

M.SC. WILDLIFE SCIENCE (ORNITHOLOGY)

(In collaboration with Central University of Tamil Nadu, Thiruvarur, Tamil Nadu)

Course Curriculum & Syllabus

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Salim Ali Centre for Ornithology and Natural History

(Ministry of Environment, Forest & Climate Change, Govt. of India)

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1. List of Core & Supplementary Papers

SEMESTER-I

Core papers:

WLSC-101. ORNITHOLOGY-I
WLSC-102. INDIAN WILDLIFE & FORESTRY
WLSC-103. FUNDAMENTALS OF ECOLOGY-I
WLSC-104. BIOSTATISTICS & RESEARCH METHODOLOGY

Supplementary:

WLSC-105. TOUR ASSIGNMENTS & JOURNAL-I

SEMESTER-II

Core papers:

WLSC-201. ORNITHOLOGY-II
WLSC-202. FUNDAMENTALS OF ECOLOGY-II
WLSC-203. ANIMAL BEHAVIOUR & EVOLUTIONARY ECOLOGY
WLSC-204. LANDSCAPE ECOLOGY
WLSC-205. AQUATIC & MARINE ECOLOGY
WLSC-206. CONSERVATION BIOLOGY-I

Supplementary:

WLSC-207. TOUR ASSIGNMENTS & JOURNAL-II

SEMESTER-III

Core papers:

WLSC-301. CONSERVATION BIOLOGY-II
WLSC-302. ORNITHOLOGY-III
WLSC-303. WILDLIFE HEALTH & ZOO SCIENCE
WLSC-304. WILDLIFE MANAGEMENT & POLICY

Supplementary:

WLSC-305. TOUR ASSIGNMENTS & JOURNAL-III

SEMESTER-IV

Core papers:

WLSC-401. Dissertation & Viva-voce

2. Credit Structure of Coursework: Papers & Modules

[NOTE: According to the UGC (Minimum Standards and Procedures for Award of Ph.D. Degree) Regulations, 2022 (Sec. 2d), “**Credit** refers to the number of hours of instruction required per week over the duration of a semester. For example, a three-credit course in a semester means three one-hour lectures per week].

Core/Supplementary Paper	Module	Module Credits	Total Credits for Each Paper
SEMESTER-I			
WLSC-101. ORNITHOLOGY-I	1. Avian Evolution, Systematics, & Diversity	2	5
	2. Form & Function in Birds	2	
	3. Breeding Strategies in Birds	1	
WLSC-102. INDIAN WILDLIFE & FORESTRY	1. Vegetation Science & Forestry	2	5
	2. Mammalogy	2	
	3. Herpetology	0.5	
	4. Ichthyology & Invertebrate Biology	0.5	
WLSC-103. FUNDAMENTALS OF ECOLOGY-I	1. Principles of Biogeography	1	5
	2. Habitat Ecology	2	
	3. Population Ecology	2	
WLSC-104. BIostatISTICS & RESEARCH METHODOLOGY	1. Biostatistics	3	4
	2. Principles of Scientific Inquiry & Research Methods	1	
WLSC-105. TOUR ASSIGNMENTS & JOURNAL-I	1. Orientation Tour & Wildlife Techniques Tour	1	1
SEMESTER-II			
WLSC-201. ORNITHOLOGY-II	1. Bird Migration	2	3
	2. Bird Census & Population Monitoring	1	
WLSC-202. FUNDAMENTALS OF ECOLOGY-II	1. Community Ecology	2	3
	2. Macroecology	1	
WLSC-203. ANIMAL BEHAVIOUR & EVOLUTIONARY ECOLOGY	1. Behavioural Ecology	2	3
	2. Evolutionary Ecology	1	
WLSC-204. LANDSCAPE ECOLOGY	1. Principles of Landscape Ecology	2	3
	2. GIS & Remote Sensing	1	
WLSC-205. AQUATIC & MARINE ECOLOGY	1. Wetland Ecology & Management	3	4
	2. Coastal & Marine Ecology	1	
WLSC-206. CONSERVATION BIOLOGY-I	1. Principles of Conservation Biology	2	3
	2. Conservation Genetics	1	
WLSC-207. TOUR ASSIGNMENTS & JOURNAL-II	1. Wetlands Tour	1	1

Core/Supplementary Paper	Module	Module Credits	Total Credits for Each Paper
SEMESTER-III			
WLSC-301. CONSERVATION BIOLOGY-II	1. Climate Change Ecology	2	5
	2. Human Ecology	2	
	3. Ecotoxicology	1	
WLSC-302. ORNITHOLOGY-III	1. Economic & Agricultural Ornithology	2	5
	2. Bird Conservation & Population Management	3	
WLSC-303. WILDLIFE HEALTH & ZOO SCIENCE	1. Wildlife Health & Animal Management	2	4
	2. Zoo Science & Conservation Breeding	2	
WLSC-304. WILDLIFE MANAGEMENT & POLICY	1. Principles of Wildlife Management	2	5
	2. Human-Wildlife Conflicts & Management	2	
	3. Environmental Impact Assessment	1	
WLSC-305. TOUR ASSIGNMENTS & JOURNAL-III	1. Conservation Practice Tour	1	1
SEMESTER-IV			
WLSC-401. Dissertation & Viva-voce			20
TOTAL NUMBER OF COURSE CREDITS			80

3. Module Coordinators

Paper	Module	Module Coordinator
SEMESTER-I		
WLSC-101. ORNITHOLOGY-I	Avian Evolution, Systematics, & Diversity	Dr. Rajah Jayapal
	Form & Function in Birds	Dr. Ashutosh Singh
	Breeding Strategies in Birds	Dr. M. Mahendiran
WLSC-102. INDIAN WILDLIFE & FORESTRY	Vegetation Science & Forestry	Dr. P.V. Karunakaran
	Mammalogy	Dr. Aditi Mukherjee
	Herpetology	Dr. S. Babu
	Ichthyology & Invertebrate Biology	Dr. P.R. Arun & Dr. Vidyadhar Atkore
WLSC-103. FUNDAMENTALS OF ECOLOGY-I	Principles of Biogeography	Dr. Riddhika Ramesh
	Habitat Ecology	Dr. P.V. Karunakaran
	Population Ecology	Dr. T. Ramesh
WLSC-104. BIostatISTICS & RESEARCH METHODOLOGY	Biostatistics	Dr. Rajah Jayapal
	Principles of Scientific Inquiry & Research Methods	Dr. Shomita Mukherjee & Dr. Rajah Jayapal
WLSC-105. TOUR ASSIGNMENTS & JOURNAL-I	Orientation Tour & Wildlife Techniques Tour	
SEMESTER-II		
WLSC-201. ORNITHOLOGY-II	Bird Migration	Dr. Ashutosh Singh
	Bird Census & Population Monitoring	Dr. S. Babu
WLSC-202. FUNDAMENTALS OF ECOLOGY-II	Community Ecology	Dr. P. Pramod
	Macroecology	Dr. Rajah Jayapal
WLSC-203. ANIMAL BEHAVIOUR & EVOLUTIONARY ECOLOGY	Behavioural Ecology	Dr. H.N. Kumara
	Evolutionary Ecology	Dr. Shomita Mukherjee
WLSC-204. LANDSCAPE ECOLOGY	Principles of Landscape Ecology	Dr. P.V. Karunakaran
	GIS & Remote Sensing	Dr. P.V. Karunakaran & Dr. Vidyadhar Atkore
WLSC-205. AQUATIC & MARINE ECOLOGY	Wetland Ecology & Management	Dr. Goldin Quadros & Dr. Vidyadhar Atkore
	Coastal & Marine Ecology	Dr. Goldin Quadros
WLSC-206. CONSERVATION BIOLOGY-I	Principles of Conservation Biology	Dr. Aditi Mukherjee
	Conservation Genetics	Dr. Shomita Mukherjee
WLSC-207. TOUR ASSIGNMENTS & JOURNAL-II	Wetlands Tour	

Paper	Module	Module Coordinator
SEMESTER-III		
WLSC-301. CONSERVATION BIOLOGY-II	Climate Change Ecology	Dr. Riddhika Ramesh
	Human Ecology	Dr. Vidyadhar Atkore
	Ecotoxicology	Dr. Rajah Jayapal (i/c)
WLSC-302. ORNITHOLOGY-III	Economic & Agricultural Ornithology	Dr. P. Pramod
	Bird Conservation & Population Management	Dr. Manchi Shirish S.
WLSC-303. WILDLIFE HEALTH & ZOO SCIENCE	Wildlife Health & Animal Management	Dr. H.N. Kumara
	Zoo Science & Conservation Breeding	Dr. Manchi Shirish S.
WLSC-304. WILDLIFE MANAGEMENT & POLICY	Principles of Wildlife Management	Dr. M. Mahendiran
	Human-Wildlife Conflicts & Management	Dr. T. Ramesh
	Environmental Impact Assessment	Dr. P.R. Arun
WLSC-305. TOUR ASSIGNMENTS & JOURNAL-III	Conservation Practice Tour	
SEMESTER-IV		
WLSC-401. Dissertation & Viva-voce		

4. Semester-wise Distribution of Marks

Core/Supplementary Paper	PRACTICAL PAPER (Internal Marks*)	THEORY PAPER (Examination Marks)	TOTAL Marks
SEMESTER-I			
WLSC-101. ORNITHOLOGY-I	30	70	100
WLSC-102. INDIAN WILDLIFE & FORESTRY	30	70	100
WLSC-103. FUNDAMENTALS OF ECOLOGY-I	30	70	100
WLSC-104. BIostatISTICS & RESEARCH METHODOLOGY	30	70	100
WLSC-105. TOUR ASSIGNMENTS & JOURNAL-I	50	--	50
SEMESTER-II			
WLSC-201. ORNITHOLOGY-II	30	70	100
WLSC-202. FUNDAMENTALS OF ECOLOGY-II	30	70	100
WLSC-203. ANIMAL BEHAVIOUR & EVOLUTIONARY ECOLOGY	30	70	100
WLSC-204. LANDSCAPE ECOLOGY	30	70	100
WLSC-205. AQUATIC & MARINE ECOLOGY	30	70	100
WLSC-206. CONSERVATION BIOLOGY-I	30	70	100
WLSC-207. TOUR ASSIGNMENTS & JOURNAL-II	50	--	50
SEMESTER-III			
WLSC-301. CONSERVATION BIOLOGY-II	30	70	100
WLSC-302. ORNITHOLOGY-III	30	70	100
WLSC-303. WILDLIFE HEALTH & ZOO SCIENCE	30	70	100
WLSC-304. WILDLIFE MANAGEMENT & POLICY	30	70	100
WLSC-305. TOUR ASSIGNMENTS & JOURNAL-III	50	--	50
SEMSTER-IV			
WLSC-401. Dissertation & Viva-voce	--	450 Dissertation: 400 Viva Voce: 50	450
Total Marks			2000

* Internal marks will be computed from all the constituent modules of the Core Paper. Each module can have the following assessment components: MCQ-based Written Quiz, Practicals, and Term Papers/Assignments/ Seminars. Module Coordinators will design and conduct these assessments.

5. Detailed Syllabus

M.Sc. Wildlife Science (Ornithology)

[In collaboration with Central University of Tamil Nadu, Thiruvavur, Tamil Nadu]

SEMESTER-I

WLSC-101. ORNITHOLOGY-I

Module 1. Avian Evolution, Systematics, & Diversity

Origin of birds – Comparative study of birds & reptiles - Fossil history - Archeopteryx – Theories of avian origin: Theropods versus Archosaurs – Evolution of flight in birds – Geological events in the history of avian evolution and radiation – KT boundary and continental shift - Diversification of modern birds – Adaptive radiation & speciation in birds - Avian systematics – Major schools of avian classification – Species concepts - Species problems in avian classification - Brief history of classification of birds – Modern classifications – Molecular systematics.

Diversity and distribution of birds of India – Modes of speciation in Indian birds – Zoogeographical affinities of Indian avifauna – Hora's Satpura Hypothesis – Dilger's Brij hypothesis – Endemism in Indian avifauna – Endemic Bird Areas of India - Ornithogeography of Andaman & Nicobar Islands and Sri Lanka.

Practicals: Field identification of birds; group discussions on key papers in origin and evolution of birds; study of distribution maps of Indian avifauna and biogeographical 'anomalies'; exercise in reading and interpreting molecular phylogenies of birds and reconstruction of phylogenetic relationships.

Module 2. Form & Function in Birds

Body plan in birds – Topography – Feathers: structure, types, colour, function, & maintenance – Feather-tracts & pterylosis – Moults & plumages – Annual moult cycles & moulting strategies – Molt scores – Avian flight: forms, mechanisms, & energetics.

Avian anatomy: an overview – Skeletal system – Muscular system – Respiratory system – Circulatory system – Digestive system – Urogenital system – Structure & adaptations of avian sperms and eggs - Senses & nervous system in birds – Sense organs – Avian eye and vision – Ears & auditory sense – Echolocation in birds – Taste and olfactory sense – Tactile sense in birds – Thermoregulation in birds - Cognition & intelligence in birds - Unique functional adaptations in birds: temperature regulation of mound-nests in megapodes, salt-excretion in seabirds, milk secretion in pigeons, torpor in nightjars, and saliva-nests of swifts.

Vocalization in birds – Structural mechanism & syringeal muscle – Songs & calls – Measures - Song development – Context and communication – Geographical variations & dialects - Song repertoire size & function – Dawn chorus - Duetting - Mimicry – Flight song – Non-vocal/mechanical sounds.

Practicals: Laboratory examination of birds and their body parts; microscopic examination of feathers and their micro-structures to aid identification of taxa; exercise in computing moult scores in wild birds; recording of bird-calls and analysis of their properties.

Module 3. Breeding Strategies in Birds

Annual breeding cycle & photoperiodism in birds – Territoriality – Pair bonds & courtship display – Mate choice & copulatory behaviour - Bird nests: evolution, structure, & functions – Avian eggs: size, structure, shape, colour, & texture – Determinate & indeterminate layers - Clutch size – Factors influencing clutch size & optimality – Incubation period & brood patch – Incubation behaviour - Role of sexes in incubation – Unique nesting behaviours: megapodes, edible-nest swiftlets, hornbills, & weavers - Hatching asynchrony - Nidicolous & nidifugous hatchlings – Parental care & role of sexes – Post-fledging dispersal.

Mating systems in birds: monogamy, polygyny, & polyandry – Lekking behaviour & arena birds – Egg dumping & brood parasitism – Adaptations of brood-parasitic birds – Communal/cooperative breeding in birds – Kin selection & altruism – Colonial breeding systems in birds - Heronries.

Practicals: Field observations of bird nests and nesting behaviour; mapping of bird territories; group-discussion on various hypotheses on breeding strategies in birds; field visits to heronries.

WLSC-102. INDIAN WILDLIFE & FORESTRY

Module 1. Vegetation Science & Forestry

Evolution of plants – Principles of plant taxonomy – Major angiosperm families of Indian forests and their key flora – Identification of forest plants – Diversity and distribution of forest flora of India – Forest types of India – Major systems of vegetation classification in India – Vegetation surveys and sampling techniques – Plant conservation strategies (*in-situ* and *ex-situ*).

Brief history of forestry in India – Principles of forest conservation and management – Silviculture and agro-forestry – Forest genetics & tree breeding – Forest ecology and environment – Forest products & natural resource management – Forest governance in India.

Practicals: Field identification of forest flora & herbarium preparation; field exercises for vegetation surveys and sampling; exposure to forest nursery techniques; study of collection of minor forest products; exposure to forestry operations.

Module 2. Mammalogy

Origin, evolution, and radiation of mammals – Classification and taxonomy – Biology of major mammal taxa of India: Insectivora & treeshrews, bats, primates, Carnivora, Cetaceans & Dugong, elephants, odd-toed and even-toed ungulates, pangolins, rodents, and Lagomorphs - Morphological and physiological adaptations – Thermoregulation and metabolism – Body size-mediated responses to environmental factors – Life-history strategies – Home range and movements – Foraging ecology and nutrition –

Competition for resources – Population regulation – Mammalian behavior – Social organization in mammals – Reproduction in mammals – Threatened mammals of India and their conservation.

Practicals: Field identification of mammal signs and habitat use; study of mammal skins and their derivatives including horns and antlers, dentition in mammals, skull identification and anatomy; field assessment of animal age and health.

Module 3. Herpetology

Evolution of amphibians and reptiles – Systematics and biogeography of herpetofauna – Diversity, distribution, and endemism in Indian herpetofauna: amphibians (frogs, salamanders, and caecilians) and reptiles (freshwater and sea turtles, crocodilians, lizards, and snakes) – Morphological and physiological adaptations – Thermoregulation and behavioural strategies of herpetofauna in cold environments – Temperature-dependent sex determination – Population regulation – Declining populations of amphibians and other major conservation issues – Population surveys and census techniques for reptiles and amphibians.

Practicals: Field identification of different groups of herpetofauna; capture and marking techniques; field techniques for herpetofaunal surveys and population estimation.

Module 4. Ichthyology & Invertebrate Biology

Evolution and radiation of fishes – Fish classification and major groups of freshwater and marine fishes of India – Zoogeography of Indian freshwater fishes – Biology of fishes and their adaptations – Movement ecology of fishes – Fish communities, competition, and resource use – Economic importance of fishes – Species invasions - Overharvesting and other threats to fish populations.

Introduction to insect and invertebrate diversity of India – Classification and key biological features of major invertebrate taxa – Ecology of invertebrates – Host-parasite and prey-predator interactions – Population regulation – Insects, spiders, and other invertebrates as key indicator taxa in forest ecosystems – Role of insects in ecosystem functioning and services - Major insect pests of forest trees – Methods to study and survey terrestrial invertebrates - Coral reefs as keystone taxa in marine ecosystem.

Practicals: Field identification of fishes, fish sampling and marking techniques; morphometric measurement of fishes, and field methods to study fish ecology; field identification of major groups of invertebrate taxa; sampling techniques of insects and invertebrates.

WLSC-103. FUNDAMENTALS OF ECOLOGY-I

Module 1. Principles of Biogeography

Historical biogeography – Geographical and ecological variations & natural selection – Biogeographical processes: dispersal and vicariance – Continental drift – Routes and agents of dispersal - Speciation: allopatry, peripatry, parapatry, stasipatry, and sympatry – Species diversification – Adaptive and non-

adaptive radiations – Convergent and parallel evolution – Species extinctions: evolutionary factors – Species distributions – Zoogeographical and floral regions of the world – Biogeographical importance of Wallacea – Biogeographic classification of India – Areography: range size and shape – Species distributions: endemism, cosmopolitan & parochial distributions, continuous vs disjunct distributions, relict species and refugia – Island biogeography theory.

Practicals: Lab exercise to map distribution patterns of key flora and fauna to assess biogeographic classification of India.

Module 2. Habitat Ecology

Habitat concepts – Biotic and abiotic components of habitats – Scale issue – Macro- and micro-habitats – Habitat structure – Vertical and horizontal heterogeneity – Floristics & physiognomy - Habitat edges, ecotones, and interiors – Habitat patches & corridors – Habitat quality – Factors affecting habitat quality – Habitat suitability indices and measurements – Habitat use, selection and preference – Environmental perturbations and wildlife habitats: fire, flood, drought, herbivory, and diseases – Habitat degradation and fragmentation – Monitoring of habitats – Habitat surveys and mapping – Ecology of major wildlife habitats: forests, grasslands, deserts, wetlands, and coastal landforms – Biology of unique habitats: caves, tree-holes, subterranean burrows, termite mounds, etc.

Practicals: Field exercises to measure and evaluate habitat quality in both terrestrial and aquatic ecosystems; computation of habitat suitability indices for select herbivores and terrestrial fauna; field visits to assess habitat fragmentation and degradation.

Module 3. Population Ecology

Unitary & modular organisms – Population abundance, density, & distribution – r & K selection – Allometry – Carrying capacity - Sex ratios & age structure of populations – Spatio-temporal processes of dispersal, emigration, and immigration – Demography and life-history parameters – Birth rate, mortality, survival, life-tables and survivorship curve – Fecundity and population growth rate – Population extinctions – Population Viability Analysis – Metapopulations - Population regulation: density-dependent & density-independent factors – Competition & coexistence – Fundamental and realized niche – Lotka-Volterra models – Prey-predator relationships – Density compensation – Optimal foraging theory – Parasitism and mutualism - Population limitation– Population irruption.

Population estimation – Distance-based sampling techniques – Mark-recapture framework for open and closed populations – Occupancy estimation and modeling for rare and elusive populations – Population indices.

Practicals: Computation of demographic parameters, population growth rate, and extinction probability using software (like RAMAS and Vortex); Population Viability Analysis; population estimation exercises in the field and lab using programs like DISTANCE, MARK, and PRESENCE.

WLSC-104. BIOSTATISTICS & RESEARCH METHODOLOGY

Module 1. Biostatistics

Descriptive, exploratory, and inferential statistics – Populations, samples, and sampling units – Random sampling – Scales of measurements – Measurement errors: bias, accuracy, and precision – Measures of central tendency: mean, mode, and median – Measures of data variability: variance, standard deviation, standard error, coefficient of variation, & confidence intervals – Graphical representation of data – Data transformations – Probability theory – Major probability distributions: normal, binomial, negative binomial, Poisson distributions – Type I & II errors – Hypothesis testing – t, F, and Chi-square distributions – One tailed & two-tailed tests – Sample size and effect size – Statistical power – Parametric and non-parametric statistics – One-sample tests – Two independent samples – K independent samples (ANOVA) – Two related samples – K related samples – Non-parametric tests (incl. Chi-square and contingency tables) – Correlation and regression analyses.

Practicals: Statistical analysis of ecological data using IDE platforms in R programming language and SPSS.

Module 2. Principles of Scientific Inquiry & Research Methods

Science versus Non-science - Historical overview of scientific inquiry – Aristotelian school – Deduction & Induction – Founders of modern philosophy of science: Francis Bacon, René Descartes, Immanuel Kant – Logical positivism - Popperian theory of falsification & hypothetico-deductive approach – Thomas Kuhn & paradigm shifts in science - Some fundamental constructs of modern science: teleology, tautology, & principle of parsimony (Occam's razor) – Empiricism in ecology – Holism versus reductionism debate – Significance of random processes in biology - Limits to generalizations in ecology.

Theory of sampling methods – Accuracy & precision – Sources of bias & error – Non-sampling errors – Resampling techniques: jack-knifing & bootstrapping – Study design – Probability sampling - Simple, systematic and stratified random sampling - Cluster sampling - Grid sampling – Non-probability sampling - Sample size, sampling effort, and replication – Rarefaction - Issue of pseudo-replication in study designs.

Practicals: Discussion of classic papers on criticism of ecological studies and methods; class-room exercises on developing proper sampling methods and study design given a set of hypotheses to test for.

WLSC-105. TOUR ASSIGNMENTS & JOURNAL -I

Orientation Tour & Wildlife Techniques Tour

SEMESTER-II

WLSC-201. ORNITHOLOGY-II

Module 1. Bird Migration

Evolution of migratory behaviour in birds – Types of migration: local, latitudinal, longitudinal, & altitudinal - Proximate and ultimate factors – Flight distance, speed, & altitude - Migratory syndrome in birds - Physiological aspects of migration – Migratory restlessness - Circadian and circannual rhythms in birds – Metabolic adaptations – Behavioural adaptations – Formation flight & energy conservation – Impacts of weather phenomena on migration – Vagrancy – Orientation & navigation in migratory birds - Mapping & landmarks – Major migratory flyways.

Migratory ecology of birds - Habitat selection in stopover and winter quarters – Comparison of breeding and wintering sites – Moulting patterns in migratory birds - Migration phenology – Site fidelity & territoriality in winter quarters – Food supply and competition - Oversummering – Irruptive migration - Threats to migratory bird populations - Impacts of global climate change on migration phenology.

Practicals: Field visits to major sites for migrant birds – both wetlands and forests; field exercise in censusing and monitoring of migrant birds; analysis of eBird data on migration phenology of common migratory birds of India.

Module 2. Bird Census & Population Monitoring

Bird census and surveys – Measures of population estimate – Importance of bird population monitoring - Bird census techniques - Their applications, assumptions, & limitations – Territory mapping – Distance sampling – Line transects – Belt transects – Point count – Call counts – Passive acoustic monitoring - Mark-recapture framework – Mist-netting - Types of marking birds: rings/bands, flags, tags, dyes, and natural markers – Radio-tracking of birds & satellite telemetry – Survey techniques for rare, elusive, and sparse populations - Occupancy models for assessing population status and distribution.

Field methods for estimating numbers of specific bird taxa – Seabirds – Waders/Shorebirds – Raptors – Owls – Grassland birds – Forest birds – Urban birds – Counting breeding colonies & aggregations of migratory/roosting birds – Population estimation from indirect signs - Bird atlas: considerations & methodologies – Citizen Science initiatives in bird population monitoring – Asian Midwinter Waterbirds Census – eBird.

Practicals: Field exercises in bird census techniques in forests, wetlands, and grasslands; conducting roost-counts and call-counts; demonstration of mist-netting, capture & handling of birds, bird ringing, etc; engagement with eBird programme and population trend analysis using eBird data.

WLSC-202. FUNDAMENTALS OF ECOLOGY-II

Module 1. Community Ecology

Communities and assemblages – Dominant views of communities – Community attributes – Species composition, richness, diversity, evenness, and dominance – Spatial scale and patchiness – Food web of communities – Community structure and organization in space and time – Factors influencing species diversity and community structure – Competition, ecological guilds, niche, and resource partitioning – Theory of limiting similarity – Ecological sorting – Ecomorphology of communities: character ratios, displacement, release, and convergence – Ecological succession – Resource and disturbance gradients – Diversity, productivity, and stability in ecological communities – Species abundance-distribution models – Community saturation - Assembly rules – Null models – Community nestedness – Community similarity - Habitat selection in ecological communities.

Practicals: Simulation exercises to compute various community attributes in response to disturbance and other environmental gradients; field assignments on collection of data on plant/animal communities; numerical analysis of ecological communities.

Module 2. Macroecology

Ecological biogeography (Macroecology) – Large-scale patterns in species richness and diversity – Species-area relationships – Environmental determinants of species diversity – Species-energy theory – Water-energy dynamics hypothesis for species richness - Local and regional species richness – Latitudinal trends in species richness – Rapaport's rule – Elevational patterns in species diversity & mid-domain effect – Determinants of species range size – Relationships between body size, range size, and abundance – Ecogeographic rules: Bergmann's, Allen's, Gloger's, Jordan's, and Thorson's rules.

Practicals: Lab assignments to test ecogeographic rules from secondary data.

WLSC-203. ANIMAL BEHAVIOUR & EVOLUTIONARY ECOLOGY

Module 1. Behavioural Ecology

Genes, natural selection and behavior – Ultimate and proximate causes – Nature versus nurture debate – Behavioural mechanisms: neurons & hormones – Feeding behavior & optimality models – Antipredation strategies – Prey & predators: co-evolutionary arms race – Brood parasitism in birds – Evolution of communication and signaling in animals - Sexual selection & mating systems – Cooperative breeding – Alternative breeding strategies - Evolution of parental care – Ecology of group-living and coloniality – Information centre hypothesis – Costs and benefits of sociality – Selfishness, altruism & cooperation – Individual and inclusive fitness.

Hypothesis testing in behavioural studies - Behavioural sampling – Behavioural states and events – Ethograms & time-activity budgets.

Practicals: Field exercises in animal behaviour studies and observations; focal animal sampling and instantaneous scan sampling; field preparation of ethograms and time-activity budgets; animal marking/radio-telemetry exercises to collect data on animal movements and behaviour.

Module 2. Evolutionary Ecology

Introduction to premises of evolutionary ecology – Major transitional events in evolution of organisms – Multiple, independent origin of flight in animals – Breeding strategies: semelparity to iteroparity & age at maturity – Scaling laws in evolutionary ecology – Allometry, longevity, and metabolic rate – Origin and evolution of sex – Sex ratios – Sex allocation and determination – Kin selection and group selection – Allee effect – Adaptations – Red-queen hypothesis – Critique of adaptationist approaches – Ecological generalists & specialists: evolutionary perspectives – Species interactions: mutualism, parasitism, commensalism, amensalism, neutralism, & symbiosis – Chemical ecology – Evolution of toxins & venoms in plants and animals.

Practicals: Group discussion of foundation papers in evolutionary ecology; group-assignments on developing testable hypotheses from predictions of evolutionary phenomena.

WLSC-204. LANDSCAPE ECOLOGY

Module 1. Principles of Landscape Ecology

Landscape concepts – Spatial scope and scale – Hierarchical framework – Landscape elements & patterns – Landscape metrics: quantification and applications – Neutral models of landscape patterns – Fractals – Influences of land use patterns on landscape integrity – Human disturbances and landscape structure – Land Use Land Cover patterns – Landscape equilibrium – Spatial heterogeneity, wildlife populations, and landscape connectivity – Fragmentation – Landscape species – Landscape genetics – Analysis of landscape data: spatial statistics & autocorrelation – Landscape management: issues, prospects, and case-studies.

Practicals: Computation of landscape metrics and parameters using FRAGSTATS; lab exercise on analysis of landscape data using spatial statistics software (SAM, ArcGIS, etc); analysis of meta-populations using RAMAS GIS.

Module 2. Geographical Information Systems & Remote Sensing

Nature of geospatial data – Fundamentals of GIS, cartography, & mapping – GPS technology – Coordinate systems and map projections – Vector and raster data – Polygons, topology, & DEMs – Geometric transformations – Errors in spatial data: sources, quantification, and rectification – Metadata and attributes of spatial information – Analysis, interpretation, & visualization of spatial data – Terrain mapping and analysis – Spatial interpolation – Land use land cover change detection & mapping – GIS models and modeling: binary, index, and process models – Applications of GIS in environmental studies – Spatial decision support systems for forest, biodiversity, and PA management – GIS & land management databases – Free and Open Source Software in GIS – Mobile GIS applications.

Remote sensing: principles & methods – Aerial photography – Aerial sensor imagery – Satellite sensor imagery – High resolution imagery - Image processing & interpretations - Georectification & radiometric correction - Applications of remote sensing in deriving environmental and land cover data - Free and Open Source Software in RS.

Practicals: Developing spatial databases and digitization of topographical maps; lab exercise in mapping and spatial data analysis in GIS software (like ArcGIS, QGIS, & GRASS); lab exercise in extraction of layers from satellite imageries using image analyzer software (like ERDAS Imagine); classification of land cover and land use types from RS imageries; use of mobile GIS applications to collect real time spatial data.

WLSC-205. AQUATIC & MARINE ECOLOGY

Module 1. Wetland Ecology & Management

Wetlands: definition, concepts, & functions – Wetland hydrology – Seasonality – Wetland nutrient cycles & buffers – Carbon sequestration in wetlands – Biological adaptations to wetland ecosystems – Coastal wetlands – Mangroves & coral reefs – Intertidal communities – Inland wetlands – Freshwater lentic and riverine systems – Wetland flora and fauna –Wetland communities, zonation, and succession – Classification, inventory, and delineation of wetlands – Primary productivity of wetlands– Biodiversity and ecosystem values of wetlands – Valuation of wetland ecosystem functions and services – Human impacts and management of wetlands – Factors influencing wetland properties: hydrology, fertility, disturbance, competition, herbivory, and sedimentation – Wetland restoration – Wetland conservation and management – Ramsar Convention – International agencies in wetland conservation – Indian laws and policies on wetland management.

Practicals: Field exercise in wetland mapping, water and sediment sampling, sampling of benthic fauna and planktons; lab analysis of water and sediment properties; estimation of primary productivity; quantification of benthic fauna and planktons; wetland surveys to measure floral and faunal diversity.

Module 2. Coastal & Marine Ecology

Geomorphology of coastal environment – Continental shelf & neritic zone - Planktons – Ecology & adaptations of zoo- and phytoplanktons – Seagrasses & seagrass communities – Benthos: types, diversity, & spatial distribution – Bioturbation - Intertidal zone: rocky, sandy, and muddy – Rocky coasts & their biota – Coastal sand-dunes – Mudflats – Brackish water environment & salt marshes – Mangroves – Estuaries - Food web in estuarine biota - Coral reefs: classification and types – Reef morphology & zonation – Species and community interactions in coral reefs.

Oceans: extent, depth, & ecosystem properties – Ocean currents and their role in marine ecology – Biota of marine environment & their classification – Marine planktons – Seawater properties & habitat characteristics – Primary productivity of oceans – Natural perturbations - Deep sea ecosystem & adaptations – benthos of deep-sea waters.

Conservation of coastal and marine environments – Pollution & degradation of coasts – Coastal industrialization – Fouling – Recreation & tourism – Impacts of oil-spill – Extraction of marine resources – Overfishing – Effects of fisheries and aquaculture – Marine pollution – Climate change & sea water rise – Impacts on coastal and marine biodiversity – Coastal Zone Regulation & marine protected areas.

Practicals: Field visits to coastal and marine protected areas; visits to coastal sites where industrial and infrastructural development works are under way; laboratory analysis of physical and chemical properties of sea water; quantification of marine planktons and benthic fauna.

WLSC-206. CONSERVATION BIOLOGY-I

Module 1. Principles of Conservation Biology

Conservation biology as a crisis discipline – Foundations of conservation biology – Wildlife conservation versus preservation – Values of conserving biodiversity - Conservation ethics – Units of conservation: genes, individuals, populations, communities, & biomes – Species diversity – Surrogates in conservation biology: flagship species, umbrella species, keystone species, indicator species, and landscape species – Rarity: typology, ecological correlates, and conservation priorities – Threats to wildlife populations: criteria, assessment, and information gaps – Ex situ conservation, captive breeding, reintroductions, & translocations – Ecological restorations – Habitat degradation and loss – Factors influencing habitat loss and extinctions – Habitat fragmentation – Habitat corridors – Forest fire – Critical wildlife habitats – Species invasions & introductions – Overharvesting of natural resources & sustainable use – Protected Areas – Island biogeography theory & reserve design - Conservation outside Protected Areas.

Practicals: Group discussions on conservation ethics and utilitarian values of biodiversity; group-assignments on select conservation issues and solutions; field visits to gain exposure to various conservation issues on the ground.

Module 2. Conservation Genetics

Units of genetics: chromosomes, genes, DNA, RNA, & proteins – Alleles & loci – Phenotypes and genotypes – Hardy-Weinberg principle & allele frequency - Basic molecular processes: replication, transcription, and translation – Mendelian laws of inheritance – Genetic code – Measuring genetic diversity in populations – Bottlenecks, genetic drift, and effective population size – Inferences about past history of population size and decline – Inbreeding and outbreeding – Metapopulation genetics – Population fragmentation, gene flow, and population differentiation – Hybridization and introgression – Use of molecular markers in ecology: techniques and case-studies – Molecular approaches in behavioural ecology: mating systems & parentage analysis, sex-ratios in population, and sex-biased dispersal – Phylogeography: concepts, bifurcating trees, and network analysis.

Applications of conservation genetics: wildlife forensics - Genetics of captive populations: pedigree and kinship analysis – Captive breeding & reintroduction strategies using genetic information.

Practicals: Lab exercises in conservation genetics and molecular ecology: collection and preservation of biological samples, DNA extraction, PCR, sequencing, and tree-building in phylogenies.

WLSC-207. TOUR ASSIGNMENTS & JOURNAL -II

Wetlands Tour

SEMESTER-III

WLSC-301. CONSERVATION BIOLOGY-II

Module 1. Climate Change Ecology

Introduction to the Earth's climate – Palaeoclimate: reconstruction from CO₂ – Dendroclimatology – Natural climate change – Anthropogenic climate change – Rising CO₂ & greenhouse effect – Global carbon cycle – Climate projections - General Circulation Models – Approaches for studying impacts of climate change: observational, experimental, and statistical – Carbon footprints – Measuring climate change vulnerability of species and habitats.

Spatio-temporal impacts of climate change on biological and ecological systems: physiological and behavioural responses – Impacts on migration and breeding phenology – Range shifts and species distributions – Changes in community composition and dynamics – Extinction risk - Species invasions – Habitat disturbances - Loss of critical wildlife habitats - Ecosystem responses: tropical forests, grasslands, montane forests, treelines & alpine vegetation, and coastal & marine ecosystems - Carbon sequestration and net primary productivity –Evolutionary responses – Interactive effects and positive feedbacks - Climate change & human ecology - Agricultural production and food security – Extreme weather phenomena - Climate justice – Climate change scenario for India: potential impacts and threats – Policy responses: mitigation and adaptation – National and International conventions and policies on climate change – IPCC & UNFCCC - Limitations of climate change studies and projections – Future research needs.

Practicals: Simulation exercises in different climate change projections and impact predictions; group-discussions on specific topics on climate change impacts and mitigation solutions.

Module 2. Human Ecology

Introduction to Human Ecology as a distinct discipline – Sociological, cultural, economic, and ecological dimensions of human-nature interactions – Ecosystem people: hunter-gatherer societies, pastoralists, agrarian societies, and industrial societies – Social organization and feedback mechanisms with ecosystems – Natural resource extraction and management – Sustainable development: concepts, strategies and challenges – Case studies with common property resources, NTFPs, and fisheries – Tragedy of the Commons – Food and livelihood security in changing ecological value systems - Indigenous

communities and cultural transformations – Role of race, caste, and gender in perpetuating environmental inequalities – Ecofeminism – Grassroots movements in environmental protection and water security – Documenting Indigenous/Traditional Ecological Knowledge – Agricultural biodiversity- People's biodiversity register.

Conservation and development – Socio-ecological impacts of developmental activities - Dams, hydel plants, ports, oil palm plantations, GM crops, biofuels, solar and wind energy plants – Political ecology – Geopolitical factors of environmental issues.

Practicals: Group discussion of case studies on socio-political implications of ecological and environmental degradation; assignments on sustainable models of natural resource extraction/harvesting.

Module 3. Ecotoxicology

Common pollutants in environment: inorganic, organic, gaseous and radioactive – Source and pathway of pollutants – Factors determining movement and distribution of pollutants – Comparative toxicology of terrestrial and aquatic ecosystems – Measuring toxicity in terrestrial and aquatic organisms – Biochemical and physiological effects of environmental contaminants in organisms - Impacts of environmental contaminants on wildlife populations and communities – Changes in population dynamics in response to ecosystem pollutants – Case studies - evolution of resistance to long-term exposure to pollutants – Ecotoxicological monitoring fish and wildlife populations: principles, protocols, and guidelines.

Basic concepts of analytical chemistry and instrumentation in environmental studies – Sample preparation & protocols - Principles of chromatography – Gas, liquid, and thin layer chromatography - Spectroscopy (UV, IR, & NMR spectroscopy) – Mass spectrometry – Atomic spectroscopy – Flame photometry and fluorimetry - Thermal analysis and calorimetry.

Practicals: Hands-on training in instrumentation and other lab practices; collection and preservation of biological and environmental samples for ecotoxicological analysis; lab practicals in toxicity testing and measurement.

WLSC-302. ORNITHOLOGY-III

Module 1. Economic & Agricultural Ornithology

Birds in human lives: a historical perspective – Overview of ecosystem services, functions, and goods rendered by birds - Economic evaluation of avian ecosystem services - Economic/agricultural ornithology in India – ICAR-AICRP/AINP on Agricultural Ornithology - Control of insect pests in agriculture and forestry – Control of vermins and rodent pests – Pollination: 'bird-flowers' and 'flower-birds' – Seed dispersal & forest regeneration – Scavenging - Birds & their products as economic goods – Manures & guanos – Bird feathers & casques - Birds as indicators of environmental health – Merits and limitations of birds as ecological indicators – Birdwatching as an emerging eco-tourism venture – Cultural, recreational, and aesthetic values of birds.

Damages caused by birds to food crops and fruits – Control measures - Birds as pests of granaries and warehouses – Birds as pests in pisciculture, apiculture, sericulture, and free ranging poultry farms – Role of birds in dispersal of weeds, parasitic, and invasive plants – Birds as vectors of pathogens and parasites – Zoonoses – Bird flu/avian influenza & role of migratory birds – Bird strike hazards to aircraft & their management – Damage to manmade structures.

Practicals: Field exercise to quantify intake of harmful insects by birds in agricultural fields; field observations on avian frugivory and seed dispersal; assessment of crop damage by birds in farms and orchards; interactions with farmers and planters.

Module 2. Bird Conservation & Population Management

Avifaunal diversity of the world & India – State of the world birds – Avian extinctions – Threatened birds of India - Major threats for bird populations - Prioritization of bird species for conservation – Setting priorities in site selection for protection – Adequacy of Protected Area network in covering avifaunal diversity – Birds as surrogates for biodiversity - Conservation of threatened avifauna outside PA network – Important Bird Areas (IBA) - Population management of threatened birds – Endangered species management: scope, principles, & methods – Population demography & conservation genetics of birds - Habitat, nests, food, & diseases – Anthropogenic threats & control – Captive breeding & ex-situ conservation of critically endangered birds – Population overabundance in birds - Conservation and management of common birds – Recent declines in farmland birds and synanthropic birds – Conservation of urban birds - Illegal trade in wild birds & aviculture – Trafficking in wild bird populations & extinction risk – Indian scenario – CITES - Control measures.

Practicals: Group discussion/seminar on specific issues of bird conservation with case-studies from India and South Asian region – Basic forensic techniques of species identification from bird parts.

WLSC-303. WILDLIFE HEALTH & ZOO SCIENCE

Module 1. Wildlife Health & Animal Management

Overview of wildlife diseases and population management – Wildlife health and conservation in India: issues and perspectives – Epizootiology: patterns and factors of diseases in wildlife populations – Major diseases in Indian wildlife: viral, bacterial, mycotic/fungal, protozoan, and parasitic – Non-pathogenic ailments: nutrition deficiency, poisoning, stress, physical trauma, capture myopathy – Health assessment: examination of live and dead animals for their health state and evaluation – Zoonoses: bacterial, viral, and fungal – Standard protocols for disease investigation in the field – Wildlife-livestock interface and disease management – One Health approach.

Overview of animal capture and handling: purpose, precautions, and follow-up procedures – Physical restraint and capture methods: nets, traps, cages, and other physical barriers – Chemical restraint and immobilization techniques: principles, drugs, dosage, delivery, and post-recovery monitoring.

Problem animals: definition, identification, and review – Marking of animals for monitoring – Restraint, handling, housing, and translocation of problem animals.

Practicals: Exercise in health assessment of wild animals and disease-risk evaluation; field diagnosis of diseases in wild animals; demonstration of physical restraint and chemical immobilization of wild animals; introduction to drugs and delivery devices; field-visits to study problem animals.

Module 2. Zoo Science & Conservation Breeding

Objectives and functions of zoos – Role of zoos in wildlife conservation and education – Classification & management of zoos in India – Central Zoo Authority of India – Zoo legislation & policy - International organizations and conventions in zoo management – Issues of animal ethics, rights and welfare in captive animals.

Design of zoos, enclosures, and exhibits – Considerations on space, enhancement, hygiene, food, and nutrition – Zoo animal behaviour: stereotypic behaviour, environmental enrichment, visitor-captive animals interactions, and normalization procedures – Animal health and veterinary care – Record keeping: marking & identification, pedigree documentation, & studbooks - Captive breeding for *ex situ* conservation of threatened animals: principles, population genetics, demography, and re-introduction protocol.

Zoo education & research – Interpretation centres – Zoo signage and information materials – Visitor facilities & responsibilities – Behavioral and conservation research on zoo animals: case-studies from Indian zoos.

Practicals: Visits to zoos and captive breeding centres; field-exercise in quantifying zoo animal behaviour; documentation of visitor experience and behaviour in zoos.

WLSC-304. WILDLIFE MANAGEMENT & POLICY

Module 1. Principles of Wildlife Management

Wildlife management & conservation: historical review and objectives – Comparison of different global models of wildlife management – Protected Area (PA) network in India: types of PAs, land use policies in PAs, zonation and buffering, and ecological sensitive zones - Project Tiger and Project Elephant – Biosphere Reserves - Village forests & community forests - Design of PAs & SLOSS debate – Wildlife Management Plans – Planning and execution of wildlife conservation programmes: planning agency, roles and responsibilities, policy guidelines, role of conservation NGOs, and citizen science initiatives in wildlife population monitoring - Role of local communities in wildlife conservation - International laws, conventions, and treaties on wildlife conservation – Convention on Biological Diversity, CITES, Convention on Migratory Species (CMS), Ramsar Convention, World Heritage Convention – Major Indian wildlife and forest laws.

Managing wildlife habitats: PA governance, forest fire, flood & drought, plantation management, forestry operations, and collection of NTFPs – Methods of habitat improvement in PAs – Control of feral dogs, feral

cattle, introduced populations, and invasive plants in PAs - Ecological restoration - Animal damage: control vs management, crop and property damage, population culling and control methods – Wildlife tourism & case-studies from successful ecotourism initiatives in India.

Basic tools in wildlife management: RS & GIS maps and toposheets, radio telemetry, satellite tracking, and use of radio-isotopes – Wildlife population monitoring protocols for forest staff: terrestrial, wetlands, and marine PAs – Application of modern tools and techniques in wildlife management.

Practicals: Field visits to different PAs in terrestrial and aquatic ecosystems to interact with forest managers and to study various management issues and development of wildlife management plans for selected taxa and sites.

Module 2. Human-Wildlife Conflicts & Management

Human-wildlife conflicts: overview, history, current trends and issues – Impacts on humans: human mortality & injury, livestock depredation, crop damage, property damage, loss of livelihood opportunities, and contraction of diseases – Impacts on wildlife populations – Economics of human-wildlife conflicts: economic assessment of damages, opportunity costs, and cost-benefit analysis – Societal attitudes to human-wildlife conflicts – Stakeholders perceptions: tribals & forest dwellers, farmers & land owners, wildlife managers, conservationists, wildlife enthusiasts, animal welfare/rights activists, urban communities, and rural populations.

Managing human-wildlife conflicts through animal dimensions: lethal control, fertility control, shifting of problem animals, fear stimulation, chemical repellents, diversion tactics, exclusion, and habitat manipulation – Managing human-wildlife conflicts through human dimensions: changing human behaviour and lifestyle, increasing tolerance through education and awareness campaigns, timely monetary compensation for wildlife damage, and recompensing opportunity costs.

Practicals: Field visit to sites where human-wildlife conflicts are common and interactions with forest officials on managing conflicts; group-discussions on specific conflict issues and mitigatory measures; conducting questionnaire surveys among local stakeholders to quantify degree and seasonality of human-wildlife conflicts and their attitudes to the issue.

Module 3. Environmental Impact Assessment

Environmental Impact Assessment (EIA): origin, concepts, and policy framework – Components of EIA planning – Scoping – Environmental base maps & information – Identification of parameters – Impact analysis – Draft Environmental Impact Statements – Analysis of alternatives – Prescriptions for mitigation.

EIA methods: soil and ground water, surface water, air, noise, biodiversity, ecosystems, and socio-economics – Rapid surveys for wildlife populations and habitats – Ecological indicators - Environmental Risk Assessment – Environmental cost-benefit analysis – Types of development projects & EIA implications - Cumulative EIAs - Application of remote sensing and GIS tools in EIAs – Environmental capital & livelihood security – Sustainability appraisal in EIAs – Adaptive management solutions – Biodiversity offsetting -

Efficacy & limitations of EIAs – Environmental monitoring & auditing – Uncertainty in EIAs – Capacity shortfalls.

Practicals: Field visits to project/development sites to observe how EIAs are conducted; field-exercises in rapid assessment of wildlife populations and habitats; class-room seminars in specific issues of EIAs in developing countries.

WLSC-305. TOUR ASSIGNMENTS & JOURNAL -III

Conservation Practice Tour

SEMESTER-IV

WLSC-401. DISSERTATION & VIVA VOCE

Annexure 1. Telephone Directory of SACON

SN	Location	Telephone Numbers
1	Director	2203 101
2	PA to Director	2203 102
3	Dr. S. Muralidharan	2203 123
4	Dr. P.R. Arun	2203 126
5	Dr. Shomita Mukherjee	2203 116
6	Dr. Rajah Jayapal	2203 105
7	Dr. P.V. Karunakaran	2203 104
8	Dr. P. Pramod	2203 115
9	Dr. Goldin Quadros	2203 128
10	Dr. Manchi Shirish S	2203 112
11	Dr. H.N. Kumara	2203 133
12	Dr. S. Babu	2203 137
13	Dr. M. Mahendiran	2203 122
14	Dr. T. Ramesh	2203 130
15	Dr. Riddhika Ramesh	2203 118
16	Dr. Aditi Mukherjee	2203 120
17	Dr. Ashutosh Singh	2203 136
18	Dr. Vidyadhar Atkore	2203 134
19	Administrative Officer	2203 103
20	Administration	2203 106
21	Finance Officer	2203 108
22	Finance (SACON)	2203 107
23	Finance (Project)	2203 146
24	Librarian in charge	2203 121
25	Library	2203 138
26	Computer Technician	2203 114
27	Computer Room	2203 119
28	Site Engineer	2203 113
29	SACON Reception	2203 100
30	SACON Reception	2203 109
31	Audit room	2203 110
32	DST-INSPIRE Fellows	2203 143
33	Microscopy Laboratory	2203 144
34	Laboratory I (Ecotoxicology)	2203 124
35	Laboratory II (Ecotoxicology)	2203 125
36	Wetland Laboratory	2203 135
37	ENVIS Centre	2203 129

38	NOD Cell	2203 127
39	Research Scholars (Lab upstairs)	2203 139
40	GIS & Remote Sensing Laboratory	2203 148
41	Avian Forensic Laboratory	2203 151
42	Avian Forensic Server Room	2203 152
43	M.Sc. Class Room	2203 149
44	Canteen	2203 140
45	Hostel Block 1	2203 142
46	Hostel Block 2	2203 141
47	Security Officer	2203 147
48	Main Gate	5500 (from any extension) 9489229861 (from mobiles/other telephones)
49	Guest House	5600 (from any extension) 8903319861 (from mobiles/other telephones)
50	IN CASE OF EMERGENCY (Administrative Officer & Admin Staff) 5555, 5666, 5777 (from any extension)	
51	IN CASE OF EMERGENCY (Hostel Warden & Hostel Dy. Warden) 5888, 5999 (from any extension)	
	Note: - Prefix STD code of Coimbatore (0422) if call is made from outside or mobile. - Last three numbers will be used as extension numbers within SACON. - FAX 0422-2203132 is available at Director's Office.	