Department of Zoology, Basirhat College

Session- 2019-2020

SEMESTER- 2ND SEM GENERAL

Lesson Plan for Course: : ZOOGCOR02T, Physiology and Biochemistry CREDIT :Theory (Credits 4)

1. **Course coordinator:..CHINMAY GHOSH, SUBHARAJ PAL…**
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*
Jan				
	Unit-1 Nerve and muscle	**CG**		
	1. Structure of a neuron, Resting membrane potential, Graded potential,		2	Theoretical, PPT presentation, animation from YouTube
	Origin of Action potential its propagation in myelinated and non-myelinated nerve fibres.		2	Theoretical, PPT presentation, animation from youtube
	2. Ultra-structure of skeletal muscle, Molecular and chemical basis of muscle contraction.		2	Theoretical, PPT presentation, .animation from youtube
	Unit-2 Digestion	**SP**		
	Physiology of digestion in the alimentary canal;	SP	2	Theoretical, PPT presentation, .animation from YouTube

	Absorption of carbohydrates, proteins, lipids	SP	3	Theoretical, PPT presentation, animation from YouTube
	Class Test on Unit-1&2	SP	1	
	Question and Answers discussion	SP	1	
Feb	Unit-3 Respiration			
	Pulmonary ventilation, Respiratory volumes and capacities, Transport of Oxygen and carbon dioxide in blood	CG	4	Theoretical, PPT presentation, animation from YouTube
	Class Test on Unit-3	CG	1	
	Unit-4 Excretion			
	Structure of nephron,	CG	1	Theoretical, PPT presentation, animation from YouTube
	Mechanism of Urine formation, Counter-current Mechanism	CG	2	Theoretical, PPT presentation, notes in Google classroom
	Class Test on Unit-4	CG	1	
	Unit-5 Cardiovascular system			
	Composition of blood,	SP	1	Theoretical, PPT presentation, animation from YouTube
Mar	Homeostasis,	SP	1	Theoretical, PPT presentation, animation from YouTube
	Structure of Heart,	SP	1	Theoretical, PPT presentation, animation from YouTube
	Origin and conduction of the cardiac impulse, Cardiac cycle	SP	3	Theoretical, PPT presentation, animation from YouTube
	Unit-6 Reproduction and Endocrine Glands	CG		
	Physiology of male reproduction	CG	1	Theoretical, PPT presentation, animation from YouTube
	hormonal control of spermatogenesis	CG	1	Theoretical, PPT presentation,

				animation from YouTube
	Physiology of female reproduction:	SP	1	Theoretical, PPT presentation, animation from YouTube
	hormonal control of menstrual cycle.	SP	1	Theoretical, PPT presentation, animation from YouTube
	Structure and function of pituitary, thyroid, pancreas and adrenal		2	Theoretical, PPT presentation, animation from YouTube
	Class Test on Unit-5&6	SP	1	Classroom
Apr	Unit 7 Carbohydrate: Structure and Metabolism			
	Introduction to Carbohydrates, Structure & Types of Carbohydrates,	CG	2	Theoretical, PPT presentation, animation from YouTub
	Isomerism, Introduction to Intermediary metabolism: Glycolysis, Krebs cycle	CG	2	Theoretical, PPT presentation, animation from YouTube
	Pentose phosphate pathway, Gluconeogenesis, Electron transport chain	CG	1	Theoretical, PPT presentation, animation from YouTube
	Unit-8 Lipid: Structure and Metabolism	CG		
	Introduction to Lipids: Definitions; fats and oils; classes of lipids; Lipoproteins; Biosynthesis and β oxidation of palmitic acid	CG	1	Theoretical, PPT presentation, animation from YouTube
	Unit-9 Protein: Structure and metabolism			
	Proteins and their biological functions, functions of amino acids, physicochemical properties of amino acids.	SP	2	Theoretical, PPT presentation, animation from YouTube Animation
May	Peptides – structure and properties; primary structure of protein, secondary, tertiary and quaternary structures. Transamination, Deamination and Urea Cycle.	SP	2	Theoretical, PPT presentation, animation from YouTube

	Unit-10 Enzymes			
	Introduction, Classification of Enzymes, Mechanism of action, Enzyme Kinetics, Inhibition and Regulation	SP	1	Theoretical, PPT presentation, animation from YouTube Animation
	Class Test on Uni-7,8,9,10	SP	1	IN CLASSR OOM
	TOTAL CLASS IN HOURS		47	

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.

Department of Zoology, Basirhat College

Session- 2019-2020

Semester- 4th SEM General

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

3. Course coordinator:..CHINMAY GHOSH…, UDAY HOSSAIN
4. Course Outcome :
   i) CO1: Can recognize the sources of hazardous substances for environment and can understand their toxicity in living system.
   ii) CO2: Can understand the importance of climate change and their effect on public health.
   iii) CO3: Can appreciate the mechanism of different kinds of pollution due to human activity and its consequences as manifested in different health issues.
   iv) CO4: Can understand how waste is generated in modern human societies and how it should be managed for cleaner and healthier society.
   v) CO5: Can determine different environmental pollution parameter through suitable laboratory techniques.

Course planner

Month	Course Topic	Teacher	Class-hour	Remarks*
Jan	**Unit 1: Introduction**	**CHINMAY GHOSH**		
	Sources of environmental hazards Hazard identification and accounting.		3	Theoretical, PPT presentation, .animation from YouTube
	Fate of Toxic and persistent substances in environment		2	Theoretical, PPT presentation, animation from you tube animation.
	Dose response evaluation. Exposure assessment		2	
	Class test and question and answers discussion.		2	
	Unit 2: Climate change	**CHINMAY GHOSH**		
	Greenhouse gases and global warming, Acid rain		3	Theoretical, PPT presentation, .animation from YouTube
Feb	Ozone layer destruction		2	Theoretical, PPT presentation, animation from YouTube
	Effect of climate change on public health.		2	
	Unit 3: Pollution	**CHINMAY GHOSH**		

	Air pollution: source and effect		2	Theoretical, PPT presentation, Google meet, notes in Google classroom, animation from YouTube
	Water pollution: sources and effects		2	Theoretical, PPT presentation, Google meet, notes in Google classroom
	Noise pollution: Source and effects		2	
Mar	Pollution control		2	Theoretical, PPT presentation, animation from YouTube, Google meet, notes in Google classroom
	Class Test		1	In Google classroom
	Unit 4: Waste management technologies	**Uday Hossian**		
	Sources of wastes		2	Theoretical, PPT presentation, .animation from YouTube, notes in Google classroom
	Types and characteristics of wastes		2	Theoretical, PPT presentation, .notes in Google classroom
	Sewage disposal and its management		3	Theoretical, PPT presentation, .animation from YouTube, notes in Google classroom
Apr	Solid waste disposal		2	Theoretical, PPT presentation, .notes in Google classroom
	Biochemical waste handling and disposal		2	Theoretical, PPT presentation, .notes in Google classroom
	Waste from thermal power plants.		2	

	Class test		1	In classroom
	INTERNAL ASSESSMENT ON Unit-1, 2, 3,4 ,5 in Classroom.			
	Unit-5 : Diseases 1. Cause , symptoms and control of tuberculosis.	UDAY HOSSAIN	2	Theoretical, PPT presentation, .notes in Google Classroom.
	2. Asthma			Lecture method.
	3. Cholera	1		Lecture method
	4. Minamata disease			Lecture method
MAY	5. Typhoid	1		Lecture method. PPT presentation.
	6. Filariasis			Lecture method. PPT presentation. Projector.
	7. Class Test on Unit-5		1	Classroom
	1. Questions and Answers discussion on overall topic	CHINMOY GHOSH	1	Discussion, Lecture, Board work, Analysis in Classroom.
SEM-IV CLASS ENDS				
TOTAL		45 HOURS		

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