

*PHY2209	Acoustics	2
<b>Recess Term: (Field Work)</b>		
PHY 2310	Industrial Training	3
<b>Year III: Semester I Core Courses</b>		
PHY 3101	Physics Practicals	2
PHY 3103	Solid State Physics II	3
PHY 3106	Statistical Mechanics	3
PHY 3107	Quantum Mechanics II	3
<b>Electives: (At least one elective from the following)</b>		
PHY 3102	Geophysics II	3
PHY 3108	Electronics and Instrumentation	3
*PHY 3109	Agricultural Physics	3
<b>Semester II (Core Courses)</b>		
PHY 3201	Project	3
PHY 3206	Nuclear Physics	3
*PHY 3208	Computer Applications	3
<b>Electives: (Two electives from the following)</b>		
PHY 3203	Materials Science	3
PHY 3205	Microwave and Fibre Optics	3
*PHY 3209	Industrial Physics	3
PHY 3204	Solar Energy	3

### Physics Minor

<b>Year I: Semester I (Core Courses)</b>		
Course Code	Course	CU
PHY 1101	Physics Practical	2
PHY 1103	Properties of Matter	2
PHY 1102	Classical Mechanics I	3
<b>Semester II (Core Courses)</b>		
PHY 1201	Physics Practical	2
PHY 1205	Electricity and Magnetism	3
PHY 1206	Heat and Thermodynamics	2

<b>Year II: Semester I (Core Courses)</b>		
PHY 2101	Physics Practicals	2
PHY 2102	Classical Mechanics II	3
<b>One elective from the following</b>		
PHY 2107	Elements of Environmental Physics	2
PHY 2104	Evolution of Physics	2
<b>Semester II: (Core Courses)</b>		
PHY 2201	Physics Practicals	2
PHY 2206	Waves and Optics	3
<b>Year III: Semester I (Core Courses)</b>		
PHY 2103	Solid State Physics I	2
PHY 2105	Electromagnetism	3
<b>Semester II: Core Courses</b>		
PHY 2207	Quantum Mechanics I	2
PHY 2208	Electronics	3

### CHANGES:

**PHY1102:** *Classical Mechanics I is a core first year course based in Physics.*

**PHY1105:** *Electricity and PHY1106 Optics are first year elective offered as a service courses.*

**PHY2103:** *Solid State Physics I and PHY2207: Quantum Mechanics I have been introduced in the second year for students majoring in Physics.*

**Courses: PHY2104, 2106, 2108, 2203, 2209, 3109, 3208 and 3209, marked with an asterisk (\*) are new courses.**

## DEPARTMENT OF ZOOLOGY

### Introduction

Zoology is a branch of biology that deals with the study of mainly animals and Animal-plant interactions. It is one of the oldest disciplines of science at Makerere University. It embraces a wide range of topics. Present emphasis is on aspects that are directly relevant to the economic development of Uganda. They include the study of all invertebrate and vertebrate groups, Wildlife, Ecology, Fisheries

and Aquatic Science, Entomology and Parasitology. These are key areas of science in the agriculture and livestock raising industries of Uganda.

Various other supportive disciplines are studied in the Department. These include Cell biology and genetics, evolutionary biology, endocrinology and reproductive

physiology, immunology and microbiology, animal behavior, environmental science, data collection and analysis.

## Programme Structure

### Summary of Zoology Major Programme

<b>Year I: Semester I</b> ( <i>All courses are core</i> )		
Course Code	Course	CU
ZOO 1101	Lower Invertebrates and Microscopy	4
ZOO 1102	Higher Invertebrates	3
<b>Semester II</b>		
ZOO 1201	Reproductive and Developmental Biology	3
ZOO 1202	Vertebrates (Origin, Evolution and Characteristics)	4
<b>YEAR II: Semester I</b>		

ZOO 3103	Comparative Physiology and Histology	3
<b>Take at least ONE Electives</b>		
ZOO 3104*	Human Ecology	2
ZOO 3105**	Commercial Entomology	2
* BOT 1202 is a <i>Prerequisite</i> to ZOO 3104		
**ZOO 2102 is a <i>Prerequisite</i> to ZOO 3105		
<b>YEAR III: Semester II</b>		
ZOO 3201	<b>Animal Behavior</b>	4
ZOO 3202	<b>Field Course</b>	3
BOT 2204	<b>Biostatistics</b>	3
<b>Electives</b> ( <i>Take at least ONE but NOT more than TWO</i> )		
ZOO 3203	Aquaculture	3
ZOO 3204	Applied Parasitology	3
ZOO 3205	Fisheries Biology	3
ZOO 3206*	Integrated pest and vector management	3
ZOO 3207**	Applied Ecology	3
*ZOO 2102 is a <i>Prerequisite</i> to ZOO 3206		

\*\*BOT 1202 is a *Prerequisite* to ZOO 3207

#### Note:

To qualify for a major in Zoology, a student must pass all the core courses and at least three electives.

ZOO 2101	Vertebrates (Structure and Function)	4
ZOO 2102	Basic Entomology	3
BCH 2102	<b>Cell Biology</b>	3
<b>Semester II (Core courses)</b>		
ZOO 2201	Evolutionary Biology	3
ZOO 2202	Basic Parasitology	3
ZOO 2203	Research methods and communication skills	2
BOT 1202	Basic Ecology	3
<b>Electives: (Take at least ONE)</b>		
ZOO 2204	Biogeography	2
ZOO 2205	Introduction to Microbiology and Biotechnology	2
<b>YEAR III: Semester I (Core courses)</b>		
ZOO 3101	Research Projects	3
ZOO 3102	Hydrobiology	4

The list of electives offered in a particular semester depends on the staff available and is therefore subject to change.

Students may take extra courses to meet their degree programme requirements.

### Summary of Zoology Minor Programme

<b>Year I: Semester I</b> ( <i>All courses are core</i> )		
Course Code	Course	CU
ZOO 1101	Lower Invertebrates and Microscopy	4
ZOO 1102	Higher Invertebrates	3
<b>Semester II</b>		
ZOO 1201	Reproductive and Developmental Biology	3
ZOO 1202	Vertebrates (Origin, Evolution and Characteristics)	4
<b>YEAR II: Semester I</b>		
ZOO 2101	Vertebrates (Structure and Function)	4
ZOO 2102	Basic Entomology	3
<b>Semester II Core courses (Take at least ONE)</b>		
ZOO 2202	Basic Parasitology	3
ZOO 2203	Research methods and communication skills	2
<b>Take at least ONE Elective</b>		
ZOO 2204	Biogeography	2

<b>ZOO 2205</b>	Introduction to Microbiology and Biotechnology	2
	<b>Subtotal 7 (or 9)</b>	
<b>YEAR III: Semester I (Core Courses)</b>		
ZOO 3102	Hydrobiology	4
<b>Electives (Take at least ONE)</b>		
ZOO 3104*	Human Ecology	2
ZOO 3105**	Commercial Entomology	2
<b>*BOT 1202 is a Prerequisite to ZOO 3104</b>		
<b>**ZOO 2102 is a Prerequisite to ZOO 3105</b>		
<b>Semester II</b>		
<b>Electives</b> <i>Take at least ONE but NOT more than TWO</i>		
ZOO 3203	Aquaculture	3
ZOO 3204	Applied Parasitology	3
ZOO 3205	Fisheries Biology	3

<b>ZOO 3206*</b>	Integrated pest and vector management	3
<b>ZOO 3207**</b>	Applied Ecology	3
<i>*ZOO 2102 is a Prerequisite to ZOO 3206</i>		
<b>**BOT 1202 is a Prerequisite to ZOO 3207</b>		

#### Note

1. To qualify for a minor in Zoology, a student must pass all the core courses offered at Advanced Level in Zoology.
2. The list of electives offered in a particular semester depends on the availability of Staff and is therefore subject to change.
3. Students may take extra courses to meet their degree programme requirements.

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## BACHELOR OF SCIENCE IN CONSERVATION BIOLOGY PROGRAMME

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### Introduction

The major focus of this programme is on conservation biology, management, and sustainable utilization of biodiversity and its regulation. Conservation biology aims at understanding ecosystems and maintaining their diversity. It also emphasizes the conservation of all biodiversity and the processes at all levels. The degradation of both the quantity and quality of Uganda's biological resources has consequently resulted in the poor ecosystem's health. The understanding of human interaction with biological resources and their effective conservation and management will form the basis for their survival and sustainable utilization in the long term.

### Goals and Objectives

The goal of the programme is to train personnel at a higher level who will have scientific and technical expertise for effective protection, maintenance and restoration of life on planet earth and Uganda in particular – the species, the ecological and evolutionary processes and the total environment.

### The specific objectives

1. To train a multidisciplinary and interdisciplinary-based cadre of Conservation Biologists to effect sustained utilization and conservation of biological resources and their habitats based on sound natural resources management policies.
2. To train people in the skills of scientific evaluation of habitats, biological resources, assessment, monitoring and impacts of resource use.
3. To train people in the skills of maintenance and restoration of ecosystems and integration of local communities into conservation of biological resources.
4. To give an opportunity to the lower cadres of staff engaged in natural resources conservation and management service to upgrade their knowledge and skills in the planning, monitoring and conservation of biological resources.
5. To enhance awareness and impart skills for more intensive *ex situ* conservation of biological resources.
6. To promote revenue generation through sustainable tourism, recreation, training, trade and employment in Uganda.