

Netaji Subhas Open University
Under Graduate Degree Programme
Choice Based Credit System (CBCS)
Subject : Honours in Zoology (HZO)
Course : Animal Diversity, Structure and Development (Practical)
Course Code : CC - ZO - 01

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**UG Zoology
(HZO)**

**Course : Animal Diversity, Structure and Development
(Practical)**

Code : CC - ZO - 01

Unit - 1	<input type="checkbox"/> Study of specimens with proper reasons	7-123
Unit - 2	<input type="checkbox"/> Study of permanent slides	124-133
Unit - 3	<input type="checkbox"/> Key to identification of poisonous and non-poisonous snakes	134-135
Unit - 4	<input type="checkbox"/> Osteology	136-166
Unit - 5	<input type="checkbox"/> Examination of gametes	167-171
Unit - 6	<input type="checkbox"/> Chick : developmental stages	172-175
Unit - 7	<input type="checkbox"/> Demonstration of whole mount preparation of chick embryo	176-177
Unit - 8	<input type="checkbox"/> Animal album	178-214

Netaji Subhas Open University
Undergraduate Degree Programme
Choice Based Credit System (CBCS)
Subject : Honours in Zoology (HZO)
Course : Animal Physiology, Molecular Biology & Evolution (Practical)
Course Code : CC - ZO - 02

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Course: Animal Physiology, Molecular Biology & Evolution (Practical)

Course Code : CC - ZO - 02

Unit-1	<input type="checkbox"/> Preparation of haemin crystals	7-8
Unit-2	<input type="checkbox"/> Study of permanent histological sections of mammalian pituitary, thyroid, pancreas, adrenal gland, testis, ovary	9-20
Unit-3	<input type="checkbox"/> Study of permanent histological slides of duodenum, intestine, liver, lung, kidney, bone, cartilage	21-30
Unit-4	<input type="checkbox"/> Study of human blood group by agglutination reactions	31-32
Unit-5	<input type="checkbox"/> Isolation of DNA from fish blood (demonstration)	33-35
Unit-6	<input type="checkbox"/> Quantitative estimation of DNA using spectrophotometer	36-39
Unit-7	<input type="checkbox"/> Quantitative estimation of RNA using orcinol reaction	40-42
Unit-8	<input type="checkbox"/> Demonstration and preparation of permanent slide to demonstrate DNA, RNA and Proteins	43-48
Unit-9	<input type="checkbox"/> Study of homology from suitable specimens/pictures	49-52
Unit-10	<input type="checkbox"/> Phylogeny of horse with diagrams/cut outs of limbs and teeth of horse ancestors	53-56
Unit-11	<input type="checkbox"/> Visit to any national museum	57-58
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	<input type="checkbox"/> Glossary	60-68

Netaji Subhas Open University
Under Graduate Degree Programme
Choice Based Credit System ((CBCS)
Subject : Honours in Zoology (HZO)
Course : Basic Concept of Taxonomy and Diversity of Non Chordates
Course Code : CC - ZO - 03

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**Course : Basic Concept of Taxonomy and Diversity
of Non Chordates
Code : CC - ZO - 03**

Unit - 1	□ Basic of animal classification	7-32
Unit - 2	□ Subkingdom, Protozoa	33-107
Unit - 3	□ Porifera, Cnidaria and Ctenophora	108-148
Unit - 4	□ Phylum Platyhelminthes	149-172
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Unit - 6	□ Phylum : Annelida	200-222
Unit - 7	□ Phylum : Arthropoda	223-243
Unit - 8	□ Phylum : Echinodermata	244-256
Unit - 9	□ Phylum : Mollusca	257-275

Netaji Subhas Open University
Under Graduate Degree Programme
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Course: Diversity of Chordates
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**Course: Diversity of Chordates
Course Code: CC-ZO-04**

Unit 1 □ Protochordata	7
Unit 2 □ Origin of chordata	19
Unit 3 □ Agnatha	24
Unit 4 □ Pisces	31
Unit 5 □ Amphibia	50
Unit 6 □ Reptilia	65
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Netaji Subhas Open University
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Choice Based Credit System (CBCS)
Subject : Honours in Zoology (HZO)
Course : Ecology and Biochemistry Lab
Course Code : CC-ZO-05

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**Course : Ecology and Biochemistry Lab
Course Code : CC-ZO-05**

Unit - 1	<input type="checkbox"/> Preparation of nested quadrat and estimation of effective quadrat size	7 – 10
Unit - 2	<input type="checkbox"/> Biodiversity of ecological communities : calculation of Sorenson's similarity and Shannon-Weiner diversity indices for a community	11 – 17
Unit - 3	<input type="checkbox"/> Study of an aquatic ecosystem : major phytoplankton (up to family) and zooplankton (up to genus), temperature, turbidity/penetration of light, determination of pH, and dissolved oxygen content (Winkler's method) and free CO ₂	18 – 27
Unit - 4	<input type="checkbox"/> Estimation of primary productivity by light and dark bottle method	28 – 31
Unit - 5	<input type="checkbox"/> Report on a visit to National park/ Biodiversity park/Wildlife sanctuary/Sea shore	32 – 33
Unit - 6	<input type="checkbox"/> Qualitative tests to identify functional groups of carbohydrates in given solution	34 – 36
Unit - 7	<input type="checkbox"/> Paper chromatography of amino acids	37 – 39

Unit - 8	□ Estimation of total protein in a given solution by Lowry's method	40 – 41
Unit - 9	□ Studies on activity of salivary amylase under optimum conditions	42 – 44
Unit - 10	□ Effect of pH, temperature and inhibitors on the activity of salivary amylase	45 – 48

Netaji Subhas Open University
Under Graduate Degree Programme
Choice Based Credit System (CBCS)
Subject : Honours in Zoology (HZO)
Course : Cell Biology, Immunology & Parasitology (Practical)
Course Code: CC-ZO-06

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Course Code : CC-ZO-06

Course : Cell Biology, Immunology & Parasitology (Practical)

Unit 1	□ Study of Polytene Chromosome from Chironomid Larvae	7-15
Unit 2	□ Cell Division	16-45
Unit 3	□ Study of Life stages of some Human Parasites	46-69
Unit 4	□ Study of <i>Pediculus humanus</i>, <i>Ctenocephalides spp.</i> and <i>Cimex lectularis</i>	70-81
Unit 5	□ Study of Nematode/Cestode Parasites from the intestine of Poultry Bird	82-89
Unit 6	□ Histological study of Spleen, Thymus and Lymph node	90-97
Unit 7	□ Preparation of Stained Blood Film to study Various types of White Blood Cells	98-103
Unit 8	□ Demonstration of ELISA	104-112

Netaji Subhas Open University

**Undergraduate Degree Programme
Choice Based Credit System (CBCS)**

Subject : Honours in Zoology (HZO)

Course : Cell & Molecular Biology

Course Code : CC - ZO - 07

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Course : Cell & Molecular Biology

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**Course : Cell & Molecular Biology
Course Code : CC - ZO - 07**

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Netaji Subhas Open University
Undergraduate Degree Programme
Choice Based Credit System (CBCS)
Subject : Honours in Zoology (HZO)
Course : Biochemistry and Metabolic Processes
Course Code : CC - ZO - 08

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Course : Biochemistry and Metabolic Processes

Course Code : CC - ZO - 08

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Netaji Subhas Open University
Under Graduate Degree Programme
Choice Based Credit System (CBCS)
Subject : Honours in Zoology (HZO)
Course : Principles of Ecology
Course Code : CC-ZO-09

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Course : Principles of Ecology

Code : CC-ZO-09

Unit-1	☐ Introduction to ecology	7-12
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Unit-5	☐ Wild life conservation	72-79
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Netaji Subhas Open University

Undergraduate Degree Programme

Choice Based Credit System (CBCS)

Subject : Honours in Zoology (HZO)

Course : Developmental Biology

Course Code : CC - ZO - 10

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**Course : Developmental Biology
Course Code : CC - ZO - 10**

Unit-1	☐ Introduction to Developmental Biology	7-28
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Subject : Honours in Zoology (HZO)
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Course Code : GE-ZO-11

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Under Graduate Degree Programme

Choice Based Credit System (CBCS)

Subject : Honours in Zoology (HZO)

Course : Animal Diversity

Course Code : GE-ZO-11

Unit 1	<input type="checkbox"/> Protista : General Characters of Protozoa; Life Cycle of <i>Plasmodium</i>	7-16
Unit 2	<input type="checkbox"/> Porifera : General Characters and canal system in Porifera	17-26
Unit 3	<input type="checkbox"/> Radiata : General Characters of Cnidarians and Polymorphism	27-34
Unit 4	<input type="checkbox"/> Acoelomates : General Characters of Helminthes; Life cycle of <i>Taenia solium</i>	35-42
Unit 5	<input type="checkbox"/> Pseudocoelomates : general characters of nemethelminthes; Parasitic Adaptations	43-50
Unit 6	<input type="checkbox"/> Coelomate Protostomes : General Characters of Annelida; Metamerism	51-57
Unit 7	<input type="checkbox"/> Arthropoda : General Characters; Social Life in Insects	58-65
Unit 8	<input type="checkbox"/> Mollusca : General Characters of Mollusca, Pearl Formation	66-71
Unit 9	<input type="checkbox"/> Coelomate Deuterostomes : General Characters of Echinodermata; Water Vascular System in Starfish	72-79
Unit 10	<input type="checkbox"/> Protochordata : Salient Features	80-84
Unit 11	<input type="checkbox"/> Pisces : Osmoregulation, Migration of Fishes	85-90
Unit 12	<input type="checkbox"/> Amphibia : General Characters; Adaptations for Terrestrial Life; Parental Care in Amphibia	91-100
Unit 13	<input type="checkbox"/> Amniotes : Origin of Reptiles; Terrestrial Adaptations in Reptiles	101-107
Unit 14	<input type="checkbox"/> Aves : The- Origin of Birds; Flight Adaptations	108-115
Unit 15	<input type="checkbox"/> Mammalia : Early Evolution of Mammals; Primates; Dentition in Mammals	116-128

Netaji Subhas Open University
Under Graduate Degree Programme
Choice Based Credit System (CBCS)
Subject : Honours in Zoology (HZO)
Course : Aquatic Biology (Theory)
Course Code : GE-ZO-21

First Edition : November, 2021

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**Course : Aquatic Biology (Theory)
Course Code : GE-ZO-21**

Unit - 1 □ Aquatic Biomes	7 – 36
Unit - 2 □ Freshwater biology of lakes	37 – 67
Unit - 3 □ Marine biology	68 – 84
Unit - 4 □ Management of aquatic resources, causes of pollution	85 – 99

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**Undergraduate Degree Programme
Choice Based Credit System (CBCS)**

Subject : UG Zoology (HZO)

Course : Insect, Vector and Disease

Course Code : GE - ZO - 31

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Course : Insect, Vector and Disease

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UG : Zoology
(HZO)

Course : Insect, Vector and Disease Course Code : GE - ZO - 31

- Unit 1 □ Introduction to insects. General features of insects, morphological features, head-eyes, types of antennae, mouthparts with respect to feeding habits. 9-17
- Unit 2 □ Concepts of vectors. Brief introduction of carrier and vectors (mechanical and biological vectors), reservoirs, host-vector relationship, vectorial capacity, adaptations as vectors, host specificity. 18-28
- Unit 3 □ Insects as vectors. Classification of insects up to orders, detailed features of Orders with insects as vectors-Deoptera, Siphonaptera, Siphunculata, Hemiptera. 29-35
- Unit 4 □ Dipteran as disease vectors. Dipteran as important insect vectors – mosquitoes, sand fly, houseflies; study of mosquito borne diseases – malaria, dengue, chikungunya, viral encephalitis, filariasis; control of mosquitoes; study of sand fly borne diseases – visceral leishmaniasis, cutaneous leishmaniasis, phlebotomus fever; control of sand fly, study of house fly as important mechanical vector, myiasis, control of house fly. 36-61
- Unit 5 □ Siphonaptera as disease vectors. Fleas as important insect vectors; host-specificity, study of flea-borne diseases, plague, typhus fever; control of fleas. 62-69
- Unit 6 □ Siphunculata as disease vectors. Human louse (head, body and pubic louse) as important vectors; study of louse-borne diseases-typhus fever, relapsing fever, trench fever, vagabond's disease, pthiriasis; control of human louse. 70-81
- Unit 7 □ Hemiptera as disease vectors. Bugs as insect vectors; blood-sucking bugs; Chages disease, bed bugs as mechanical vectors, control and prevention measures. 82-89
- Unit 8 □ Glossary 90

Netaji Subhas Open University
Under Graduate Degree Programme
Choice Based Credit System (CBCS)
Subject : UG Zoology (HZO)
Course : Food, Nutrition and Health
Course Code : GE-ZO-41

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Under Graduate Degree Programme
Choice Based Credit System (CBCS)
Subject : UG Zoology (HZO)
Course : Food, Nutrition and Health
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**UG : Zoology
Generic Elective
GE-ZO-41**

Course : Food, Nutrition & Health

Unit 1	□ Basic Concept of Food and Nutrition	7 - 26
Unit 2	□ Nutritional Biochemistry	27 - 59
Unit 3	□ Health	60 - 119
Unit 4	□ Food Hygiene	120 - 167
