

**ORIENTAL COLLEGE (AUTONOMOUS), TAKYEL, IMPHAL
TEACHING PLAN**

(B.A/B.Sc.)

Name of Department: Zoology

Semester - 3rd Semester 2023 - 24

Paper Name: ANIMAL PHYSIOLOGY: CONTROLLING AND COORDINATING SYSTEMS

.Paper Code: ZOO-HC 602

| No. of Hours per Week | Credits | Total No. of Hours | Marks |
|------------------------------|----------------|---------------------------|--------------|
| 4 | 4 | 60 | 75 |

Learning Objectives:

- To introduce to the students - the different systems of the body.
- To assist them in - exploring the coordination among various organ.
- To acquaint the students - the physiological activities of different organs.

Learning Outcomes:

Upon completion of this course the students will be able to

- Get acquainted with - the mechanism of body functions .

- Appreciate the role of hormones and nervous system in controlling various physiological activities.
- Understand the effects of over functioning (hyperactivity) and hypoactivity (under functioning) of endocrine glands.
- Enhance their knowledge about the function of different organs.

| Unit | Section | Topic | Lecture hours | Learning outcome | Pedagogy | Assessment/ Evaluation |
|------|------------------------------------|--|---------------|--|--------------|-------------------------------------|
| 1 | Tissues, Bone and Cartilage | | | | | |
| | 1 | Structure, location, classification and functions of epithelial tissue, connective tissue, muscular tissue and nervous tissue. | 7 | Recall the different types of tissues and their functions. | Lecture, PPT | MCQ, Q and A session, Short answer. |
| | 2 | Structure and types of bones and cartilages, Ossification, bone growth and resorption. | 5 | Learnt about structure of bone and cartilage and ossification of bone. | Lecture, PPT | |

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| 2 | Nervous System | | | | | |
| | 1 | Structure of neuron, resting membrane potential, Origin of action potential and its propagation across the myelinated and unmyelinated nerve fibers. | 5 | Students can enlist various sensory receptors in human body and describe the structure and functioning of the sense organs—eye, ear. | Lecture, PPT, Diagram | Short answer, Quiz, Seminar, Assignment. |
| | 2 | Types of synapse, Synaptic transmission and Neuromuscular junction; Reflex action and its types - reflex arc. | 4 | | Lecture, PPT | |
| | 3 | Physiology of hearing and vision. | 3 | | Video, PPT | |

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| 3 | Muscle | | | | | |
| | 1 | Histology of different types of muscle; Ultra structure of skeletal muscle | 4 | Recall the structure and types of muscle; learnt about the mechanism of muscle contraction. | PPT, Diagram | Objective test, Classroom interaction, Seminar. |
| | 2 | Molecular and chemical basis of muscle contraction; Characteristics of muscle twitch | 4 | | PPT, Video | |
| | 3 | Motor unit, summation and tetanus. | 2 | | Lecture, PPT | |
| 4 | Reproductive System | | | | | |
| | 1 | Histology of testis and ovary; Physiology of male and female reproduction. | 6 | Understand the histology of gonads and their | Photograph, Lecture, PPT | MCQ, Q and A session, Home |

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| | 2 | Puberty, Methods of contraception in male and female. | 3 | physiological activity. Knowledge about contraception. | Lecture, PPT | assignment. |
| 5 | Endocrine System | | | | | |
| | 1 | Structure of endocrine glands - pineal, pituitary, thyroid, parathyroid, pancreas, adrenal; hormones secreted by them and their mechanism of action | 10 | Students can identify properties of hormones and mention their nature and manner of functioning. Know the effects of over functioning (hyperactivity) and hypoactivity (under functioning) of pituitary and thyroid. | Lecture, PPT, Diagram, | Objective questions, Short answers, Seminars, assignment. |
| | 2 | Classification of hormones : steroidal and non-steroidal hormones; Regulation of hormone secretion. | 4 | | Chart, PPT | |
| | 3 | Hypothalamus (neuroendocrine gland) - principal nuclei involved in neuroendocrine control of anterior pituitary and endocrine system; Placental hormones | 3 | | Lecture, PPT | |

SUGGESTED BOOKS

- Guyton, A.C. & Hall, J.E. (2006). Textbook of Medical Physiology. XI Edition. Hercourt Asia PTE Ltd. /W.B. Saunders Company.
- Tortora, G.J. & Grabowski, S. (2006). Principles of Anatomy & Physiology. XI Edition John Wiley & sons
- Victor P. Eroschenko. (2008). diFiore's Atlas of Histology with Functional correlations. XII Edition. Lippincott W. & Wilkins.

Name of teachers :

- 1) Prof. R. K Rajeshwari Devi
- 2) K. Uma Devi
- 3) Dr. L. Chitra Devi
- 4) Dr. H. Binota Devi