GOVT. P.G. COLLEGE FOR WOMEN, SECTOR-14, PANCHKULA

LESSON-PLAN (Session 2025-26) EVEN SEMESTER

Name of Teacher: TARA JAYANT

Designation: ASSOCIATE PROFESSOR

Subject/ Paper: PAPER M24-ZOO-202 (Comparative Physiology)

Class: M.Sc. ZOOLOGY 2nd SEMESTER

S. No.	Month	Topics to be covered	Teaching Learning Strategy	Learning Outcomes	Remarks if any
1.	**January 2026**	Introduction to syllabus, books and examination pattern for theory. Digestion: Feeding mechanisms and regulation, Comparative physiology of digestion and absorption in different animal groups Respiration: Respiratory organs, Types of respiration, mechanism of breathing,Transport of respiratory gases,Respiratory pigments through different phylogenetic groups,Physiological response to oxygen deficient stress. Excretion:Patterns of nitrogen excretion among different animal groups,Functional anatomy of renal unit; mechanisms of ultrafiltration, Counter Current mechanism, Dialysis.	Power Point Presentation and Video Demonstration	The students will have an appropriate understanding of functioning of digestive, respiratory, excretory systems of different animal groups.	**Revision test of topics covered.**
2.	**February 2026**	Thermoregulation: Homeothermic animals, Poikilotherms, Hibernation and Aestivation, Physical, chemical, neural regulation, Physiological adaptations acclimatization & acclimation in response to high, low ambient temperature. Circulation of body fluids and their regulation among different	Power Point Presentation and Video Demonstration by teacher and students	The students will be able to learn that how the mechanism of thermoregulation in different groups of organisms is influenced by the different environments. Students will have a deep	**Revision test of topics covered.**

		animal groups: Systems of circulation, heart beat and blood pressure, Cardiac cycle, Cardiac output and its regulation, Lymphatic system Receptor physiology: a comparative study of Mechanoreception, Photoreception, Chemoreception and Equilibrium reception. Muscle and Contractile physiology: Contractile elements, cells and tissues among different phylogenic groups; Muscle structure and function-correlation; Electric organs and tissues		understanding of functioning of circulatory system, receptors, muscle and contractile tissue in different animal groups.	
3.	**March 2026**	Comparative testicular physiology in animals: Morphology, Differentiation, Function and its regulation. Comparative ovarian physiology and differentiation in vertebrates: Morphology, Endocrinolgy, Oogensis vitellogenesis. Neuronal physiology: Structure and classification of neurons and glial cells, Synaptic action, dendritic properties and functional operation of spinal cord, Brain stem, Autonomic nervous system. Principles of synaptic transmission: Ca2+ and transmitter release; post synaptic transmission mechanism; diversity of neurotransmitters: acetylcholine, catecholamine, serotonin, GABA, glycine, histamine, peptides, NO, and opiods.	Power Point Presentation, Animated Lessons and Group Discussion.	The students will be able to understand the structure and functioning of reproductive system, nervous system, mechanism of nerve impulse transmission and types of neurotransmitters in different animal groups.	**Revision test of topics covered.**

4.	**April 2026**	Physiological adaptations to different environments: Physiological adaptations acclimatization & acclimation in response to high, low ambient temperature, physiological adaptation at high altitude and in deep sea environment. Stress Physiology: Concept of Stress and Strain, Stress hormones and stress regulatory mechanisms.	Power Point Presentation, video demonstration and animated lessons	The students will have acquaintance with the basic physiological adaptations found in animals according to temperature and altitude variation, the role of stress hormones and stress regulatory mechanism in animal body.	**Mid-Term Exam**
5.	**May 2026**	Osmoregulation in different animal groups: Definition and basic classification of organisms on the basis of osmoregulation,Osmotic challenges of different environments,Mechanism of Osmoregulation in fresh water, Estaurine and Marine animals,Osmoregulation in migratory organisms, Control and regulation of osmoregulation. UNIVERSITY EXAMINATION	Individual learning & peer teaching	The students will have an appropriate understanding of mechanism of osmoregulation in different groups of animals with their comparison.	Complete revision of paper.

- **Sessional Exam/ Mid Term Exam will be taken as per schedule.**

Signature of Teacher **Principal**

GOVT. P.G. COLLEGE FOR WOMEN, SECTOR-14, PANCHKULA

LESSON-PLAN (Session 2025-26) EVEN SEMESTER

Name of Teacher: TARA JAYANT

Designation: ASSOCIATE PROFESSOR

Subject/ Paper: PAPER M24-ZOO-406- Elective (Fish, Fisheries and Aquaculture – II)

Class: M.Sc. ZOOLOGY 4th SEMESTER

S. No.	Month	Topics to be covered	Teaching Learning Strategy	Learning Outcomes	Remarks if any
1.	January 2026	Introduction to syllabus, books and examination pattern for theory. Introduction to fish biotechnology Selection and hybridization Androgenesis and Gynogenesis – natural and induced Polyploidy techniques Sex reversal and sterility.	Power Point Presentation and Video Demonstration	The students will be able to learn about biotechnological techniques that can be used to improve the fish stock.	Revision test of topics covered.
2.	February 2026	Transgenesis, transgenes and application Cryopreservation of gametes and embryo Fish-by products Fish preservation process Nutritive aspect of fish meat and oil.	Power Point Presentation and group discussion	The students will come to know about use of transgenesis and cryopreservation techniques in fish culture, fish products and their nutritive values.	Revision test of topics covered.
3.	March 2026	Different systems for aquaculture: pond culture, cage culture, raceway culture. Culture of important fish species (Major carps, common carps, Chinese carps, cat fish	Power Point Presentation by teacher and students.	The students will be able to understand the culture techniques of different aquatic organisms, their advantages and production of	Revision test of topics covered.

		culture and Tilapia culture). Integrated Aquaculture and waste water aquaculture Pearl Culture Frog culture		healthy food for human consumption in a sustainable manner.	
4.	**April 2026**	Prawn culture-Fresh and brackish water. Methods of Fishing: Crafts and gear technology Fish diseases and their control.	Power Point Presentation by teacher, Individual Learning.	The students will have knowledge about fishing crafts and gears, fish diseases, fish feed and advantages of aquaculture.	**Mid-Term Exam**
5.	**May 2026**	Impact of Aquaculture on Environment. Nutrition in Aquaculture: Nutrient and non-nutrient diet components, Preparation and processing of feed, feed formulae, Natural and supplementary feed and their utilization. UNIVERSITY EXAMINATION	Individual Learning& Peer Teaching	The students will be able to understand the techniques fish feed preparation.	Complete revision of paper.

- **Mid-Term Exam will be taken as per schedule.**

Signature of Teacher **Principal**