Lesson Plan

Department of Zoology, Basirhat College

Session- 2021-2022…… January-June

General

Semester- 2nd SEM

Lesson Plan for Course: : ZOOGCOR02T, Physiology and Biochemistry CREDIT 4

1. **Course coordinator:..CHINMAY GHOSH…**
2. **Course Outcome** :
   - i) CO1: Understand the detailed functioning of neural, muscular, circulatory, digestive, excretory and reproductive system.
   - ii) CO2. Explain the coordination of different body system through the action of neural and endocrine pathways.
   - **iii)** CO3. Apply the theoretical knowledge for identifying different histological slide preparations of mammalian tissues
   - iv) CO4: Understand the structure and biological importance of protein, carbohydrate and lipid.
   - v) CO5. Attain knowledge about fundamentals of biochemical reactions and their catalysis by enzymes
   - vi) CO5. Explain different biochemical pathways for synthesize, transformation and metabolism of biomolecules
   - vii) CO5. Can perform classical laboratory techniques for identification of different functional groups of biomolecules and estimate total protein in a solution.

Course planner

Month	Course Topic	Teacher	Class-hour	Remarks*
FEB	Unit-1 Nerve and muscle	**CHINMAY GHOSH**		
	1. Structure of a neuron, Resting membrane potential, Graded potential, Origin of Action potential		1	Theoretical, PPT presentation, animation from YouTube
	its propagation in myelinated and non-myelinated nerve fibres.		2	Theoretical, PPT presentation, animation from youtube
MAR	2. Ultra-structure of skeletal muscle, Molecular and chemical basis of muscle contraction.		2	Theoretical, PPT presentation, Google meet,

				animation from youtube
	Unit-2 Digestion	**CHINMAY GHOSH**		
	Physiology of digestion in the alimentary canal;		1	Theoretical, PPT presentation, Google meet, animation from YouTube
	Absorption of carbohydrates, proteins, lipids		3	Theoretical, PPT presentation, animation from YouTube
	Unit-3 Respiration	**CHINMAY GHOSH**		
	Pulmonary ventilation, Respiratory volumes and capacities, Transport of Oxygen and carbon dioxide in blood		3	Theoretical, PPT presentation, animation from YouTube
APRIL	Unit-4 Excretion	**CHINMAY GHOSH**		
	Structure of nephron,		1	Theoretical, PPT presentation, animation from YouTube
	Mechanism of Urine formation, Counter-current Mechanism		1	Theoretical, PPT presentation, notes in Google classroom
	Unit-5 Cardiovascular system			
	Composition of blood,		1	Theoretical, PPT presentation, animation from YouTube
	Homeostasis,		1	Theoretical, PPT presentation, animation from YouTube
	Structure of Heart,		1	Theoretical, PPT presentation, animation from YouTube
	Origin and conduction of the cardiac impulse, Cardiac cycle		3	Theoretical, PPT presentation, animation from YouTube
MAY	Unit-6 Reproduction and Endocrine Glands	**CHINMAY GHOSH**		
	Physiology of male reproduction		1	Theoretical, PPT presentation,

				animation from YouTube
	hormonal control of spermatogenesis		1	Theoretical, PPT presentation, animation from YouTube
	Physiology of female reproduction:		1	Theoretical, PPT presentation, animation from YouTube
	hormonal control of menstrual cycle.		1	Theoretical, PPT presentation, animation from YouTube
	Structure and function of pituitary, thyroid, pancreas and adrenal		2	Theoretical, PPT presentation, animation from YouTube
	Unit 7 Carbohydrate: Structure and Metabolism	**CHINMAY GHOSH**		
	Introduction to Carbohydrates, Structure & Types of Carbohydrates,		2	Theoretical, PPT presentation, animation from YouTub
	Isomerism, Introduction to Intermediary metabolism: Glycolysis, Krebs cycle		2	Theoretical, PPT presentation, animation from YouTube
JUNE	Pentose phosphate pathway, Gluconeogenesis, Electron transport chain		1	Theoretical, PPT presentation, animation from YouTube
	Unit-8 Lipid: Structure and Metabolism	**CHINMAY GHOSH**		
	Introduction to Lipids: Definitions; fats and oils; classes of lipids; Lipoproteins; Biosynthesis and β oxidation of palmitic acid		1	Theoretical, PPT presentation, animation from YouTube
	Unit-9 Protein: Structure and metabolism	**CHINMAY GHOSH**		
	Proteins and their biological functions, functions of amino acids, physicochemical properties of amino acids.		2	Theoretical, PPT presentation, animation from YouTube

	Peptides – structure and properties; primary structure of protein, secondary, tertiary and quaternary structures. Transamination, Deamination and Urea Cycle.		2	Theoretical, PPT presentation, animation from YouTube
	Unit-10 Enzymes	**CHINMAY GHOSH**		
	Introduction, Classification of Enzymes, Mechanism of action, Enzyme Kinetics, Inhibition and Regulation		1	
	Class Test		1	IN CLASSR OOM
	TOTAL CLASS IN HOURS		38	

Resources :

1. Berg, J. M., Tymoczko, J. L. and Stryer, L. (2006). Biochemistry. VI Edn. W.H Freeman & Co.
2. Chatterjea, MN and Shinde, R (2012) . A Textbook of Medical Biochemistry. 8th Edn. Jaypee Pub., N.Delhi
3. Guyton, A.C. and Hall, J.E. (2011). Textbook of Medical Physiology, XII Edition, Harcourt Asia Pvt. Ltd/ W.B. Saunders Company
4. Murray, R.K., Granner, D.K., Mayes, P.A. and Rodwell, V.W. (2009). Harper'sIllustrated Biochemistry. XXVIII Edition. Lange Medical Books/Mc Graw3Hill.
5. Nelson, D. L., Cox, M. M. and Lehninger, A.L. (2009). Principles of Biochemistry. IV Edition. W.H. Freeman and Co.
6. Sherwood, L. (2013). Human Physiology from cells to systems. 8th Edn., Brooks & Cole
7. Tortora, G.J. and Derrickson, B.H. (2009). Principles of Anatomy and Physiology, XII Edition, John Wiley & Sons, Inc.
8. Widmaier, E.P., Raff, H. and Strang, K.T. (2008) Vander's Human Physiology, XI Edition., McGraw Hill
9. Elaine N. Marieb, 2006. Human Anatomy & Physiology, Pearson Education.

***Remarks will specify**

- The nature of the class-topic (viz. Theoretical, Practical, and Tutorial).
- Methodology of teaching (whether using ICT, engaging students in group discussion, quiz etc. etc.)
- Different modes of assessment. (Please check UGC evaluation reforms).

Semister- 4th SEM

Lesson Plan for Course: Environment and public health...Code: ZOOGCOR04 ….Credit: 4….

Course coordinator:..**UDAY HOSSAIN**…

Course Outcome :

viii) CO1: Can recognize the sources of hazardous substances for environment and can understand their toxicity in living system.

ix) CO2: Can understand the importance of climate change and their effect on public health.

x) CO3: Can appreciate the mechanism of different kinds of pollution due to human activity and its consequences as manifested in different health issues.

xi) CO4: Can understand how waste is generated in modern human societies and how it should be managed for cleaner and healthier society.

xii) CO5: Can determine different environmental pollution parameter through suitable laboratory techniques.

Course planner

Month	Course Topic	Teacher	Class-hour	Remarks*
FEB	**Unit 1: Introduction**	**Uday Hossain**		
	Sources of environmental hazards		3	Theoretical, PPT presentation, Black board
	Fate of Toxic and persistant substances in environment		2	Theoretical, PPT presentation, Black board
	Unit 2: Climate change	**Uday Hossain**		
	Greenhouse gases and global warming, Acid rain		3	Theoretical, PPT presentation, Black board
MARCH	Ozone layer destruction		2	Theoretical, PPT presentation,

For CBCS

	Effect of climate change on public health		2	Theoretical, PPT presentation,
	Unit 3: Pollution	**Uday Hossain**		
	Air pollution: source and effect		3	Theoretical, PPT presentation, Black board
	Water pollution: sources and effects		3	Theoretical, PPT presentation,
	Pollution control		2	Theoretical, PPT presentation,
	Class Test		1	10 marks question, offline
	Unit 4: Waste management technologies	**Uday Hossian**		
	Sources of wastes		2	Theoretical, PPT presentation,
	Types and characteristics of wastes		2	Theoretical, PPT presentation,
April	Sewage disposal and its management		4	Theoretical, PPT presentation,
	Solid waste disposal		2	Theoretical, PPT presentation,
	Biochemical waste handling and disposal		2	Theoretical, PPT presentation,
	Class test		1	10 marks question, offline
	Nuclear waste handling and disposal		4	Theoretical, PPT presentation,
May	Waste from thermal power plants		3	Theoretical, PPT presentation, Google meet, notes in Google classroom
	Unit 5: Diseases	**Uday Hossain**		
	Introduction		1	Theoretical, PPT presentation, Google meet, notes in Google classroom

	Tuberculosis		3	Theoretical, PPT presentation, Google meet, notes in Google classroom
	Asthma		3	Theoretical, PPT presentation, Google meet, notes in Google classroom
	Cholera		3	Theoretical, PPT presentation, Google meet, notes in Google classroom
	Minamata disease		2	Theoretical, PPT presentation, Google meet, notes in Google classroom
	Class test		1	In Google classroom
June	Typhoid		3	Theoretical, PPT presentation, Google meet, notes in Google classroom
	Filariasis		3	Theoretical, PPT presentation, Google meet, notes in Google classroom
			Total: 58 Hrs	

Resources :

1. Books: Cutter, S.L, Environmental risk and hazards, Joseph F Louvar and B Diane Louver Health and Environmental Risk Analysis fundamentals with applications; "Risk assessment and management handbook", Kolluru Rao, Bartell Steven, Pitblado R and Stricoff, Kofi Asante Duah " Risk assessment in environmental management.

2. Other resources : Youtube animation links, Wikipedia, some ebooks

*Remarks will specify

- The nature of the class-topic (viz. Theoretical, Practical, and Tutorial).
- Methodology of teaching (whether using ICT, engaging students in group discussion, quiz etc. etc.)
- Different modes of assessment. (Please check UGC evaluation reforms).

Semister- 6th SEM

Lesson Plan for Course:… Applied Zoology. Code…ZOOGDSE04T. Credit……06.

- Course coordinator:……Subharaj Paul
  Course Outcome

  - **CO1**: In this DSE course component, students can learn about in depth knowledge of tissues, cells and molecules involved in host defence mechanisms
  - **CO2**: To understand the types and content of immunity.
  - **CO3**: To know about the interactions of antigens, antibodies, complements and other immune components.
  - **CO4:** To learn about the vaccine process.

Course planner

Month	**Course Topic**	**Teacher**	**Class-hour**	**Remarks***
February	**Unit**-1 Overview of the Immune System.	SP	08	Offline lecture method and PPT presentation, youtube animation.
March	**Unit-2**: Cells and Organs of the Immune System	SP	08	Classroom teaching and provide .pdf file.
April	**Unit-3**: Antigens: Basic properties of antigens, B and T cell epitopes, haptens and adjuvants.	SP	06	Lecture in classroom and ppt presentation.
May	**Unit-4**: Antibodies **Unit-5**: Working of the immune system	SP	5 5	Lecture in classroom and ppt presentation.
June	**Unit-6**: hypersensitivity and vaccine. *Internal exam*	RM	05 03	Classroom lecture and ppt presentation
	Assessment: End-term Test		Total: 40 Hrs	

For CBCS

Resources:

1. Books: Immunology by Kuby.
2. Other resources: different website source such as Wikipedia, youtube etc.

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- Methodology of teaching (whether using ICT, engaging students in group discussion, quiz etc. etc.)
- Different modes of assessment. (Please check UGC evaluation reforms).