



UNIVERSITY OF JAMMU

(NAAC ACCREDITED 'A' GRADE' UNIVERSITY)
Baba Sahib Ambedkar Road, Jammu-180006 (J&K)

Academic Section
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NOTIFICATION (23/April/Adp./22)

In modification of this office Notification No. F.Acd/II/21/1863-1873 dated 06.08.2021, it is hereby notified for the information of all concerned that the Vice-Chancellor, in anticipation of the approval of the Academic Council, is pleased to authorize the adoption of the revised Syllabi and Courses of Study in the subject of **Zoology** of Master Degree Programme for Semester IIIrd and IVth under the **Choice Based Credit System** for the examinations to be held in the years indicated against each semester as under:-

Subject	Semester	Course Code/Title	For the examinations to be held on
Zoology	Semester-III	PSZOTC-301 (Animal Physiology)	Dec. 2023, 2024 and 2025
	Semester-IV	PSZOTC-401 (Reproductive and Development Biology)	May 2024, 2025 and 2026
		PSZOTC-403 (Applied Microbiology)	

The Syllabi of the courses is available on the University website:
www.jammuuniversity.ac.in

Sd/-
DEAN ACADEMIC AFFAIRS

No. F. Acd/II/23/1568-1598
Dated: 03/5/23

Copy for information and necessary action to:

1. Dean, Faculty of Life- Science
2. HOD/Convener, Board of Studies in Zoology | S.A.P.A to C.O.E .
3. C.A to the Controller of Examinations
4. I/c Director, Computer Centre, University of Jammu
5. Asst. Registrar (Conf. /Exams. PG)
6. Incharge, University Website for necessary action please.

Sumit Sharma
24/5/23
Deputy Registrar (Academic)

TS 11/5/23
TS 11/5/23
TS 7/20/23

Course No. PSZOTC-301
CREDITS: 4
Time Duration: 2Hrs and 30 Mins.

Title : Animal Physiology
MAXIMUM MARKS : 100
a) Minor Test I : 20
b) Minor Test II : 20
c) Major Test : 60

Syllabus for the examination to be held in
December 2023, December, 2024 and December, 2025

Course Outcomes

Students would develop an understanding with respect to:

- ❖ CO-1: basic concepts of physiology viz digestion, respiration, excretion, cardiovascular, excretory, nervous and muscular systems.
- ❖ CO-2: gastrointestinal disorders, respiratory stresses vs environment.
- ❖ CO-3: the mechanisms that work to keep the human body alive and functioning.

SYLLABUS

UNIT I Animal Nutrition

- 1.1. Modes of animal nutrition
- 1.2. Digestion and its control
 - 1.2.1. Salivary digestion
 - 1.2.2. Gastric digestion
 - 1.2.3. Intestinal digestion and digestion enzymes
- 1.3. Absorption in Gastro-intestinal tract (GIT)
 - 1.3.1. Carbohydrates
 - 1.3.2. Amino acids
 - 1.3.3. Lipids and other substances
- 1.4. Physiology of gastrointestinal disorders

UNIT II Blood

- 2.1 Composition and Functions
 - 2.1.1 Blood coagulation
 - 2.1.2 Blood groups and transfusion
 - 2.1.3 Buffer system
- 2.2 Heart and its working
- 2.3 Heart Beats (in mammals)
 - 2.3.1 Origin, rhythmicity and conduction
 - 2.3.2 Nervous regulation
 - 2.3.3 Chemical regulation
 - 2.3.4 Electro-cardiogram
 - 2.3.5 Cardiac cycle in man
 - 2.3.6 The exchange vessels

UNIT III Respiratory and Excretory Physiology

- 3.1 Nervous regulation of respiration (in mammals)
- 3.2 Physiological adaptations to different environments
 - 3.2.1 Environmental influences over respiratory process (in mammals)
 - 3.2.2 Extreme temperature & limits to life
 - 3.2.2.1 Tolerance to cold and freezing
 - 3.2.2.2 Tolerance to high temperature



- 3.3 Excretory physiology (in mammals)
- 3.3.1 Detailed structure of nephron
- 3.3.2 Glomerular functions
- 3.3.3 Tubular functions
- 3.3.4 The rennin angiotensins
- 3.3.5 Aldosterone system

UNIT IV Neurophysiology

- 4.1 General neuroanatomy
- 4.1.2 Brain, brain regions, brain connections
- 4.1.2 Spinal Cord
- 4.2 Neurophysiology
- 4.2.1 Structure and function of neuron and its organization
- 4.2.2 Nerve impulse origin and propagation
- 4.2.3 Ion channels, structure of synapse and
- 4.2.4 Synaptic transmission and neurotransmitters
- 4.3 Neurological disorders
- 4.3.1 Neurodevelopmental disorders
- 4.3.2 Neuropsychological disorders
- 4.3.3 Neurodegenerative diseases

UNIT V Muscle Physiology

- 5.1 Muscle: Types, their gross structure
- 5.1.1 Hierarchy and skeletal muscle organization (vertebrates)
- 5.1.2 Myofibrils: Ultra- structure
- 5.1.3 Chemical composition of myofibril
- 5.2 Muscle contraction-striated muscles
- 5.2.1 Sliding, filament theory and cross bridge activity
- 5.2.1.1 Contraction cycle
- 5.2.1.2 Excitation- contraction coupling
- 5.2.1.3 Length tension relationship
- 5.2.2 Cross-bridge attachment and muscle contraction
- 5.2.3 Energy cycle, role of ATP and phosphogen

Note for paper setting

Examination Theory	Syllabus to be covered in examination	Time allotted for Exam	% weightage (marks)
Minor Test I	upto 20%	1 hr.	20
Minor Test II	21% to 40%	1 hr.	20
Major Test	41% to 100%	2hrs.& 30 mins.	60

- i. Major test will have two sections (A & B)
- ii. Section A is compulsory comprising of 10 questions of 1.5 marks each and be spread over entire syllabus
- iii. Section B comprises of 6 questions (2 from each unit) from the remaining 3 units and candidate has to attempt one question from each unit (15 marks each).

Books Recommended

1. Dennis, W. Wood .(1970). Principles of Animal Physiology. Arnold, Publ. Ltd., London.
2. Malcolin&Gorden. (1977). Animal Physiology: Principles and Adaptation. Macmillan Publ. Co. New York.
3. Nagabhushnam. (1993), Textbook of Animal Physiology. Oxford & IBH Publ. Co. Pvt. Ltd