

- **Department of Zoology**

- **Course Outcomes.**

- **F Y B Sc.**

- **Semester -1**

<b>ZOO-111: Fundamental Anatomy of Non-chordates I</b>	<ul style="list-style-type: none"> <li>• Ability to classify the organism at least at phylum level.</li> <li>• Distinguishing the anatomy and physiology of different non chordates animals</li> <li>• Student learns different characters, classification, anatomy and physiology of non chordates like Prawn.</li> </ul>
<b>ZOO-112: Cell biology</b>	<ul style="list-style-type: none"> <li>• Able to indentifying the type of Cell it's structure, functions.</li> <li>• Know the working of different cell organelles.</li> <li>• Cell cycle and types of cell division.</li> <li>• Cell ageing and cell death.</li> </ul>
<b>CH-113: Chemistry Practical</b>	<p>Students should understand,</p> <ul style="list-style-type: none"> <li>• Calibration of apparatus like volumetric flask, pipette and burette.</li> <li>• Determination of heat of solution, equivalent weight, surface tension etc.</li> <li>• Inorganic qualitative analysis.</li> <li>• Preparation of solution and standardization of instruments.</li> </ul>

- **Semester -2**

<b>ZOO-121: Fundamental Anatomy of chordates I</b>	<p>Students should understand,</p> <ul style="list-style-type: none"> <li>• Ability to classify the organism at least at phylum level.</li> <li>• Distinguishing the anatomy and physiology of different non chordates and chordate animals</li> <li>• Different characters, classification, anatomy and physiology of chordates like Calotes.</li> </ul>
<b>ZOO- 122: Applied Zoology</b>	<p>Students should understand,</p> <ul style="list-style-type: none"> <li>• Production, rearing of goats in captivity and business of the animals.</li> <li>• Identifying the breeds of goats in the vicinity.</li> <li>• Production, Rearing and life of animals like goat and lac insect.</li> </ul>
<b>Zoo-123: Zoology Practical</b>	<p>Students should understand,</p> <ul style="list-style-type: none"> <li>•</li> </ul>

- **S Y B Sc.**

- **Semester -1**

<b>ZOO-231: Functional Anatomy of Non-chordates I</b>	<p>Students should understand,</p> <ul style="list-style-type: none"> <li>• Ability to classify the organism at least at phylum and class or order level.</li> <li>• Distinguishing the anatomy and physiology of different non chordates animals</li> <li>• Different characters, classification, anatomy and physiology of non chordates like Sea-star.</li> </ul>
<b>ZOO-232: Medical Zoology</b>	<p>Students should understand,</p> <ul style="list-style-type: none"> <li>• Prevention of different kind of Pathogenic disease.</li> <li>• Identifying Pathogens and finding their control.</li> <li>• Study of different kind of Pathogens, their life cycle.</li> </ul>
<b>ZOO-233: Zology Practical</b>	<p>Students should understand,</p> <ul style="list-style-type: none"> <li>•</li> </ul>

- **Semester -2**

<b>ZOO-241: Functional Anatomy of chordates I</b>	Students should understand, <ul style="list-style-type: none"> <li>• Ability to classify the organism at least at phylum, class or order level.</li> <li>• Distinguishing the anatomy and physiology of different non chordates and chordate animals</li> <li>• Different characters, classification, anatomy and physiology of chordates like Pigeon.</li> </ul>
<b>ZOO- 242: Applied Zoology</b>	Students should understand, <ul style="list-style-type: none"> <li>• Production, rearing of honeybees in captivity and business of the animals.</li> <li>• Identifying the species and castes of honeybees in the vicinity.</li> <li>• Production, Rearing and life of animals like honey bee insect.</li> </ul>
<b>CH 243: Chemistry Practical</b>	Students should understand, <ul style="list-style-type: none"> <li>• Qualitative analysis of organic compounds.</li> <li>• Qualitative properties depression of freezing point and elevation of boiling point.</li> <li>• Estimate of Nickel and Barium gravimetrically.</li> <li>• Use of potentiometer for determination of standard electrode potential.</li> </ul>

• **T Y B Sc.**

• **Semester -1**

<b>ZOO-351: Non- chordates-III</b>	<ul style="list-style-type: none"> <li>• Student will come know anatomy and physiology of non-chordates animals</li> <li>• Different characters, classifications, anatomy and physiology.</li> <li>• Job Opportunities- Public Health Department like malaria eradication program.</li> </ul>
<b>ZOO-352: Cell and Molecular Biology</b>	Students should understand, <ul style="list-style-type: none"> <li>• Skills-Cell, structure, functions and cell culture.</li> <li>• Working of different cells, cell organelles.</li> <li>• Job Opportunities-Jobs at cell and molecular laboratories.</li> </ul>
<b>ZOO-353: Mammalian Histology and Physiology I</b>	Students should understand, <ul style="list-style-type: none"> <li>• Histology and their corresponding Physiology of different tissues and systems of mammals.</li> <li>• Histology and functioning of different tissues and systems of mammals and research importance</li> <li>• Job Opportunities- Biochemistry industry, Pathology lab and cancer research institute etc.</li> </ul>
<b>ZOO-354: Biochemistry</b>	Students should understand, <ul style="list-style-type: none"> <li>• Biochemical processes, their reactions and role in life.</li> <li>• Biochemistry and role of biochemical in life system.</li> <li>• Job Opportunities- Biochemical and food industries.</li> </ul>
<b>ZOO-355: Systematic, Evolution and Paleontology</b>	Students should understand, <ul style="list-style-type: none"> <li>• Classification of animals, Fossils study and geographical distribution of animals.</li> <li>• Classification of animals, Fossils study and geographical distribution of animals.</li> <li>• Job Opportunities- Zoological Parks, Sanctuaries, Animal museum and Archaeology department</li> </ul>
<b>ZOO-356: (C) Public</b>	<ul style="list-style-type: none"> <li>• Study of different kind of Pest and their control.</li> </ul>

<b>health and hygiene</b>	<ul style="list-style-type: none"> <li>• Study of different kind of Pest, their life cycle and their economic importance.</li> <li>• Job Opportunities-Agricultural department, Pesticide industry and Self employment</li> </ul>
<b>ZOO-357: Zoology Practical</b>	Students should understand, •
<b>ZOO-358: Zoology Practical</b>	Student should understand, •
<b>ZOO-359: Zoology Practical</b>	Students should understand, •

• **Semester -2**

<b>ZOO-361: Chordates-III</b>	<ul style="list-style-type: none"> <li>• Ability of classifying of different chordates.</li> <li>• Knowledge- Anatomy and physiology of different chordates.</li> <li>• Job Opportunities-Forest, animal husbandry and museum.</li> </ul>
<b>ZOO-362: General embryology</b>	Students should understand, <ul style="list-style-type: none"> <li>• Development pattern of different animals.</li> <li>• Development of different animals of economic and research importance.</li> <li>• Job Opportunities-Developmental biology and Cell biology Departments, fisheries, Poultry etc.</li> </ul>
<b>ZOO-363: Mammalian Histology and Physiology II</b>	Students should understand, <ul style="list-style-type: none"> <li>• Histology and their corresponding Physiology of different tissues and systems of mammals.</li> <li>• Histology and functioning of different tissues and systems of mammals and research importance</li> <li>• Job Opportunities- Biochemistry, Pathology and cancer research, etc.</li> </ul>
<b>ZOO-364: Research Methodology</b>	Students should understand, <ul style="list-style-type: none"> <li>• Different methods of research.</li> <li>• Scientific basis of various research methods and statistical data analysis.</li> <li>• Job Opportunities- Different research laboratories and surveys.</li> </ul>
<b>ZOO-365: Microtechnique</b>	Student should understand, <ul style="list-style-type: none"> <li>• Preparation of permanent whole mounts, microscopic slides and staining reactions.</li> <li>• Cell-tissue structure, histology of tissues and details of morphology of animals</li> <li>• Job Opportunities -Health institutes, Hospitals and Pathological labs</li> </ul>
<b>ZOO-356: (C) Applied Zoology III (Vermiculture , Poultry and Fishery)</b>	Students should understand, <ul style="list-style-type: none"> <li>• Biofertilizer / vermicompost production, Rearing and production of birds in captivity and business of aquatic animals</li> <li>• Knowledge- Biofertilizer / vermicompost production, Rearing and production of birds and life of aquatic animals.</li> <li>• Job opportunities-Fishery department, poultry business and vermin technology industry, self employment.</li> </ul>
<b>ZOO-367: Zoology Practical</b>	Students should understand, •

<b>ZOO-368: Zoology Practical</b>	Students should understand, •
<b>ZOO-369: Zoology Practical</b>	•

### M. Sc. I

#### • Semester -1

<b>CH-P-110: Physical Chemistry I</b>	Students should understand, <ul style="list-style-type: none"> <li>Quantum mechanical Principles and equation with electronic structure of atoms, molecules etc.</li> <li>Mechanics of particle in one, two and three dimensional box.</li> <li>Learn parent - daughter relationship, application of radioactivity, NAA, IDA. Effect of radiation and units of radiation.</li> <li>Learn the Fricke and ceric sulphate dosimeter.</li> <li>Ionic strength, activity coefficient and DHO equation.</li> <li>Relation between adsorbate and adsorbent.</li> </ul>
<b>CH-130: Inorganic Chemistry Paper I</b>	Students should understand, <ul style="list-style-type: none"> <li>Molecular orbitals and its orientation.</li> <li>Geometry and shape of the molecule</li> <li>Bond angle and dipole moments of the inorganic molecule.</li> <li>18 electron rule and application.</li> <li>Point group of inorganic molecules.</li> <li>Preparation and properties of transition metal by various methods.</li> <li>Concept of symmetry elements in molecules.</li> </ul>
<b>CH-150: Basic Organic Chemistry</b>	Students should understand, <ul style="list-style-type: none"> <li>Stereo chemical principles, enantiomeric relationship R and S, E and Z.</li> <li>Nomenclature in C, N, S, P containing compound.</li> <li>SN1, SN2 and SNi mechanism and stereochemistry.</li> <li>NGP by pi and sigma bonds, classical and non -classical carbonations</li> <li>Alkylation and acylation reaction.</li> <li>Types of addition, elimination and substitution reaction.</li> <li>Type of elimination reaction E1, E2, E1-CB and stereochemistry of elimination reactions.</li> </ul>

#### Semester -2

<b>CH-P-210: Physical Chemistry II</b>	Students should understand, <ul style="list-style-type: none"> <li>The relation between energy and flow of energy with physical parameters.</li> <li>The average behavior of a mechanical system whose exact state is uncertain.</li> <li>The statistical thermodynamics and various partition functions.</li> <li>The rate of reaction with mathematical model and conditions for gating a maximum yield in industrial product.</li> <li>The molecular spectroscopy: I.R, Raman, electronic and Mossbauer and its application.</li> </ul>
<b>CH-230: Inorganic</b>	Students should understand,

<b>Chemistry Paper II</b>	<ul style="list-style-type: none"> <li>• Learn mechanism in transition metal complexes.</li> <li>• Rate law and their interpretation</li> <li>• Learn radius ratio rule of coordination no 3, 4, 6.</li> <li>• Born-Haber cycle to calculate lattice energy.</li> <li>• Classification, uses and catalytic steps of catalyst reactions.</li> <li>• Structure of atom, Hunds rule, Term symbol, calculation of microstates, orbital selection rule.</li> <li>• Know metal complexes involved in biological systems:- Vitamin-B12, Chlorophyll, Hemoglobin.</li> </ul>
<b>CH-250: Name Reactions, Synthetic Organic Chemistry &amp; Spectroscopy</b>	<p>Students should understand,</p> <ul style="list-style-type: none"> <li>• Various name reaction with example.</li> <li>• Synthetic reagents of oxidation and reduction for solving the example.</li> <li>• Mechanism of rearrangements reaction.</li> <li>• Factors affecting on UV absorption spectra.</li> <li>• Interpretation of IR spectra.</li> <li>• Problems of UV, IR and NMR.</li> </ul>
<b>CH-290: General Chemistry</b>	<p>Students should understand,</p> <ul style="list-style-type: none"> <li>• Problems on Chemometrics Mean and Standard deviation.</li> <li>• Theory of electrogravimetric analysis, Electrolytic separation and determination of metals.</li> <li>• Instrumentation, choice of Mobile Phase, Solvent Treatment systems, Pumping systems, Sample injection systems, Columns, Detector for High Performance Liquid Chromatography.</li> <li>• Principle, theory of Glass Membrane Potential, The Alkaline and Acid Error, Standard Buffers, Accuracy of pH , Measurements with the pH-meter, types Ion selective Electrodes.</li> <li>• Voltammetric Electrodes, Detectors, Amperometric Sensors, Amperometric Titrations.</li> <li>• Phosphorescence, Fluorescence and Photo luminescent phenomena used for determination of mixtures.</li> </ul>
<b>CH-P-1: Physical Chemistry Practical</b>	<p>Students should understand,</p> <ul style="list-style-type: none"> <li>• Prepare molar and normal solutions of various concentrations.</li> <li>• Determine concentration of unknown solutions and degree of hydrolysis and hydrolysis Constant by Conductometrically.</li> <li>• Determine stability constant of a complex ion and standard free energy change <math>\Delta G^0</math> and equilibrium constant by potentiometry.</li> <li>• Investigate the rate constant for depolymerization , energy of activation and order of the reaction</li> <li>• Calculate Hammett constant of a given substituted Benzoic acid by pH measurement.</li> <li>• Determine the amount of Aspirin in the given tablet.</li> <li>• Determine specific rotation and percentage of two optically active substances by polarimetrically.</li> </ul>
<b>CH:I-1: Practical Course Inorganic Chemistry</b>	<p>Students should understand,</p> <ul style="list-style-type: none"> <li>• Perform gravimetric and volumetric analysis ores.</li> <li>• Analyse binary mixtures by gravimetric and volumetric method.</li> <li>• Determine the lattice energy of binary salt.</li> </ul>

	<ul style="list-style-type: none"> <li>• Strength determination by pH metry method.</li> <li>• Prepare various inorganic complexes and determination of its Percent purity.</li> <li>• Analyse iron from given drug sample and calcium in milk sample.</li> <li>• Perform paper chromatographic technique.</li> <li>• Estimate phosphate from waste water by spectrophotometry.</li> <li>• Amount of Cu determination by iodometric method (Potentiometrically).</li> </ul>
<b>CH-O-1: Organic Chemistry Practical</b>	<p>Students should understand,</p> <ul style="list-style-type: none"> <li>• Chemistry software's like ISI draw, chem. Draw, Chem sketch.</li> <li>• Draw the different structure of organic compound, sketch design reaction mechanism scheme of addition and substitution reaction.</li> <li>• Thin layer chromatography technique for completion of reaction.</li> <li>• Single and two stage preparation.</li> <li>• Apply knowledge of Green principle for organic synthesis</li> <li>• Make use of soxhlet extractor and steam distillation assembly for Purification of organic compound.</li> </ul>

## M. Sc. II (Organic Chemistry)

### • Semester -1

<b>CH-350: Organic Reaction Mechanism</b>	<p>Students should understand,</p> <ul style="list-style-type: none"> <li>• Compare the major and minor product of variety of organic reaction.</li> <li>• Understand accepted mechanism of organic reaction including all intermediates</li> <li>• Solve the problems on Taft and Hammet constant.</li> <li>• Understand Concave upward and downward deviation.</li> <li>• Learn the type's hydrolysis of ester.</li> <li>• Solve problems on Anchimetric assisted reaction.</li> </ul>
<b>CH-351: Spectroscopic Methods in Structure Determination</b>	<p>Student should understand,</p> <ul style="list-style-type: none"> <li>• Principle, instrumentation and application of <math>^1\text{H}</math>, <math>^{13}\text{C}</math>, <math>^{15}\text{N}</math>, <math>^{19}\text{F}</math>, <math>^{31}\text{P}</math>-NMR and Mass spectroscopy.</li> <li>• 2D NMR techniques for the organic compounds with interaction of homo and hetero nuclei.</li> <li>• Applications of NMR in the elucidation for the structure of organic and Bio-organic molecules.</li> <li>• Analyze reaction sequences by using spectroscopic technique.</li> </ul>
<b>CH-352: Organic Stereochemistry</b>	<p>Students should understand,</p> <ul style="list-style-type: none"> <li>• The basic concepts of stereo chemistry and spatial arrangement of the atoms in the molecule.</li> <li>• The chiral selective reagents in the organic transformations for the selective chiral products in asymmetric synthesis.</li> <li>• How to selectively introduce chiral auxiliaries for the synthesis of useful drug molecules.</li> <li>• The ORD and CD and its applications for the Cotton effect.</li> </ul>
<b>CH-353: Free radical, photochemistry and</b>	<p>Students should understand,</p> <ul style="list-style-type: none"> <li>• Quantum yield and electronic states.</li> <li>• Norrish-I and Norrish-II cleavages, Paterno-Buchi reaction.</li> </ul>

<b>pericyclic reaction</b>	<ul style="list-style-type: none"> <li>• Photochemistry of olefins and arenes: 1, 2- , 1, 3- and 1, 4- additions.</li> <li>• Free radical reaction contain Halogen, Sulphur, and, Selenium Group transfer reaction.</li> <li>• Selection rule for thermal and photochemical reactions.</li> <li>• Frontier molecular orbital approach [FMO] and Aromatic transition state approach according to Huckel and Mobius system.</li> </ul>
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### Semester -2

<b>CH-450: Chemistry of Natural Products</b>	<p>Students should understand,</p> <ul style="list-style-type: none"> <li>• Biological importance of vitamins B1, B2, B6, folic acid, B12, C, D1, E, K1, and K2.</li> <li>• Classify sources of various vitamins.</li> <li>• Structure stereochemistry and biogenesis of hardwickiic acid, Camptothecin and podophyllotoxin</li> <li>• Role of enzyme in reactions.</li> <li>• Synthesize natural organic compounds by chemical methods.</li> <li>• Stereochemistry of natural product.</li> </ul>
<b>CH-451: Synthetic Methods in Organic Chemistry</b>	<p>Students should understand,</p> <ul style="list-style-type: none"> <li>• Transition metal complexes in organic synthesis: Rh, Pd, Co, Fe, Ni, Pt, Ru, Grubb's catalyst and Ziegler Natta catalyst,.</li> <li>• Design the organic compounds by use of synthetic reagents</li> <li>• Role of Umpolung in organic synthesis.</li> <li>• Protection and deprotection in the synthesis of polypeptide and polynucleotide.</li> <li>• Know basic principles of green chemistry and design green synthesis.</li> <li>• Use ecofriendly green reagents, solvents, catalysts and reaction conditions.</li> </ul>
<b>CH-452: Heterocyclic chemistry, Chiron approach, chiral drugs and medicinal chemistry</b>	<p>Students should understand,</p> <ul style="list-style-type: none"> <li>• Synthetic routes, their reactions and reactivity for variety of heterocyclic compounds and applications.</li> <li>• Important Terms – Receptor, therapeutic index, bioavailability, Drug assay and drug potency used in medicinal chemistry.</li> <li>• Structure of triose, Pentose, hexose, Stereochemistry and reaction of Glucose, Confirmation and anomeric effects in hexoses.</li> <li>• Synthesis and Pharmacological activity of S-Ibuprofen , S-Metoprolol, (+) Ephedrine</li> <li>• Basic Pharmacokinetics of drugs, anti Microbial drugs, Antifungal, Antibacterial, antiviral, antiprotozoals.</li> <li>• Chiron approach basic concepts and Synthesis.</li> </ul>
<b>CH-O2: Organic Practical Chemistry M.Sc. II</b>	<p>Students should understand,</p> <ul style="list-style-type: none"> <li>• Separate organic compounds in different phases.</li> <li>• Qualitative test to analyze functional group of organic compounds.</li> <li>• Distillation technique.</li> <li>• Detect elements N, S, and X in organic compounds.</li> <li>• Purification techniques of organic compounds.</li> </ul>
<b>CH-O-3: Three Stage Preparations</b>	<p>Students should understand,</p> <ul style="list-style-type: none"> <li>• Perform three stage preparations.</li> <li>• Draw the reaction mechanism.</li> </ul>

	<ul style="list-style-type: none"> <li>• Purify the organic compounds by crystallization.</li> <li>• Perform chromatographic technique to check completion of reaction.</li> <li>• Apply the knowledge about different reaction conditions</li> </ul>
<b>CHO-4: Short Research Project</b>	<p>Students should understand,</p> <ul style="list-style-type: none"> <li>• Literature survey for the topic of the project.</li> <li>• Standardize reaction conditions for synthesis, new methods of synthesis, isolation of product and give mechanism.</li> <li>• Handle instruments for analysis and discuss their experimental results.</li> <li>• Used ICT tools to prepare project reports and present it using Power point presentation.</li> <li>• Work within a small team to achieve a common research goal.</li> </ul>

## M. Sc. II (Inorganic Chemistry)

### • Semester 1

<b>CH-330: Coordination Chemistry</b>	<p>Students should understand,</p> <ul style="list-style-type: none"> <li>• Types of mechanisms.</li> <li>• Substitution reaction of octahedral and square planer complexes.</li> <li>• Stereochemical changes in octahedral complexes.</li> <li>• Biological role of S-block elements.</li> <li>• Biological role of transition elements.</li> <li>• Metals in Medicine.</li> </ul>
<b>CH-331: Inorganic Polymer Chemistry</b>	<p>Students should understand,</p> <ul style="list-style-type: none"> <li>• Basic Concepts, Synthesis, Characterization and application of Zeolites.</li> <li>• Supramolecular Chemistry.</li> <li>• Metal cluster.</li> <li>• Macrocyclic complexes.</li> </ul>
<b>CH- 332: Solid State Chemistry</b>	<p>Students should uderstand,</p> <ul style="list-style-type: none"> <li>• Classification of Defect of solid.</li> <li>• Lattice Imperfection of solid.</li> <li>• Types of amorphous Solids and there classification.</li> <li>• Types and properties of ceramic material.</li> <li>• Types and properties of composite material.</li> <li>• Types of Semiconductor devices.</li> <li>• Magnetic Behavior of material.</li> </ul>
<b>CH- 333: Some selected topics in Inorganic Chemistry</b>	<p>Students should uderstand,</p> <ul style="list-style-type: none"> <li>• Basic principles of Group Theory.</li> <li>• Basic and applied Chemistry.</li> <li>• The chloroalkali Industry, Nobel gases, Metal-ligand equilibrium in solutions.</li> </ul>

### Semester 2

<b>CH-430: Applications of Group Theory and Coordination Chemistry</b>	<p>Students should uderstand,</p> <ul style="list-style-type: none"> <li>• Hybridization scheme in sigma and pi bonding of atomic orbital.</li> <li>• Molecular orbital theory.</li> <li>• Transformation properties of H<sub>2</sub>O, NH<sub>3</sub> and BF<sub>3</sub> molecule.</li> <li>• Molecular term Symbol for transition metal complexes.</li> <li>• Electronic spectra of metal complexes.</li> </ul>
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	<ul style="list-style-type: none"> <li>• IR Spectroscopy conditions.</li> <li>• Ligand field theory of coordination compound.</li> </ul>
<b>CH- 431: Physical Methods in Inorganic Chemistry</b>	<p>Students should understand,</p> <ul style="list-style-type: none"> <li>• Nuclear magnetic resonance spectroscopy.</li> <li>• Electron spins resonance spectroscopy.</li> <li>• Mossbauer spectroscopy.</li> <li>• Mass spectroscopy.</li> <li>• Thermal methods TGA, DTG, DTA, DSC.</li> </ul>
<b>CH-I-2: Practical Course</b>	<ul style="list-style-type: none"> <li>• Analysis of Cement, Eliminite, Steel, Bronze, Fertilizer, Soil.</li> <li>• Analysis of vitamin C.</li> <li>• Estimation of Fe from soap bar.</li> <li>• Analysis of pigment, POP.</li> <li>• Complexometry of bismuth titration.</li> </ul>
<b>CH-I-3 : Practical Course</b>	<p>Students should understand,</p> <ul style="list-style-type: none"> <li>• Synthesis Purification and analysis of coordination complexes of simple and chelating ligands.</li> <li>• Phase diagram study.</li> <li>• TGA</li> <li>• Stability constant of metal complex.</li> <li>• Kinetic masking.</li> <li>• Argentometry.</li> </ul>
<b>CH-I-4: A short research project</b>	<ul style="list-style-type: none"> <li>• Students should understand,</li> <li>• Literature survey, Research Methodology and Industrial tour.</li> </ul>

### **Program Specific outcome B.Sc. & M. Sc.**

- Zoology is study of animals, but along with this it concern with basic knowledge of physiology and anatomy of animal including human. It also deals with study of diseases and causative agents and prophylaxis as well as environmental sciences. Biochemistry and biostatistics help to obtained analytical view. One can better understand the importance of the nature by studying these courses. This subject also plays role in understanding public health and hygiene.
- Various activities and programs are arranged by the department during this tenure due to that one can develop certain qualities in his or her personality such as stage daring, presentation skills, report writing, leadership qualities which will help him in his career.
- With this background and education, the Zoologist has many employment opportunities. Some of the exciting career opportunities in Various Faculties are as follows:
- **Government Services:**  
 Zoological Survey of India  
 Civil Services  
 District Malaria Officer (DMO)  
 Regional Forest Officer (RFO)  
 Pest Control Officer in Railway  
 Lab Technicians

Food Inspector  
Various posts in Sericulture Department  
Various posts in Fishery Department  
Various posts in Apiculture Department  
Various posts in Poultry Department  
Various posts in Health Ministry

- **Self-Employment after Zoology Graduation**

Poultry Farm  
Aquaculture  
Pest Control Firm  
Honey Production  
Pig Farm  
Goat Farm  
Vermiculture  
Dairy Firm  
Animal Supplier  
Sericulture

- There are job opportunities in Federal, State or Local Governments with assignments in food and animal production, disease control and eradication; meat inspection, public health, animal disease research and administrative positions.
- Public health:
- Zoologists are employed by several agencies for formulating and reforming many food and safety laws related to public and animals.
- Teaching and Research:
- Graduate students can join the teaching field, and can serve as a teacher in primary and secondary schools. They can join the research institutes or laboratories as lab attendant, or after the post-graduation they can take admissions to Research courses such as Ph.D.
- They are employed in various veterinary and Medical faculties Research Institutes. Veterinary / Biological production and Animal Research institutes, Veterinary Biological product and animal diseases investigation centers and in schools training livestock diseases, investigation centers and in School training Livestock Assistance farm personnel.
- Industry:  
The industries dealing with development and production of pharmaceuticals and food to both human and pets can recruit these students in their quality control and marketing.
- Private Practice:  
With increase in number of companion animals (dogs, cats, birds) being reared by people,  
Commercial livestock production in private and public sectors is increased, private veterinary and animal supplier practice has become the most lucrative avenue for self-employment.

- Zoo and Wild Life Medicine:
- With the establishment of more wild lifereserves and zoos and there is increased scope of employment forstudents in these areas.
- Police Force:  
With increase in the number of mounted troops and police dogs, more veterinarians are recruited by the Police Force to cater for the welfare of these animals.
- Marketing:  
Medical representative in Pharmaceutical Industries.