



बिरसा मुंडा ट्रायबल युनिवर्सिटी Birsamunda Tribal University

राजपिपला, जि० नर्मदा Rajpipla, Dist. Narmda

Established by Tribal Development Department, Govt. of Gujarat

School of Science B.Sc. (Zoology) Programme

Subject Code & Name: BS03MJZOO3 Animal Physiology and Endocrinology

Teaching and Evaluation Scheme:

Teaching Scheme				Examination Scheme			
Credits				Component Weightage (%)			
				CCE		SEE	
L	T	P	Total	TH	PWE	TH	PWE
3	-	1	4	35	15	35	15

Programme Name	B.Sc. Zoology
Semester	III
Course Code	BS03MJZOO3
Course Title	Animal Physiology and Endocrinology
Course Content Type (Th./Pr.)	Theory + Practical
Course Credit	4
Sessions + Lab. Per Week	3 + 2
Total Teaching/Lab. Hours	45 Theory Hours + 30 Practical Hours
* 2 Laboratory = 1 Session	

Learning Objectives

1. To provide an understanding of the fundamental principles of animal physiology.
2. To provide experience in researching, discussing, and answering questions about animal physiology.
3. To provide practical experience in investigating physiological questions, and collecting, analyzing, interpreting, and reporting experimental data.
4. To understand the source, significance and deficiency and dysfunctions of Hormones.

Prerequisites (if any)

- Student must know about the basic structure and functions of body systems.
- Student must aware about specific terms used for animal organ and organ systems.

Learning Outcomes

On the Completion of this course, students will able to:

1. Understand the fundamental principles of animal physiology, including how these principles are applied to different animal groups.
2. They should also be able to analyze the role of hormones and endocrine glands in various physiological processes.





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3. Know all the common clinical conditions of deranged normal physiology in body - clinical usefulness for knowing Physiology.
4. Solve simple clinical problems with the help of their knowledge in Physiology.

Detailed Contents

UNIT	TOPIC/SUB-TOPIC	TEACHING HOURS
I	Physiology of Digestion and Absorption of Food: <ul style="list-style-type: none">Nutrition: Types of Nutrients and their sourcesDigestion and Absorption of Various Dietary components: Carbohydrates, Proteins, Lipids, Nucleic acids Physiology of Muscles: <ul style="list-style-type: none">Types of MusclesUltrastructure of skeletal musclesMechanism of muscle contractionsNeuro-muscular junctions	15
II	Cardiac Anatomy: <ul style="list-style-type: none">Structure of human HeartOrigin, Conduction and rate of heart beats in mammals (human)Basic Concept of Cardiac Cycle and ECG in humans Blood Physiology: <ul style="list-style-type: none">Composition of human blood:<ul style="list-style-type: none">(i) Blood Plasma(ii) Blood Cells: RBC- Structure, total Count, Functions, Composition (Hb only) WBC- Structure, Total count, Functions, Classification of WBC. Platelets- Structure, Total count, Functions.Blood Coagulation: Factors involved in blood coagulation, Intrinsic and Extrinsic pathways of blood coagulation, concept of intravascular blood clotting (Thrombosis).Groups and Blood Types: ABO blood group system, Rh Blood group (Rhesus system), Blood Transfusions, Significance of Blood Groups.	15





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III	Endocrinology: <ul style="list-style-type: none">• Introduction of Endocrinology• Brief Structure, Hormones and Functions of following endocrine glands:<ol style="list-style-type: none">1. Pituitary Gland or Hypophysis.2. Thyroid Gland.3. Parathyroid Glands.4. Endocrine Pancreas (Islets of Langerhans).5. Adrenal Glands.6. Gonads (Testis and Ovary).• Disorders of endocrine glands: Diabetes mellitus, Hypo and Hyperthyroidism, Cushing's syndrome.	15
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Practical (s)

1. To Study Dietary components of Carbohydrates, Proteins, Lipids, Nucleic acids.
2. To study the ultrastructure of skeletal muscle. (chart or multimedia)
3. To study the muscle contractions. (chart or multimedia)
4. To study the structure of heart. (chart or multimedia or model)
5. To study Haemin crystal.
6. To Estimate hemoglobin from own blood.
7. Total Count of R.B.C from own blood.
8. Total Count of W.B.C. (TC) from own blood.
9. Differential Count of W.B.C. (DC) from own blood.
10. To study the hormones and their functions of following endocrine glands:

Pituitary, Thyroid, Parathyroid, Adrenal, Pancreas, Testis and Ovary

Reference Book(s)

1	Principles of Anatomy and Physiology, Tortora
2	Animal Physiology and Related Biochemistry, H. R. Singh & Shobhan Lal Naginchand
3	Textbook of Animal Physiology, A. K. Berry, Emkay Pub., New Delhi
4	Animal Physiology by N. Arumugam and A. Mariakuttikan Saras Publication





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5	Animal Physiology and Biochemistry by Dulsy Fatima, L. M. Narayanan, Saras Publication
6	Animal physiology by P.S. Verma, B.S. Tyagi, et al.
7	Guyton & Hall Textbook of Medical Physiology Vaz

L:: Lecture, **T::** Tutorial , **P::** Practical

CCE:: Continuous and Comprehensive Evaluation

(CCE Theory includes Mid Semester Examination, Assignment, MCQ quizzes, Seminar, Reflective notes, class participation, case analysis and presentation, slip tests (announced/ surprised), attendance etc. or any combination of these)

PWE:: Practical Work Examination

(PWE includes Laboratory practical work, project work, viva simulation exercise work etc.)

SEE:: Semester End Evaluation

