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UNIVERSITY OF SCIENCE & TECHNOLOGY, MEGHALAYA  
DEPARTMENT OF ZOOLOGY  
LESSON PLAN

FACULTY NAME: Dr. Kangkan Jyoti Sarma

DESIGNATION: Assistant Professor

Program E: BSc Zoology

SEMESTER: V

Course CODE: BSZ - 503

Course NAME: Fish and Fishery

UNIT	Topic	Tentative Number of Classes	Remarks
I	General description; Introduction and Classification of fishes (upto classes)	15	
II	Morphology and Physiology of fishes	15	
V	Transgenic fishes and applications in fishery	3	

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Meghalaya

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DEPARTMENT OF ZOOLOGY  
LESSON PLAN

FACULTY NAME: Dr. Kangkan Jyoti Sarma

DESIGNATION: Assistant Professor

Program: M.Sc. Zoology

SEMESTER: III

Course CODE: BSZ – 303 C

Course NAME: Fish and Fishery Biology - I

UNIT	Topic	Tentative Number of Classes	Remarks
I	<b>Anatomy and Physiology:</b> <ul style="list-style-type: none"><li>• Skeletal system of teleost</li><li>• Respiratory system and associated organ systems</li><li>• Excretion and Osmoregulation</li><li>• Digestion and food habits</li></ul>	35	
II	<b>Applied Fish and Fishery:</b> <ul style="list-style-type: none"><li>• Fish diversity and classification; Endemic fishes of North East India</li><li>• Endangered fishes of NE India</li><li>• Fish indices: biological aspects of fishes</li></ul>	30	

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LESSON PLAN

FACULTY NAME: Mr. Sudipta Nag

DESIGNATION: Assistant Professor


COURSE: B.Sc. Zoology


SEMESTER: III

COURSE CODE: BSZ 301

COURSE NAME: Diversity of Chordates

UNIT	Topic	Tentative Number of Classes	Remarks
I	Phylum Chordata <ul style="list-style-type: none"><li>• Protochordata</li><li>• Hemichordata</li></ul>	12	
II	Urochordata Cephalochordata Vertebrata	10	

  
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LESSON PLAN

FACULTY NAME: Mr. Sudipta Nag

DESIGNATION: Assistant Professor


(Program :: M.Sc. Zoology

SEMESTER: III

Course CODE: MSZ 303B

Course NAME: Animal Ecology and Wildlife Biology

UNIT	Topic	Tentative Number of Classes	Remarks
I	Topic 2 and 3	12	
III	Topic 2	05	

  
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LESSON PLAN

FACULTY NAME: Mr. Sudipta Nag

DESIGNATION: Assistant Professor

Program: M.Sc. Zoology

SEMESTER: III

Course CODE: MSZ 306

Course NAME: Bioresource and Wildlife Management

UNIT	Topic	Tentative Number of Classes	Remarks
I	Bioresource	10	
IV	Forest management	08	

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LESSON PLAN

Dr.

FACULTY NAME: Dr. Palki Hazarika

DESIGNATION: Assistant Professor

Program :: BSZ

SEMESTER: B. Sc-III

P. Course CODE: BSZ-303

PAPER NAME: Fundamentals of Biochemistry

UNIT	Topic	Tentative Number of Classes	Remarks
1	1. Chemical foundation of biology-pH, pK, acids, bases, buffers, free energy, isomerisation	4	
	2. Classification & biological significance of carbohydrates, amino acids and peptides, protein, lipids and nucleic acids	6	
2	3. Enzymes-nature and classification, Mechanism of enzyme action, enzyme kinetics, enzyme inhibition.	4	
	4. Metabolism-underlying theoretical principles: thermodynamics, redox reactions, ATP and its role in Bioenergetics	5	

COURSE: BSZ

SEMESTER: B. Sc-V

PAPER CODE: BSZ-504

PAPER NAME: Parasitology

UNIT	Topic	Tentative Number of Classes	Remarks
1	1. Introduction to parasitology: types of parasites, types of hosts, Zoonosis, Sources of infection and mode of infections.	5	
	2. Features and Classification of Protozoa	2	
2	3. Morphology, life cycle and pathogenesis of	1	

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	Entamoeba histolytica 4. Morphology, life cycle and pathogenesis of Giardia	1	
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Program: MSZ


SEMESTER: M. Sc-III

Course  
COURSE CODE: MSZ-303(E)

COURSE NAME: Animal Physiology and Biochemistry

UNIT	Topic	Tentative Number of Classes	Remarks
1	1. Structure of atoms and molecules, Chemical bonds in biomolecules	4	
	2. Laws of Thermodynamics, Biological Redox reactions	3	
	3. Proteomics	6	

  
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LESSON PLAN

Priya

FACULTY NAME: Ms. Priyanka Phukan


Program: B.Sc. Zoology

SEMESTER: V

Course CODE: BSZ 502

Course NAME: Principles of Genetics

UNIT	Topic	Tentative Number of Classes	Remarks
I	Mendelian Laws, Genetic expression and linkage	10	
II	Crossing over, Sex determination, Genetic diseases	07	

  
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**UNIVERSITY OF SCIENCE & TECHNOLOGY, MEGHALAYA**  
**DEPARTMENT OF ZOOLOGY**  
**LESSON PLAN**

**FACULTY NAME:** Dr. Rubaiya Hasan

**DESIGNATION:** Assistant Professor

**COURSE:** MSZ

**SEMESTER:** M. Sc-III

**PAPER CODE:** MSZ-303(E)

**PAPER NAME:** Animal Physiology and Biochemistry

UNIT	Topic	Tentative Number of Classes	Remarks
1	1. Michaelis Menten approach to enzyme kinetics. Significance of Km and Vmax. Lineweaver-Bruk plot.	3	
	2. Bisubstrate and multisubstrate reactions. Regulation of enzyme activity- activators and inhibitors .	4	
	3. Pentose phosphate pathway. Conversion of amino acids to porphyrins, purines and pyrimidines.	5	
	4. Intermediary metabolism. Linkage of metabolic pathways.	3	

**COURSE:** B. Pharm

**SEMESTER:** B.Pharm -I


**PAPER CODE:** BP106RBT

**PAPER NAME:** Remedial Biology

UNIT	Topic	Tentative Number of Classes	Remarks
1	1. <b>Living world:</b> Definition and characters of living organisms. Diversity in the living world. Binomial nomenclature. Five kingdoms of life and basis of classification. Salient features of Monera, Protista, Fungi, Animalia and Plantae, Virus.	4	
2	1. <b>Body fluids and circulation:</b> Composition of blood, blood groups, coagulation of blood. Composition and functions of	4	

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	<p>lymph. Human circulatory system. Structure of human heart and blood vessels. Cardiac cycle, cardiac output and ECG.</p> <p>2. Digestion and Absorption: Human alimentary canal and digestive glands. Role of digestive enzymes. Digestion, absorption and assimilation of digested food</p>	4	
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UNIVERSITY OF SCIENCE & TECHNOLOGY, DEPARTMENT OF ZOOLOGY

LESSON PLAN Session: 2021-22 (Odd Semester)

FACULTY NAME: WANAZ NASREEN ISLAM  
DESIGNATION: ASSISTANT PROFESSOR

COURSE: B.Sc ZOOLOGY

SEMESTER: III

PAPER CODE: BSZ 302

PAPER NAME: PHYSIOLOGY: CONTROLLING AND COORDINATING SYSTEMS.

Unit	Topic	Tentative No. of Classes	Tentative Schedule	Remarks	Unit Alloted for Sessional Test.
III	1. Pancreas: Structure of Islets of Langerhans, Insulin and glucagon hormones, their functions.	10	22/9/21 to 10/11/21	Continuing	1 <sup>ST</sup> SESSIONAL UNIT III Topic 1.
	2. Adrenal: Structure, Hormones of Adrenal gland and their functions.	10	12/11/21 to 30/11/21	Yet to be completed.	2 <sup>ND</sup> SESSIONAL UNIT III Topic 2

  
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IV	1. Testis & Ovary: Structure and Function	10	1/12/21 To 15/12/21.	Yet to be completed	3 <sup>rd</sup> sessional
	2. Mechanism of hormone action of Peptide & Steroid.	10	16/12/21 To 31/12/21	do	Unit IV Topic 1 & 2
<b>REVISION</b>	<b>Doubt clearing sessions</b>	<b>10</b>	<b>1/1/22 To 20/1/22</b>		

COURSE: B.Sc ZOOLOGY

SEMESTER: V

PAPER CODE: BSZ 501

PAPER NAME: MOLECULAR BIOLOGY

Unit	Topic	Tentative No. of Classes	Tentative Schedule	Remarks	Unit Allotted for Sessional Test.
UNIT I	1. Introduction: concept, significance and historical background of molecular biology.	5	22/9/21 to 22/10/21	Continuing	1 <sup>st</sup> SESSIONAL UNIT I  Topic 1
	2: Identification of genetic material: Direct and indirect evidences of DNA and RNA as genetic material.	10	28/10/21 to 20/11/21	Yet to be completed.	2 <sup>nd</sup> sessional Topic  Unit I(Topic 2)  UNIT III Topic 1

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<b>REVISION</b>	UNIT III: 1. RNA- mechanism of transcription in prokaryotes	10	20/11/21 To 31/12/21.	Yet to be completed	3 <sup>rd</sup> sessional UNIT III Topic 2
	2. Genetic code and its characteristics	10	1/1/22 To 15/1/22	Yet to be completed.	
	Doubt clearing topics	5	15/1/22 to 25/1/22	Yet to be completed.	

COURSE: M.Sc ZOOLOGY

SEMESTER: III

PAPER CODE:MSZ 402A


PAPER NAME: Cell and Molecular Biology-II

Unit	Topic	Tentative No. of Classes	Tentative Schedule	Remarks	Unit Alloted for Sessional Test.
III	1. Vectors- Plasmids, Cosmids, Bacteriophage, BAC and YAC vectors.	15	8/10/21 to 25/11/21	Continuing	1 <sup>st</sup> sessional Portion UNIT III Topic 1
	2. Molecular Cytogenetic Techniques- FISH, Chromosome painting, Flow Cytometry, Polymerase Chain Reaction (PCR), Microarray.	20	26/11/21 To 31/12/21	Yet to be completed	2 <sup>nd</sup> sessional UNIT III Topic 2

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	3. Restriction enzymes and DNA modifying enzymes.	8	1/1/22 To 15/1/22	Do	3 <sup>rd</sup> sessional UNIT III Topic 3.
REVISION	Doubt Clearing topics	5	16/1/22 To 25/1/22	Do	



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LESSON PLAN

FACULTY NAME: Dr. Dipankar Dutta

DESIGNATION: Assistant Professor

COURSE: B.Sc. Zoology (BSZ)

SEMESTER: III

PAPER CODE: BSZ 301

PAPER NAME: Diversity of Chordates

UNIT	Topic	Tentative Number of Classes required	Remarks
Unit- 3	<ol style="list-style-type: none"> <li>1. Biological significance of Ostracodermi, Affinities of Cyclostomata, Biological significance of Placodermi.</li> <li>2. Pisces: Classification up to order; Air bladder and its signification and migration.</li> <li>3. Amphibia: Classification up to order; respiration, parental care.</li> </ol>	14 classes	
Unit- 4	<ol style="list-style-type: none"> <li>1. Reptilia: Classification up to order; skull types, status of Sphenodon, Biting mechanism of poisonous snakes.</li> <li>2. Aves: Classification up to order; Flight adaptation and mechanism of flight and perching in birds, migration in birds.</li> <li>3. Mammalia: Classification up to order; dentition, general features of egg laying mammals, pouched-mammals, aquatic mammals and primates.</li> </ol>	16 classes	

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LESSON PLAN

FACULTY NAME: Dr. Dipankar Dutta


DESIGNATION: Assistant Professor

COURSE: B.Sc. Zoology (BSZ)

SEMESTER: V

PAPER CODE: BSZ 504

PAPER NAME: Parasitology

UNIT	Topic	Tentative Number of Classes required	Remarks
Unit- III	1. Helminths: General Characteristics and Classification. 2. General Characteristics of Cestodes (Tapeworms) 3. <i>Taenia solium</i> : Morphology, Life cycle and Pathogenesis. 4. General Characteristics of Flukes; <i>Fasciola hepatica</i> : Morphology, Life cycle and pathogenesis.	12classes	
Unit- IV	1. Nematodes: General characteristics and classification. 2. Hook Worm- <i>Ancylostoma duodenale</i> : Morphology, Life cycle and pathogenesis. 3. Round Worm- <i>Ascaris lumbricoides</i> : Morphology, Life cycle and pathogenesis. 4. Filarial worms- <i>Wuchereriabancrofti</i> :Morphology, Life cycle and pathogenesis.	10 classes 	



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LESSON PLAN

FACULTY NAME: Dr. Dipankar Dutta

DESIGNATION: Assistant Professor

COURSE: M.Sc. Zoology (MSZ)

SEMESTER: III

PAPER CODE: MSZ 301

PAPER NAME: Genetics and Evolution

UNIT	Topic	Tentative Number of Classes required	Remarks
Unit- IV	<b>UNIT-IV</b> 1. Isolation Mechanisms- Isolation Mechanisms and their role in speciation, Models of speciation (Allopatric, sympatric, parapatric) 2. Gene frequencies in population- The Hardy-Weinberg principle and analysis of gene frequencies in natural population. Major factors influencing gene frequencies (migration, inbreeding), effects of selection and mutation on gene frequencies. Gene flow between subpopulations. 3. Molecular basis of evolution- Constructing evolutionary trees, measures of genetic relationship among organisms, Molecular clock of evolution, Molecular phylogeny. 4. Origin and Evolution of Primates- Evolution of Anthropoid Primates, The first hominids and origin of modern man.	20classes	

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LESSON PLAN

FACULTY NAME: Dr. Dipankar Dutta

DESIGNATION: Assistant Professor

COURSE: M.Sc. Zoology (MSZ)

SEMESTER: III

PAPER CODE: MSZ 303-A

PAPER NAME: Cell & Molecular Biology-I  
(Special Paper)

UNIT	Topic	Tentative Number of Classes required	Remarks
Unit- II	<b>UNIT-II:</b> 1. Membrane targeting of Protein- Processing through endomembrane system, Targeting of cytosolic protein, Protein trafficking mechanism. 2. The Nucleus- Molecular structure of Nucleus, Structure of Nucleolus, Biogenesis of ribosomes, Nuclear receptors, Protein imports into cell nucleus.	18 classes	



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