



DEPARTMENT OF ZOOLOGY
LUMDING COLLEGE, LUMDING, HOJAI,
ASSAM

**Report on percentage of students undertaking
project work/ field work/ internships etc.**

And

Teaching learning process

DEPARTMENT OF ZOOLOGY

Date of Establishment: 1984

Mission and Vision: Department of Zoology, Lumding College has been established with an aim to educate students and to provide adequate information related to the subject so as to aware the stakeholders for a better society. Concomitantly, students are enriched with basics of Zoology well as creating skilled human resources in the field of 'Zoology' by offering learning opportunities and working experiences of highest academic standards.

Courses offered by the department including Project work/field trip etc.: -

SEMESTER	PAPER NAME	PAPER CODE	NUMBER OF STUDENTS
FYUGP 1 ST SEM	*DIVERSITY OF NON-CHORDATES	ZOO-1011	36
FYUGP 2 ND SEM	**SERICULTURE AND ITS PROSPECTS (SEC)	SEC-0210103	20
BSC. 4 TH SEM (HONS)	*COMPARATIVE ANATOMY OF VERTEBRATES	ZOO-HC-4016	17
BSC. 4 TH SEM (SEC)	**WILDLIFE PHOTOGRAPHY AND ECOTOURISM	ZOO-SE-4026	17
BSC. 4 TH SEM (RE/HG)	**GENETICS AND EVOLUTIONARY BIOLOGY	ZOO-RE/HG- 4016	11
BSC. 6 TH SEM (HONS)	**DISSERTATION	ZOO-HE-6056	10
BSC. 6 TH SEM (HONS)	*BIOLOGY OF INSECTA	ZOO-HE-6016	10

NB: * courses include submission of Project reports.

**** Courses include field trips.**

**CORE A1
DIVERSITY OF NON-CHORDATES**

Code: ZOO-1011

Credit: 3 (T) + 1 (P)

THEORY	Hours
Unit 1: General characteristics and Classification up to classes of Protista, Porifera, Cnidaria, Ctenophora, Platyhelminthes, Nematelminthes.	7
Unit 2: Evolution of coelom and metamerism General characteristics and Classification up to classes of Annelida,	8

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Arthropoda, Mollusca and Echinodermata.	
Unit 3: Locomotion and Reproduction in Protista Evolution of symmetry and segmentation of Metazoa Canal system and spicules in sponges Polymorphism in Cnidaria Corals and coral reef formation Parasitic adaptations in helminths- <i>Fasciola hepatica</i> and <i>Wuchereria bancrofti</i> Excretion in Annelida Vision and respiration in Arthropoda Evolutionary significance of Onychophora Torsion and detorsion in Gastropoda Water vascular system of Echinodermata	30

DIVERSITY OF NON-CHORDATES

PRACTICAL	Hours
1. Study of the whole mount of <i>Euglena</i> , <i>Amoeba</i> and <i>Paramecium</i> collected from different water sources.	30
2. Study of minimum of two representatives (specimen/slide/model) of each phylum of non-chordates.	
3. Study of larval forms of Arthropoda/Echinodermata	
4. T.S. through pharynx, gizzard and typhlosolar intestine of earthworm.	
5. To submit a Project Report on life cycle of helminth parasite by students	

Suggested Readings:

1. Ruppert, E.E. and Barnes, R.D. (2006). Invertebrate Zoology, 8th Edition. Holt Saunders International Edition.
2. Pechenik, J. (2015). Biology of the Invertebrates. 7th Edition, McGraw Hill
3. Schierwater, B. & DeSalle, R. (2021). Invertebrate Zoology: A Tree of Life Approach. 1st edition, CRC Press
4. Jordan, K. and P. S. Verma (2019). Invertebrate Zoology, S. Chand and Co. Ltd.
5. Kotpal, R. L. (2020). Modern text book of Zoology, Invertebrates, 12th Edition, Rastogi Publications

SERICULTURE AND ITS PROSPECTS

(Total 3 credits)

2nd Sem
(SEC)

THEORY

CREDITS: 2

UNIT-I: AN INTRODUCTION TO SERICULTURE

5

Mulberry/Non Mulberry: Origin/History and distribution; Varieties of silk; Types of silkworms; Propagation; Culling; Layering of host plant

UNIT-II: BIOLOGY OF SILK WORMS

6

Life cycle of Mulberry, Eri, Muga and Tasar silk worm; Structure of silk gland and nature of silk

UNIT-III: REARING HOUSE AND APPLIANCES

4

Environmental condition for silk worm rearing; Rearing technology; Brushing; Feeding; Mounting; Mountages; Harvesting and storage of cocoons; Spinning and reeling of silk

UNIT-IV: GRAINAGE TECHNOLOGY

3

Silk worm seed production; Reproduction and commercial seed; Egg laying; *Mother moth* examination

UNIT-V: PESTS AND DISEASES OF SILK WORM

2

Pests of silk worm; Diseases of silk worm: Viral, Bacterial, Fungal, Protozoan; Prevention

and control measures

UNIT-IV: ENTREPRENEURSHIP IN SERICULTURE

2

Marketing and Economic status of Sericulture; Future prospects.

UNIT III: PRACTICAL SYLLABUS

CREDIT: 1

1. Identification of various larval stages of different silkworms.
2. Identification of diseased and disease free silkworms.
3. Visit to various Sericulture research stations/Govt./Private farms and report submission.

BOOKS AND SUGGESTED READINGS

1. Tembhare, D.B. (1997), Modern Entomology, Himalaya Publishing House.
2. Shukla, G. S & Upadhyay, V. B. (2007) Economic Zoology, Rastogi Publications
3. Chowdhury, S. N. (1981) Muga Silk Industry, Directorate of Sericulture, Govt. of Assam, Guwahati, Assam.
4. Chowdhury, S. N. (1982) Eri Silk Industry, Directorate of Sericulture, Govt. of Assam, Guwahati, Assam.
5. Chowdhury, S. N. (1982) Silk and Sericulture, Directorate of Sericulture, Govt. of Assam, Guwahati, Assam.

OBJECTIVES OF THE COURSE

1. To develop interest in the field of Sericulture among the students.
2. To motivate students for scientific study in the field of Agro based industry by performing simple projects and field visits.
3. To develop skills and interest in entrepreneurship in Sericulture.
4. To help the students to learn means of self employment and income generation.
5. To cultivate students awareness and appreciation for Sericulture as a hobby and science.

CORE COURSE IV
GENETICS AND EVOLUTIONARY BIOLOGY
CODE: ZOO-RC-4016

THEORY

(CREDITS4)

Unit 1: Introduction to Genetics Mendel's work on transmission of traits, Genetic Variation, Molecular basis of Genetic Information	3
Unit 2: Mendelian Genetics and its Extension Principles of Inheritance, Chromosome theory of Inheritance, Incomplete dominance and co-dominance, Multiple alleles, Lethal alleles, Epistasis, Pleiotropy, sex linked inheritance, extra-chromosomal inheritance	8
Unit 3: Linkage, Crossing Over and Chromosomal Mapping Linkage and crossing over, Recombination frequency as a measure of linkage intensity, two factor and three factor crosses, Interference and coincidence, Somatic cell genetics - an alternative approach to gene mapping	9
Unit 4: Mutations Chromosomal Mutations: Deletion, Duplication, Inversion, Translocation, Aneuploidy and Polyploidy; Gene mutations: Induced versus Spontaneous mutations, Back versus Suppressor mutations,	7
Unit 5: Sex Determination Chromosomal mechanisms, dosage compensation	4
Unit 6: History of Life Major Events in History of Life	2
Unit 7: Introduction to Evolutionary Theories Lamarckism, Darwinism, Neo-Darwinism	5
Unit 8: Direct Evidences of Evolution Types of fossils, Incompleteness of fossil record, Dating of fossils, Phylogeny of horse	5
Unit 9: Processes of Evolutionary Change Organic variations; Isolating Mechanisms; Natural selection (Example: Industrial melanism); Types of natural selection (Directional, Stabilizing, Disruptive), Artificial selection	9
Unit 10: Species Concept Biological species concept (Advantages and Limitations); Modes of speciation (Allopatric, Sympatric)	6
Unit 11: Macro-evolution Macro-evolutionary Principles (example: Darwin's Finches)	5
Unit 12: Extinction Mass extinction (Causes, Names of five major extinctions, K-T extinction in detail), Role of extinction in evolution	6

GENETICS AND EVOLUTIONARY BIOLOGY

PRACTICAL

(CREDITS2)

1. Study of Mendelian Inheritance and gene interactions (Non Mendelian Inheritance) using suitable examples. Verify the results using Chi-square test.
2. Study of Linkage, recombination, gene mapping using the data.
3. Study of Human Karyotypes (normal and abnormal).
4. Study of fossil evidences from plaster cast models and pictures
5. Study of homology and analogy from suitable specimens/pictures
6. Charts:
 - a) Phylogeny of horse with diagrams/ cut outs of limbs and teeth of horse ancestors
 - b) Darwin's Finches with diagrams/ cut outs of beaks of different species
7. Visit to Natural History Museum and submission of report

SUGGESTED READINGS

- Gardner, E.J., Simmons, M.J., Snustad, D.P. (2008). *Principles of Genetics*. VIII Edition. Wiley India.
- Snustad, D.P., Simmons, M.J. (2009). *Principles of Genetics*. V Edition. John Wiley and Sons Inc.
- Klug, W.S., Cummings, M.R., Spencer, C.A. (2012). *Concepts of Genetics*. X Edition. Benjamin Cummings.
- Russell, P. J. (2009). *Genetics- A Molecular Approach*. III Edition. Benjamin Cummings.
- Griffiths, A.J.F., Wessler, S.R., Lewontin, R.C. and Carroll, S.B. *Introduction to Genetic Analysis*. IX Edition. W. H. Freeman and Co.
- Ridley, M. (2004). *Evolution*. III Edition. Blackwell Publishing
- Barton, N. H., Briggs, D. E. G., Eisen, J. A., Goldstein, D. B. and Patel, N. H. (2007). *Evolution*. Cold Spring, Harbour Laboratory Press.
- Hall, B. K. and Hallgrimsson, B. (2008). *Evolution*. IV Edition. Jones and Bartlett Publishers
- Campbell, N. A. and Reece J. B. (2011). *Biology*. IX Edition, Pearson, Benjamin, Cummings.
- Douglas, J. Futuyma (1997). *Evolutionary Biology*. Sinauer Associates.

**CORE COURSE VIII COMPARATIVE
ANATOMY OF VERTEBRATES**

CODE: ZOO-HC-4016

THEORY	(CREDITS 4)
Unit 1: Integumentary System	8
Structure, functions and derivatives of Integument	
Unit 2: Skeletal System	8
Overview of axial and appendicular skeleton, Jaw suspensorium, Visceral arches	
Unit 3: Digestive System	8
Alimentary canal and associated glands, dentition	
Unit 4: Respiratory System	8
Skin, gills, lungs and air sacs; Accessory respiratory organs	
Unit 5: Circulatory System	8
General plan of circulation, evolution of heart and aortic arches	
Unit 6: Urinogenital System	6
Succession of kidney, Evolution of urinogenital ducts, Types of mammalian uteri	
Unit 7: Nervous System	8
Comparative account of brain Autonomic nervous system, Spinal cord, Cranial nerves in mammals	
Unit 8: Sense Organs	6
Classification of receptors Brief account of visual and auditory receptors in man	

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COMPARATIVE ANATOMY OF VERTEBRATES

PRACTICAL	(CREDITS 2)
1. Study of placoid, cycloid and ctenoid scales through permanent slides/photographs	
2. Disarticulated skeleton of Frog, Fowl, Rabbit	
3. Carapace and plastron of turtle/tortoise	
4. Mammalian skulls: One herbivorous and one carnivorous animal	
5. Study of structure of any two organs (heart, lung, kidney, eye and ear) from video recording (may be included if dissection not permitted)	
6. Project on skeletal modifications in vertebrates (may be included if dissection not permitted)	

SUGGESTED READINGS

- Kardong, K.V. (2005) *Vertebrates' Comparative Anatomy, Function and Evolution*. IV Edition. McGraw-Hill Higher Education
- Kent, G.C. and Carr R.K. (2000). *Comparative Anatomy of the Vertebrates*. IX Edition. The McGraw-Hill Companies
- Hilderbrand, M and Gaslow G.E. *Analysis of Vertebrate Structure*, John Wiley and Sons
- Walter, H.E. and Sayles, L.P. *Biology of Vertebrates*, Khosla Publishing House

CODE: ZOO-SE-4024

**Wildlife Photography and
Ecotourism**

**CREDITS 4
Credit-1**

Unit-I Tools and Technique of Photography

- Introduction to Photography
- Still && Video Photography
- To develop expertise in Photography
- Field trips for photography in different periods (Light and Dark), seasons and places (Wetlands, Wildlife sanctuaries, National parks, Industrial sites)
- Methods of documentation

Practical

- Submission of Photography
- Preparation of Poster and Calendar

Unit-2 Eco-tourism

- Introduction of Eco-tourism
- Scope of Eco-tourism with special reference to North East region of India
- Management of Eco-tourism & hospitality
- Development of Eco-tourism with innovative Eco-restoration ideas.

Practical

- Field visit to Wildlife sanctuaries, Eco-park, Historical and religious places, Cultural museum etc.
- Preparation of report and seminar presentation

ZOO-HE-6056

DISSERTATION

Dissertation of Zoology Specific subject



CODE: ZOO-BE-6016
BIOLOGY OF INSECTA

THEORY	(Credits 4)
Unit I: Introduction	4
General Features of Insects	
Distribution and Success of Insects on the Earth	
Unit II: Insect Taxonomy	4
Basis of Insect classification; Classification of Insects up to orders	
Unit III: General Morphology of Insects	8
External Features; Head – Eyes, Types of antennae, Mouth parts w.r.t. feeding habits	
Thorax: Wings and wing articulation, Types of Legs adapted to diverse habitat Abdominal appendages and genitalia	
Unit IV: Physiology of Insects	28
Structure and physiology of Insect body systems - Integumentary, digestive, excretory, circulatory, respiratory, endocrine, reproductive, and nervous system	
Sensory receptors	
Growth and metamorphosis	
Unit IV: Insect Society	6
Group of social Insects and their social life	
Social organization and social behaviour (w.r.t. any one example)	
Unit V: Insect Plant Interaction	4
Theory of co-evolution, role of allelochemicals in host plant mediation Host-plant selection by phytophagous insects, Insects as plant pests	
Unit VI: Insects as Vectors	6
Insects as mechanical and Biological vectors, Brief discussion on houseflies and mosquitoes as important insect vectors	

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BIOLOGY OF INSECTA

PRACTICAL	(CREDITS 2)
1. Study of one specimen from each Insect order	
2. Study of different kinds of antennae, legs and mouth parts of Insects	
3. Study of head and sclerites of any one Insect	
4. Study of Insect wings and their venation.	
5. Study of Insect spiracles	
6. Methodology of collection, preservation and identification of Insects.	
7. Morphological studies of various castes of <i>Apis</i> , <i>Camponotus</i> and <i>Odontotermes</i>	
8. Study of any three Insect pests and their damages	
9. Study of any three beneficial Insects and their products	

Field study of Insects and submission of a project report on the Insect diversity

SUGGESTED READINGS

- (1) A general textbook of entomology, Imms, A.D., Chapman & Hall, UK
- (2) The Insects: Structure and function, Chapman, R. F., Cambridge University Press, UK
- (3) Principles of Insect Morphology, Snodgrass, R.E., Cornell Univ. Press, USA

Handwritten notes on lined paper, including the date 10/12/13 and various scribbles.

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FYUAP-11th SEM
(SEE)

LUMDING COLLEGE SESSION

Student's Attendance Register

LUM
YEAR
for the

Roll No.	NAME
2	DEEPSIKHA GHOSH
4	SUSMITA DUTTA
5	HAMSAINDI JOHORI
12	MAKHAN SHARMA
13	CHAMPA DAS
15	SUNANDA PAUL
20	DEBOBRATA DAS
21	DIBAKAR BHATTACHARJEE
22	ANANNYA PAUL
24	PRASAN LAL THAPA
26	ISHA DEY
28	RASHMI SHARMA
33	SHIBAMCHANDA
38	RINGSEN HASNU
41	PAPIYA MAZUMDAR
44	WAISONG KRAMSA
51	RUMA DAS
52	SHUVAM CHAKRABORTY
61	GUPAN DAS
74	ARCHANA DAS
77	PANKAJ NUNIA
19.	Meghin Naidhanga.
54.	Dhriti...
84	ANUJ CHAUHAN
87.	Hamsaduo Johori
27	Chinmoye Bhattacharjee

Marks of defaulter	20/11/22	21/11/22	22/11/22	23/11/22	24/11/22	25/11/22	26/11/22	27/11/22	28/11/22	29/11/22	30/11/22	01/12/22	02/12/22	03/12/22	04/12/22	05/12/22	06/12/22	07/12/22	08/12/22	09/12/22	10/12/22	11/12/22	12/12/22	13/12/22	14/12/22	15/12/22	16/12/22	17/12/22	18/12/22	19/12/22	20/12/22	21/12/22	22/12/22	23/12/22	24/12/22	25/12/22	26/12/22	27/12/22	28/12/22	29/12/22	30/12/22	31/12/22	01/01/23	02/01/23	03/01/23	04/01/23	05/01/23	06/01/23	07/01/23	08/01/23	09/01/23	10/01/23	11/01/23	12/01/23	13/01/23	14/01/23	15/01/23	16/01/23	17/01/23	18/01/23	19/01/23	20/01/23	21/01/23	22/01/23	23/01/23	24/01/23	25/01/23	26/01/23	27/01/23	28/01/23	29/01/23	30/01/23	31/01/23	01/02/23	02/02/23	03/02/23	04/02/23	05/02/23	06/02/23	07/02/23	08/02/23	09/02/23	10/02/23	11/02/23	12/02/23	13/02/23	14/02/23	15/02/23	16/02/23	17/02/23	18/02/23	19/02/23	20/02/23	21/02/23	22/02/23	23/02/23	24/02/23	25/02/23	26/02/23	27/02/23	28/02/23	29/02/23	01/03/23	02/03/23	03/03/23	04/03/23	05/03/23	06/03/23	07/03/23	08/03/23	09/03/23	10/03/23	11/03/23	12/03/23	13/03/23	14/03/23	15/03/23	16/03/23	17/03/23	18/03/23	19/03/23	20/03/23	21/03/23	22/03/23	23/03/23	24/03/23	25/03/23	26/03/23	27/03/23	28/03/23	29/03/23	30/03/23	31/03/23	01/04/23	02/04/23	03/04/23	04/04/23	05/04/23	06/04/23	07/04/23	08/04/23	09/04/23	10/04/23	11/04/23	12/04/23	13/04/23	14/04/23	15/04/23	16/04/23	17/04/23	18/04/23	19/04/23	20/04/23	21/04/23	22/04/23	23/04/23	24/04/23	25/04/23	26/04/23	27/04/23	28/04/23	29/04/23	30/04/23	01/05/23	02/05/23	03/05/23	04/05/23	05/05/23	06/05/23	07/05/23	08/05/23	09/05/23	10/05/23	11/05/23	12/05/23	13/05/23	14/05/23	15/05/23	16/05/23	17/05/23	18/05/23	19/05/23	20/05/23	21/05/23	22/05/23	23/05/23	24/05/23	25/05/23	26/05/23	27/05/23	28/05/23	29/05/23	30/05/23	31/05/23	01/06/23	02/06/23	03/06/23	04/06/23	05/06/23	06/06/23	07/06/23	08/06/23	09/06/23	10/06/23	11/06/23	12/06/23	13/06/23	14/06/23	15/06/23	16/06/23	17/06/23	18/06/23	19/06/23	20/06/23	21/06/23	22/06/23	23/06/23	24/06/23	25/06/23	26/06/23	27/06/23	28/06/23	29/06/23	30/06/23	01/07/23	02/07/23	03/07/23	04/07/23	05/07/23	06/07/23	07/07/23	08/07/23	09/07/23	10/07/23	11/07/23	12/07/23	13/07/23	14/07/23	15/07/23	16/07/23	17/07/23	18/07/23	19/07/23	20/07/23	21/07/23	22/07/23	23/07/23	24/07/23	25/07/23	26/07/23	27/07/23	28/07/23	29/07/23	30/07/23	31/07/23	01/08/23	02/08/23	03/08/23	04/08/23	05/08/23	06/08/23	07/08/23	08/08/23	09/08/23	10/08/23	11/08/23	12/08/23	13/08/23	14/08/23	15/08/23	16/08/23	17/08/23	18/08/23	19/08/23	20/08/23	21/08/23	22/08/23	23/08/23	24/08/23	25/08/23	26/08/23	27/08/23	28/08/23	29/08/23	30/08/23	31/08/23	01/09/23	02/09/23	03/09/23	04/09/23	05/09/23	06/09/23	07/09/23	08/09/23	09/09/23	10/09/23	11/09/23	12/09/23	13/09/23	14/09/23	15/09/23	16/09/23	17/09/23	18/09/23	19/09/23	20/09/23	21/09/23	22/09/23	23/09/23	24/09/23	25/09/23	26/09/23	27/09/23	28/09/23	29/09/23	30/09/23	01/10/23	02/10/23	03/10/23	04/10/23	05/10/23	06/10/23	07/10/23	08/10/23	09/10/23	10/10/23	11/10/23	12/10/23	13/10/23	14/10/23	15/10/23	16/10/23	17/10/23	18/10/23	19/10/23	20/10/23	21/10/23	22/10/23	23/10/23	24/10/23	25/10/23	26/10/23	27/10/23	28/10/23	29/10/23	30/10/23	31/10/23	01/11/23	02/11/23	03/11/23	04/11/23	05/11/23	06/11/23	07/11/23	08/11/23	09/11/23	10/11/23	11/11/23	12/11/23	13/11/23	14/11/23	15/11/23	16/11/23	17/11/23	18/11/23	19/11/23	20/11/23	21/11/23	22/11/23	23/11/23	24/11/23	25/11/23	26/11/23	27/11/23	28/11/23	29/11/23	30/11/23	01/12/23	02/12/23	03/12/23	04/12/23	05/12/23	06/12/23	07/12/23	08/12/23	09/12/23	10/12/23	11/12/23	12/12/23	13/12/23	14/12/23	15/12/23	16/12/23	17/12/23	18/12/23	19/12/23	20/12/23	21/12/23	22/12/23	23/12/23	24/12/23	25/12/23	26/12/23	27/12/23	28/12/23	29/12/23	30/12/23	31/12/23	01/01/24	02/01/24	03/01/24	04/01/24	05/01/24	06/01/24	07/01/24	08/01/24	09/01/24	10/01/24	11/01/24	12/01/24	13/01/24	14/01/24	15/01/24	16/01/24	17/01/24	18/01/24	19/01/24	20/01/24	21/01/24	22/01/24	23/01/24	24/01/24	25/01/24	26/01/24	27/01/24	28/01/24	29/01/24	30/01/24	31/01/24	01/02/24	02/02/24	03/02/24	04/02/24	05/02/24	06/02/24	07/02/24	08/02/24	09/02/24	10/02/24	11/02/24	12/02/24	13/02/24	14/02/24	15/02/24	16/02/24	17/02/24	18/02/24	19/02/24	20/02/24	21/02/24	22/02/24	23/02/24	24/02/24	25/02/24	26/02/24	27/02/24	28/02/24	29/02/24	01/03/24	02/03/24	03/03/24	04/03/24	05/03/24	06/03/24	07/03/24	08/03/24	09/03/24	10/03/24	11/03/24	12/03/24	13/03/24	14/03/24	15/03/24	16/03/24	17/03/24	18/03/24	19/03/24	20/03/24	21/03/24	22/03/24	23/03/24	24/03/24	25/03/24	26/03/24	27/03/24	28/03/24	29/03/24	30/03/24	31/03/24	01/04/24	02/04/24	03/04/24	04/04/24	05/04/24	06/04/24	07/04/24	08/04/24	09/04/24	10/04/24	11/04/24	12/04/24	13/04/24	14/04/24	15/04/24	16/04/24	17/04/24	18/04/24	19/04/24	20/04/24	21/04/24	22/04/24	23/04/24	24/04/24	25/04/24	26/04/24	27/04/24	28/04/24	29/04/24	30/04/24	01/05/24	02/05/24	03/05/24	04/05/24	05/05/24	06/05/24	07/05/24	08/05/24	09/05/24	10/05/24	11/05/24	12/05/24	13/05/24	14/05/24	15/05/24	16/05/24	17/05/24	18/05/24	19/05/24	20/05/24	21/05/24	22/05/24	23/05/24	24/05/24	25/05/24	26/05/24	27/05/24	28/05/24	29/05/24	30/05/24	31/05/24	01/06/24	02/06/24	03/06/24	04/06/24	05/06/24	06/06/24	07/06/24	08/06/24	09/06/24	10/06/24	11/06/24	12/06/24	13/06/24	14/06/24	15/06/24	16/06/24	17/06/24	18/06/24	19/06/24	20/06/24	21/06/24	22/06/24	23/06/24	24/06/24	25/06/24	26/06/24	27/06/24	28/06/24	29/06/24	30/06/24	01/07/24	02/07/24	03/07/24	04/07/24	05/07/24	06/07/24	07/07/24	08/07/24	09/07/24	10/07/24	11/07/24	12/07/24	13/07/24	14/07/24	15/07/24	16/07/24	17/07/24	18/07/24	19/07/24	20/07/24	21/07/24	22/07/24	23/07/24	24/07/24	25/07/24	26/07/24	27/07/24	28/07/24	29/07/24	30/07/24	31/07/24	01/08/24	02/08/24	03/08/24	04/08/24	05/08/24	06/08/24	07/08/24	08/08/24	09/08/24	10/08/24	11/08/24	12/08/24	13/08/24	14/08/24	15/08/24	16/08/24	17/08/24	18/08/24	19/08/24	20/08/24	21/08/24	22/08/24	23/08/24	24/08/24	25/08/24	26/08/24	27/08/24	28/08/24	29/08/24	30/08/24	31/08/24	01/09/24	02/09/24	03/09/24	04/09/24	05/09/24	06/09/24	07/09/24	08/09/24	09/09/24	10/09/24	11/09/24	12/09/24	13/09/24	14/09/24	15/09/24	16/09/24	17/09/24	18/09/24	19/09/24	20/09/24	21/09/24	22/09/24	23/09/24	24/09/24	25/09/24	26/09/24	27/09/24	28/09/24	29/09/24	30/09/24	01/10/24	02/10/24	03/10/24	04/10/24	05/10/24	06/10/24	07/10/24	08/10/24	09/10/24	10/10/24	11/10/24	12/10/24	13/10/24	14/10/24	15/10/24	16/10/24	17/10/24	18/10/24	19/10/24	20/10/24	21/10/24	22/10/24	23/10/24	24/10/24	25/10/24	26/10/24	27/10/24	28/10/24	29/10/24	30/10/24	31/10/24	01/11/24	02/11/24	03/11/24	04/11/24	05/11/24	06/11/24	07/11/24	08/11/24	09/11/24	10/11/24	11/11/24	12/11/24	13/11/24	14/11/24	15/11/24	16/11/24	17/11/24	18/11/24	19/11/24	20/11/24	21/11/24	22/11/24	23/11/24	24/11/24	25/11/24	26/11/24	27/11/24	28/11/24	29/11/24	30/11/24	01/12/24	02/12/24	03/12/24	04/12/24	05/12/24	06/12/24	07/12/24	08/12/24	09/12/24	10/12/24	11/12/24	12/12/24	13/12/24	14/12/24	15/12/24	16/12/24	17/12/24	18/12/24	19/12/24	20/12/24	21/12/24	22/12/24	23/12/24	24/12/24	25/12/24	26/12/24	27/12/24	28/12/24	29/12/24	30/12/24	31/12/24	01/01/25	02/01/25	03/01/25	04/01/25	05/01/25	06/01/25	07/01/25	08/01/25	09/01/25	10/01/25	11/01/25	12/01/25	13/01/25	14/01/25	15/01/25	16/01/25	17/01/25	18/01/25	19/01/25	20/01/25	21/01/25	22/01/25	23/01/25	24/01/25	25/01/25	26/01/25	27/01/25	28/01/25	29/01/25	30/01/25	31/01/25	01/02/25	02/02/25	03/02/25	04/02/25	05/02/25	06/02/25	07/02/25	08/02/25	09/02/25	10/02/25	11/02/25	12/02/25	13/02/25	14/02/25	15/02/25	16/02/25	17/02/25	18/02/25	19/02/25	20/02/25	21/02/25	22/02/25	23/02/25	24/02/25	25/02/25	26/02/25	27/02/25	28/02/25	29/02/25	01/03/25	02/03/25	03/03/25	04/03/25	05/03/25	06/03/25	07/03/25	08/03/25	09/03/25	10/03/25	11/03/25	12/03/25	13/03/25	14/03/25	15/03/25	16/03/25	17/03/25	18/03/25	19/03/25	20/03/25	21/03/25	22/03/25	23/03/25	24/03/25	25/03/25	26/03/25	27/03/25	28/03/25	29/03/25	30/03/25	31/03/25	01/04/25	02/0
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Student's Attendance Register

Marks of defaulter

Roll No.	NAME	Marks of defaulter
3	SUBHAM JHA	
12	NISHAN DIFOESA	
27	ABHAY KUMAR CHAUHAN	
34	JUBIN DIPHUSA	
36	TEMSHI AO	
38	RONSRING LANGTHASA	
47	SWEETA SINGH	
48	ROSTOM TERON	
58	AMRIT KUMAR SINGH	
59	RISHI KUMAR SINGH	
62	MONDIAL RONGHANG	

BSc. VIth SEM
(HONS)

— * 14th Feb. Holiday (Saraswati Pooja)

12th Feb - Class Suspended

LUMDING COLLEGE

SESSION

Student's Attendance Register

**LUMDING, A
YEAR**

for the month of.... Feb

Roll No.	NAME
13	SAURAV SHIL
34	SUBJEET DAS
36	SUJATA DAS
38	RINGPHULI NUNISA
56	PRANAB MAHANTA
57	ROHIT DAS
59	ANURADHA KUMARI CHAUHAN
67	SARITA KUMARI PRASAD
96	JOY DAS
109	DHARMENDRA SINGH

Handwritten notes on lined paper, including a date '4/26/02' and a list of numbers: 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.



Fig:- Visit to CIFA, Bhubaneswar, Odisha



Fig:- Visit to Museum In Diphu, Karbi Anglong



Fig:- Visit to Karbi Museum



Fig:- Field trip to Kaziranga National Park

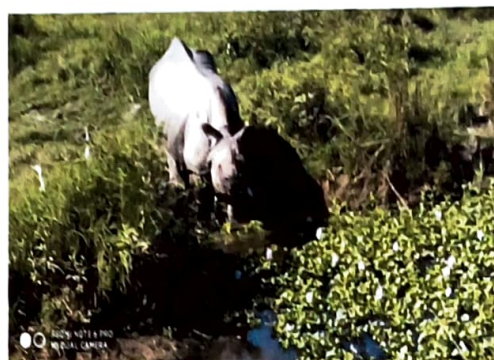


Fig:- Zif safari to explore diversity of Kaziranga National Park, Assam, India.

LUMDING COLLEGE

PROJECT REPORT

ZOO-HC-2016

TOPIC: LARVAL FORMS OF ECHINODERMATA

NAME - Satabdi Majumder

SEMESTER - 2nd semester

GI. UROLL NO. - US-221-304-0008

SUBJECT - ZOOLOGY (Honours)

DATE OF SUBMISSION - 29-04-2023

SESSION - 2022-23

Larvae of Asteroidea

There are three larval stages in Asteroidea in the course of their development to adult stage.

Early bipinnaria: appears like hypothetical dipleura. It has oval body without arms and grows to become bipinnaria.

Bipinnaria:

Bipinnaria larva possesses 5 pairs of ciliated arms which do not have any skeletal support inside. These arms are used for swimming in water while feeding on planktons. Pre-oral and post-oral ciliary bands are also present. This larva resembles auricularia larva of Holothuroidea in general appearance.

Brachiolaria:

Brachiolaria larva is formed after 6-7 weeks of life and growth of bipinnaria. This larva is sedentary and remains attached to a hard substratum for which it possesses three brachiolarian arms having adhesive discs at the tip. Ciliated arms get reduced and become thin and functionless, while mouth, anus and gut are well developed. It has axocoel, hydocoel and somatocoel that later on give rise to water vascular system. Development of starfish takes place inside the sedentary brachiolaria which ruptures and releases tiny starfish into water.

LUMDING COLLEGE

LUMDING : ASSAM



TOPIC : INTRODUCTION TO PHOTOGRAPHY

Submitted by :-

Name : Rohit Kumar Dey

Year :- 2023-24

Class Roll No: 0056

Subject : Zoology(ZOO-SE-4016) (4021)

G.U. Roll No : US-221-304-0007

Registration No (GU) : 22022485

Submitted to :-

Department of Zoology

*Checked
Signature*

Introduction to photography.

Photography is the art, application and practice of making images by recording light, either electronically by means of an image sensor or chemically by means of light sensitive materials such as photographic film. It found its many fields of interest, manufacturing and business, as well as in direct use for art, film and video production, educational purposes, hobby and mass communication.

Typically a lens is used to focus the light reflected or emitted from objects into an real image on light sensitive surface inside a camera during exposure, with an electronic image sensor this produces electrical charge at each pixel, which is electronically processed and stored in digital image form for subsequently & digital processing. The result with photographic emulsion is an invisible latent image which is laterally chemical 'developed' into a visible image, either negative or positive, depending on the purpose of photographic method and the method is processing. A negative image on film is traditionally used to photographically create a positive image on a paper base known as print, either by using or enlarger or by contact printing.

A very large variety of photographic techniques and media are used in the process of capturing images for photography, including with the camera, anastigmatography; full-spectrum, ultraviolet & infrared media. Other full photography & other imaging techniques.



A



B



C



D

Fig: (A) Door of mesuem
 (B) Front of Nothengpi
 (C) Portrait of Kasang Begpi
 (D) picture of Jambili

LUMDING COLLEGE



ZOOLOGY :: ASSIGNMENT

**TOPIC:- PHOTOGRAPHY AND ECO-TOURISM OF
KAZIRANGA NATIONAL PARK**



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UNIVERSITY ROLL NO:- US - 201 - 304 - 0055

REGISTRATION NO:- 20061330

CLASS ROLL NO:- 24

CLASS:- B.SC 6TH SEM REGULAR

SUBJECT:- ZOOLOGY SKILL

Checked
Entry
Assignment — 25
Viva voce — 24
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49

Kaziranga National Park: A Haven of Biodiversity Conservation



Introduction: Kaziranga National Park, located in the northeastern state of Assam, India, is a remarkable wildlife sanctuary renowned for its biodiversity and conservation successes. Established in 1905, the park covers an area of approximately 430 square kilometers and is recognized as a UNESCO World Heritage site. It represents a pristine ecosystem, comprising expansive grasslands, wetlands, dense forests, and meandering rivers, making it a haven for diverse flora and fauna.

The Jewel in Kaziranga's crown is its population of the endangered Indian rhinoceros, which has made a remarkable recovery under the Park's vigilant protection. Kaziranga is home to more than 80% of the world's remaining population of one-horned rhinos, making it the single most important sanctuary for their conservation. In addition to the rhinos, the park shelters a wide array of other endangered and iconic species, including Bengal tigers, Asian elephants, wild water buffaloes and swamp deer.

The park's topography is characterized by extensive grasslands interspersed with patches of dense forests,

one-horned rhinoceros has shown significant growth over the years, thanks to dedicated conservation initiatives, strict anti-poaching measures and habitat management. The park's model has become a blueprint for rhinoceros conservation worldwide.



4/ Unique Wildlife Experiences: Visitors to Kaziranga have the opportunity to engage in thrilling wildlife experiences, such as Jeep safaris and elephant safaris. These excursions offer a chance to observe the park's magnificent animals up close while appreciating the breathtaking beauty of the surrounding. The park also organizes bird-watching tours, where enthusiasts can spot a diverse range of resident and migratory

species, including the globally threatened Bengal
flamingo, greater adjutant stork, Pallas's fish eagle,
swamp francolin, and the rare white-winged wood
duck. The wetlands and marshes provide ideal habitat
for both resident and migratory birds, making it
a birdwatcher's delight.



Floral Diversity: Kaziranga boasts a rich variety
of flora, with more than 1,000 species of plants
identified in the park. The dominant vegetation
includes tall elephant grass, which forms extensive
grasslands. Additionally, Kaziranga features dense
tropical forests comprising trees like the Indian
rosewood, cotton tree, kumbhi, and elephant apple.
The park also has numerous aquatic plants, including
water lilies, lotus, and water hyacinthus that
thrive in the wetlands and lakes.

Teaching learning process



Fig:- Some glimpses of student centric methods of teaching learning process in the Dept. of Zoology