

Ecological core modules provide a foundation for the interdisciplinary core, placing conservation in context as a human-oriented discipline.

WEEK	MODULE NAME	LIKELY DETAILS
1 (17 <sup>th</sup> Jan)	<b>Orientation</b> Susie Cunningham	Meet each other & the department; recap some basic skills
2	<b>Conservation in context</b> David Cumming	Conservation in a global context
3	<b>Philosophy of Science and Conservation Ethics</b> David Cumming <b>Leadership 1</b> Wendy Foden	Limits of hypothetico-deductive science, less predictable social/ecological interactions, emergent properties.
4	<b>Biodiversity Basics</b> Susie Cunningham	Units & functional importance of biodiversity, basic evolutionary processes, macroecology
5-6	<b>Climate Change &amp; Conservation</b> Lindsey Gillson	Climate change and its importance for people and ecosystems
7	<b>Freshwater ecology</b> Jeremy Shelton	Limnology, nitrification, freshwater resource management
8-9	<b>Landscape Ecology &amp; GIS</b> Patrick O'Farrell	Key concepts (scale, heterogeneity, stratification) and their application in conservation planning. Key skills, especially GIS
10-12	<b>Community Ecology &amp; field camp</b> Timm Hoffman & Robert Thomson	Biological diversity, interspecific competition, niche concepts, trophic cascades, ecosystem engineers, some models
13	<b>Urban Conservation Management</b> Dalton Gibbs	Maintaining biodiversity in an urban environment, planning and challenges.
14	<b>Conservation in Practice</b> Justin O'Riain	Human-wildlife conflicts, practical application of conservation methods, restoration & mitigation, asking the right questions
15	<b>EXAM 1</b>	Exam followed by a 1 week break



<b>WEEK</b>	<b>MODULE NAME</b>	<b>LIKELY DETAILS</b>
<b>17-18</b>	<b>Population Ecology</b> Peter Ryan	Extinction risk, threat categories. Analysis basics. Demography and PVA
<b>19-20</b>	<b>Conservation Genetics</b> Jacqui Bishop	Genetic diversity, forensics, non-invasive sampling Gene flow and phylogeography
<b>21-22</b>	<b>Marine Conservation</b> Colin Attwood	Fisheries management at local and global scales, MPAs,. issues surrounding marine conservation, marine ecology
<b>23-24</b>	<b>Invasion Biology</b> Sebataolo Rahlao	Biological impacts of invasions, issues surrounding management, legislation.
<b>24-25</b>	<b>Conservation &amp; Society</b> Gladman Thondlana	Governance, institutions, livelihoods, land tenure, social networks, management & implementation, resource access. Ethical/cultural valuation. Environmental law and policy.
<b>26</b>	<b>Project planning 1</b> Claire Spottiswoode	Refine project ideas, develop proposal writing, and critical thinking skills
<b>27</b>	<b>Project planning 2</b> Arjun Amar	Assess project feasibility, develop experimental/project design skills
<b>28-30</b>	<b>Resource Economics</b> Jane Turpie	Ecosystem goods & services valuation (field based) Links to livelihoods & poverty Over-harvesting Pricing & globalisation – subsidies, easements
<b>30-31</b>	<b>Conservation Leadership</b> Wendy Foden	Leadership strategies for conservation, conflict resolution, project & financial management, conservation politics
<b>31</b>	<b>Emergent Issues &amp; Synthesis</b> David Cumming	Current 'hot topics' considered in light of course contents Review of the course
<b>32</b>	<b>EXAM 2</b>	
<b>33</b>	<b>Research project starts</b>	



# selection criteria

We accept only 12-14 students each year into the conservation biology masters programme. There are often 2-3 times this many applicants, resulting in competition for places. In addition to academic ability, preference is given to candidates with experience in the conservation arena, particularly in an African context. Because of the intensive nature of the

programme, students spend a lot of time working closely with their peers. Having students from a diversity of backgrounds contributes significantly to the success of the programme. Consequently, we strive each year to select students that combine a mix of youthful enthusiasm and mature experience, as well as a mix of students from developed and

developing countries. The ideal class comprises roughly one third students from South Africa, one third from the rest of Africa, and one third from the rest of the world.

Since its inception, > 300 students have graduated from the CB programme from more than 30 countries.

## checklist for applicants

Applicants to the course should include all the following documents and information with your application. Please note that applications must reach the FitzPatrick Institute of African Ornithology by the **31<sup>st</sup> August** to be considered for the following year.

- Start by doing an online application to UCT. Then submit the following to the Department (address details below):
- Completed Departmental Application Form ([www.fitzpatrick.uct.ac.za/sites/default/files/image\\_tool/images/275/study\\_and\\_research/cbapplic.pdf](http://www.fitzpatrick.uct.ac.za/sites/default/files/image_tool/images/275/study_and_research/cbapplic.pdf))
- Full Curriculum Vitae giving permanent address and telephone/fax numbers, date of birth, full names, nationality, educational history up to present date, employment history (if any) up to present date, details of computer systems and software packages used to date, and details of any research publications.
- Names, addresses, fax numbers, telephone numbers and e-mail addresses of at least two referees who can comment on your academic ability, suitability for postgraduate study, and also give a confidential personal evaluation of your sense of initiative and computer literacy.
- Undergraduate academic transcript showing marks for each course taken in each year. This should be a photocopy of the original, but the photocopy should have an original stamp certifying that it is a true copy of the original transcript. Certified copies of transcripts of any subsequent postgraduate qualifications should also be included here.
- A certified copy of the original degree certificate (and any subsequent qualifications mentioned above).
- A certified copy of the original TOEFL or PTEEP certificate or other English qualification if English is not your first language.
- A 1-2 page typed motivation outlining why you chose to apply for a place on the CB Course, what your long-term career aspirations are, and how you think the successful completion of the CB Course will benefit those aspirations.
- A letter of application addressed to the Director, FitzPatrick Institute
- The application fee is R100 for students from South Africa and SADC countries, and R300 for all other students. Students who are currently registered or who have previously graduated from UCT do not have to pay an application fee.

Further information: <http://www.fitzpatrick.uct.ac.za/fitz/researchstudy/conservationbio/applicants>

Address your application (or any queries) to:

Mrs Hilary Buchanan, FitzPatrick Institute, University of Cape Town,  
Private Bag X3, Rondebosch 7701, South Africa  
Tel. (+27-21) 650 3291/2896, fax (+27-21) 650 3295  
or e-mail: [hilary.buchanan@uct.ac.za](mailto:hilary.buchanan@uct.ac.za)

## information for international students



All applicants except South Africans and permanent residents of South Africa require:

- A valid passport and study permit. Note that you cannot obtain a study permit from within South Africa.
- Medical insurance.
- Proof of English proficiency if English is not your first language (TOEFL test or equivalent)
- A proven ability to support yourself financially and to settle your fees.

International Student fees apply for the Conservation Biology Masters course. For advice and further details, international applicants are welcome to contact the FitzPatrick Institute's Departmental Administrator at [fitz@uct.ac.za](mailto:fitz@uct.ac.za); or visit the University's International Academic Programmes Office (IAPO) website at [www.iapo.uct.ac.za](http://www.iapo.uct.ac.za).





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