



॥ विद्याविनयेन शोभते ॥

Changu Kana Thakur Arts, Commerce and Science College, New Panvel

(Autonomous)

Re-Accredited 'A++' Grade by NAAC

'College with Potential for Excellence' Status Awarded by University Grants Commission'

Best College Award' by University of Mumbai

COURSE OUTCOMES

CLASS: F.Y.B. SC. ZOOLOGY UNDER NEP 2020

SEMESTER I

CORE COURSE 01

DIVERSITY IN NON-CHORDATES

COURSE CODE: USC1ZO1

CO1	Learners will be able to comprehend the diversity of animals.
CO2	Learners will be able to understand the importance of classification.
CO3	Learners develop insight of particular group and type study.

SKILL ENHANCEMENT COURSE 1

ORNAMENTAL FISH BREEDING

COURSE CODE: USEC1OFB

CO1	Students will be able to define ornamental fishery, explain its economic and ecological importance, and identify various types of ornamental fish.
CO2	Students will demonstrate knowledge of breeding techniques, including spawning methods and larval rearing, and apply management practices for maintaining healthy fish populations and optimizing farm productivity.
CO3	Students will gain hands-on experience in designing, building, and maintaining aquariums, including knowledge of water quality management, filtration systems, and the selection of suitable aquatic plants and decorations.

SEMESTER II

CORE COURSE 02

DIVERSITY IN CHORDATES

COURSE CODE: USC2ZO2

CO1	Learners will be able to comprehend the diversity of animals.
CO2	Learners will be able to understand the importance of classification.
CO3	Learners develop insight of particular group and type study.

SKILL ENHANCEMENT COURSE 2

SERICULTURE

COURSE CODE: USEC2SER

CO1	Students will be able to articulate the definition and history of sericulture, describe significant milestones in its development, and evaluate its current global and national status, including economic and cultural impacts.
CO2	Students will demonstrate the ability to select suitable mulberry varieties, plan and establish efficient mulberry gardens, and manage the rearing process to optimize silk production.
CO3	Students will gain practical skills by examining non-mulberry plants, understanding the anatomy of silkworms, using rearing appliances, and applying their knowledge in real-world settings through field visits to sericulture centers.



॥ विद्याविनयेन शोभते ॥

Changu Kana Thakur Arts, Commerce and Science College, New Panvel

(Autonomous)

Re-Accredited 'A++' Grade by NAAC

'College with Potential for Excellence' Status Awarded by University Grants Commission'

Best College Award' by University of Mumbai

CLASS: S.Y.B. SC. ZOOLOGY UNDER NEP 2020

SEMESTER III

CORE COURSE 03

GENETICS

COURSE CODE: USC3ZO3

CO1	Demonstrate an ability to describe the structure and functions of DNA and R Understand basic principles, including Mendelian inheritance, gene interaction, and linkage.
CO2	Explain chromosome structure, function, aberrations, and their genetic significance.
CO3	Able to describe DNA/RNA structure, gene expression, and regulation in prokaryotes and eukaryotes.

CORE COURSE 04

ANIMAL PHYSIOLOGY

COURSE CODE: USC3ZO4

CO1	Comprehend the fundamental principles of animal physiology, including homeostasis and the functions of major organ systems.
CO2	Explain the structure and functioning of the digestive, respiratory, circulatory, nervous, endocrine, and excretory systems.
CO3	Perform basic physiological experiments and interpret the results to understand body functions and regulatory mechanisms.

INDIAN KNOWLEDGE SYSTEM

INDIAN PERSPECTIVE ON HEALTH AND LIFESTYLE MANAGEMENT

COURSE CODE: UIKS1IPHLM

CO1	Understand the holistic approach to health as described in Indian traditions and gain knowledge about the Tridosha system and how it influences individual health.
CO2	Gain practical insights into the Ayurvedic lifestyle management practices such as daily and seasonal routines.
CO3	Understand how the principles of Ayurveda can be applied to modern lifestyle choices for maintaining health and preventing diseases.

DISCIPLINE SPECIFIC COURSE (MINOR)

FOOD NUTRITION AND HEALTH

COURSE CODE: USC3ZOM

CO1	Gain knowledge of nutrients, dietary sources, and balanced diet principles.
CO2	Identify nutritional deficiencies and their health impacts.
CO3	Understand Indian dietary traditions and nutrition-based lifestyle management.



॥ विद्याविनयेन शोभते ॥

**Changu Kana Thakur Arts, Commerce and Science College, New Panvel
(Autonomous)**

Re-Accredited 'A++' Grade by NAAC

'College with Potential for Excellence' Status Awarded by University Grants Commission'

Best College Award' by University of Mumbai

OPEN ELECTIVES COURSE

BIOMIMICRY: INNOVATION INSPIRING INDUSTRIES

COURSE CODE: UOE3BM

CO1	Students will be able to define biomimicry, understand its historical context, and discuss its principles and applications in sustainable innovation.
CO2	Students will gain the ability to identify biological strategies in nature and understand how these adaptations can solve industrial challenges.
CO3	Students will be able to recognize and explain biomimetic solutions in daily life.

SKILL ENHANCEMENT COURSE 3

**PRACTICAL APPROACHES TO BIODIVERSITY CONSERVATION AND SUSTAINABLE
DEVELOPMENT**

COURSE CODE: USEC3BCSD

CO1	Conduct biodiversity assessments using field and lab techniques.
CO2	Implement conservation strategies and evaluate their effectiveness
CO3	Analyze the impact of human activities on biodiversity

SEMESTER IV

CORE COURSE 05

FOUNDATION OF EVOLUTIONARY BIOLOGY AND RESEARCH ETHICS

COURSE CODE: USC4ZO5

CO1	Learner will ponder and critically view the different theories of evolution.
CO2	Learner will be able to distinguish between microevolution, macroevolution and megaevolution.
CO3	Learner will understand the ethical aspects of research.

CORE COURSE 06

DEVELOPMENTAL BIOLOGY

COURSE CODE: USC4ZO6

CO1	Demonstrate a deep understanding of key developmental biology concepts, including embryonic development, cell signaling pathways, and genetic regulation.
CO2	Proficient in employing a wide range of experimental techniques and methodologies in developmental biology research.
CO3	Exhibit advanced critical thinking skills in developmental biology, contributing to the advancement of scientific knowledge in the field.



॥ विद्याविनयेन शोभते ॥

Changu Kana Thakur Arts, Commerce and Science College, New Panvel

(Autonomous)

Re-Accredited 'A++' Grade by NAAC

'College with Potential for Excellence' Status Awarded by University Grants Commission'

Best College Award' by University of Mumbai

CORE COURSE 07

ECOTOURISM

COURSE CODE: USC4ZO7

CO1	Demonstrate understanding of ecotourism principles and its significance in biodiversity conservation.
CO2	Analyse the socio-economic and environmental impacts of ecotourism.
CO3	Apply sustainable practices to develop and manage ecotourism ventures.

DISCIPLINE SPECIFIC COURSE (MINOR)

ECONOMIC ZOOLOGY

COURSE CODE: USC4ZOM

CO1	Identify economically significant animals and their contributions to human welfare.
CO2	Explain the economic value of animal products and services.
CO3	Apply knowledge for sustainable management and conservation of economically important species.

OPEN ELECTIVES COURSE

WILDLIFE TOURISM AND ECO-ENTREPRENEURSHIP

COURSE CODE: UOE4WTEE

CO1	Demonstrate knowledge of wildlife tourism and its socio-economic and environmental impacts.
CO2	Develop innovative strategies for eco-entrepreneurship in the wildlife tourism sector.
CO3	Apply practical skills in planning, managing, and marketing sustainable tourism ventures.



॥ विद्याविनयेन शोभते ॥

**Changu Kana Thakur Arts, Commerce and Science College, New Panvel
(Autonomous)**

Re-Accredited 'A++' Grade by NAAC
'College with Potential for Excellence' Status Awarded by University Grants Commission'
Best College Award' by University of Mumbai

**CLASS: T.Y.B. Sc. ZOOLOGY
SEMESTER V**

**DISCIPLINE SPECIFIC COURSE 01
HAEMATOLOGY AND IMMUNOLOGY
CORSE CODE: USC5ZO1**

CO1	Understand the structure, function, and formation of blood components.
CO2	Comprehend key immunological principles, immune responses, and disease mechanisms.
CO3	Apply immunological concepts to disease management, including autoimmune and immunodeficiency disorders.
CO4	Gain insights into modern immunotherapies and vaccine development.

**DISCIPLINE SPECIFIC COURSE 02
TOXICOLOGY AND ENZYMOLOGY
CORSE CODE: USC5ZO2**

CO1	Know the fundamental principles of toxicology and its relevance to human and environmental health.
CO2	Identify different types of toxicants and understand their effects on biological systems.
CO3	Describe the biochemical pathways of xenobiotic metabolism and detoxification.
CO4	Evaluate toxicity assessment methods and risk management strategies for safeguarding human and environmental health.

**DISCIPLINE SPECIFIC COURSE (ELECTIVES 1)
MEDICAL ZOOLOGY
COURSE CODE: USC5MZ**

CO1	Demonstrate knowledge of the biology and classification of medically significant parasites.
CO2	Analyse the impact of parasitic and vector-borne diseases on public health.
CO3	Apply knowledge of control strategies for disease prevention and management.

**DISCIPLINE SPECIFIC COURSE (MINOR)
PHARMACOLOGICAL ASPECT OF ZOOLOGY
COURSE CODE: USC5ZOM**

CO1	Students will gain knowledge of pharmacokinetics, pharmacodynamics, and factors affecting drug action across species.
CO2	Students will develop an understanding of zoological models in drug testing, the therapeutic potential of animal-derived compounds, and ethical considerations in pharmacology.



॥ विद्याविनयेन शोभते ॥

**Changu Kana Thakur Arts, Commerce and Science College, New Panvel
(Autonomous)**

Re-Accredited 'A++' Grade by NAAC

'College with Potential for Excellence' Status Awarded by University Grants Commission'

Best College Award' by University of Mumbai

**VOCATIONAL SKILL COURSE
VALUE ADDED PRODUCTS OF ANIMAL
COURSE CODE: UVSC2VAPA**

CO1	Demonstrate skills in identification, handling, and comparison of economically important insects (honeybees and silkworms) and apply knowledge to their rearing and product utilization.
CO2	Apply practical techniques in dairy and fishery product preparation, preservation, and value addition for nutritional and commercial purposes.
CO3	Evaluate methods of food safety, processing, and preservation in apiculture, sericulture, dairy, and fishery industries, including exposure through field visits.

**SEMESTER VI
DISCIPLINE SPECIFIC COURSE 3 (MAJOR)
MOLECULAR BIOLOGY
COURSE CODE: USC6ZO1**

CO1	Students will gain conceptual and practical knowledge of molecular biology processes, including DNA replication, transcription, and translation.
CO2	Students will be able to explain gene regulation mechanisms, protein folding, and the impact of mutations on genetic functions.
CO3	Students will develop hands-on skills in recombinant DNA technology, molecular cloning, and genome analysis.
CO4	Students will evaluate the applications of molecular biology in biotechnology, medicine, and environmental sciences.

**DISCIPLINE SPECIFIC COURSE 4 (MAJOR)
WILDLIFE CONSERVATION AND MANAGEMENT
COURSE CODE: USC6ZO2**

CO1	Students will gain conceptual and practical knowledge of molecular biology processes, including DNA replication, transcription, and translation.
CO2	Students will be able to explain gene regulation mechanisms, protein folding, and the impact of mutations on genetic functions.
CO3	Students will develop hands-on skills in recombinant DNA technology, molecular cloning, and genome analysis.
CO4	Students will evaluate the applications of molecular biology in biotechnology, medicine, and environmental sciences.



॥ विद्याविनयेन शोभते ॥

**Changu Kana Thakur Arts, Commerce and Science College, New Panvel
(Autonomous)**

Re-Accredited 'A++' Grade by NAAC

'College with Potential for Excellence' Status Awarded by University Grants Commission'

Best College Award' by University of Mumbai

DISCIPLINE SPECIFIC COURSE (ELECTIVES 2)

**FORENSIC ZOOLOGY
COURSE CODE: USC6FZ**

CO1	Understand forensic zoology's applications in crime and conservation.
CO2	Develop skills in species identification using morphological and molecular methods.
CO3	Gain expertise in forensic entomology and wildlife crime investigation.

DISCIPLINE SPECIFIC COURSE (MINOR)

**BIOCHEMICAL BASIS OF ANIMAL PHYSIOLOGY
COURSE CODE: USC6ZOM**

CO1	Explain the biochemical composition, functions of biomolecules, and the role of enzymatic mechanisms and metabolic pathways in regulating animal physiology.
CO2	Apply biochemical concepts to analyse physiological adaptations and responses of animals under diverse environmental conditions.