

SYLLABUS

UNIVERSITY OF RAJASTHAN, JAIPUR

R. R.B.M. UNIVERSITY, ALWAR

P. D.U.S. UNIVERSITY, SIKAR

M. S.B. UNIVERSITY, BHARATPUR

B.Sc. Part-I (Semester-I)

जैव विविधता (Animal Diversity)

I Semester , Total Credits= 6 (1 Theory= 4 credits; 1 Practical= 2 credits)

(2023-2024)

Paper I- CZ101	: 3 Hrs duration	80+20 (Int.)= 100 M
Practical- CPZ102	: 4 Hrs. duration	40+10 (Int.) = 50 M
PAPER I- CZ101	4 Credits	60 hours

Course Learning Objective: The main purpose of introducing this course is to teach the students the Morpho-taxonomy, and evolutionary relationships among and between non-chordates and chordates along with creating awareness and concern towards importance of animal diversity for human survival and its socioeconomic significance. In addition to this, the course is aimed at nurturing skills of conducting scientific inquiry and experimentation in the field of animal diversity to acquire knowledge of fundamental concepts and theories of animal diversity.

Course Learning Outcome: Upon completion of the course, students will be able to:

- Learn Morpho-taxonomy and structural organization of non-chordate and chordate groups.
- Acquire knowledge of diversity of non-chordate and chordate groups.
- Learn evolutionary relationships and phylogeny of non-chordates and chordates through functional and structural similarities.
- Understand the economic importance of non-chordates and chordates and their significance in the ecosystem.
- Promote shared learning through practical classes, class room presentations and projects.

Section – A

LOWER INVERTEBRATES

Unit 1: Protista/Protozoa: General Characteristics and Classification up to classes; Locomotory Organelles and locomotion in Protozoa. 3 hrs

Unit 2: Porifera : General characteristics and Classification up to classes; Canal system in Porifera. 3 hrs

Unit 3: Coelenterata (Cnidaria): General characteristics and Classification up to classes; Polymorphism in Hydrozoa. 3 hrs

(v)

Unit 4: Helminthes: Platyhelminthes: General characteristics and Classification up to classes; Life cycle of *Taenia solium* and its parasitic adaptations.

Nemathelminthes : General characteristics and Classification up to classes; Life cycle of *Ascaris lumbricoides* and its parasitic adaptations. 6 hrs

Section – B

HIGHER INVERTEBRATES

Unit 1: Annelida : General characteristics and Classification up to classes; Formation of Coelom; Metamerism in Annelida. 3 hrs

Unit 2: Arthropoda: General characteristics and Classification up to classes; Larval forms in Arthropoda, Metamorphosis in Insects. 5 hrs

Unit 3: Mollusca: General characteristics and Classification up to classes; Torsion and detorsion in Gastropoda; Pearl Formation. 4hrs

Unit 4: Echinodermata: General characteristics and Classification up to classes; Water-vascular system in Asteroidea. 3 hrs

Section –C

LOWER VERTEBRATES

Unit 1: Protochordata: General characteristics and Classification of Protochordata up to orders; Retrogressive metamorphosis. 3 hrs

Unit 2: Agnatha: General characteristics and outline classification of cyclostomes up to classes; Ammocoete larva 3 hrs

Unit 3: Pisces: General characteristics and Classification up to order. Parental care in fishes and Migration in fishes. 5 hrs

Unit 4: Aquatic adaptation in fishes; Origin fins; Scales of fishes; Osmoregulation in Fishes. 4 hrs

Section –D

HIGHER VERTEBRATES

Unit 1: Amphibia: General characteristics and classification up to order; Neoteny; Parental care in Amphibians. 3 hrs

Unit 2: Reptilia: General characteristics and classification up to order; Identification of Poisonous and non-poisonous snakes; Biting mechanism in Snakes. 4 hrs

Unit 3: Aves: General characteristics and classification up to order; Types of feathers; Flight adaptations and Migration in birds. 4 hrs

Unit 4: Mammals: General characteristics and classification up to orders; Dentition in Mammals; Adaptive radiation in mammals. 4 hrs

नोट : विद्यार्थी उपर्युक्त पाठ्यक्रम को विश्वविद्यालय द्वारा प्रकाशित अधिकृत पाठ्यक्रम से मिलान अवश्य कर लें। विश्वविद्यालय द्वारा प्रकाशित अधिकृत पाठ्यक्रम ही मान्य होगा। लेखक एवं प्रकाशक इसके लिए जिम्मेदार नहीं होंगे।

विषय-सूची

क्रं.सं. अध्याय

पृष्ठ संख्या

Section - A

1. प्रोटिस्टा/प्रोटोजोआ : सामान्य लक्षण एवं वर्गीकरण
(Protista/Protozoa : General Characters and Classification) 1-31
2. प्रोटोजोआ में गमन तथा गमनांग
(Locomotory Organelles and Locomotion in Protozoa) 32-44
3. पॉरीफेरा : सामान्य लक्षण एवं वर्गीकरण
(Porifera : General Characteristics and Classification) 45-53
4. स्पंजों में नाल-तन्त्रा
(Canal System in Sponges) 54-62
5. संघ-नाइडेरिया व टीनोफोरा : सामान्य लक्षण एवं वर्गीकरण
(Phyla-Cnidaria and Ctenophora :
General Characteristics and Classification) 63-75
6. हाइड्रोजोआ में बहुरूपता
(Polymorphism in Hydrozoa) 76-84
7. संघ-प्लैटीहेलिमन्थीज : सामान्य लक्षण एवं वर्गीकरण
(Phylum-Platyhelminthes : General Characteristics
and Classification) 85-94
8. टीनिया
(Taenia) 95-116
9. निमेटहेलिमन्थीज : सामान्य लक्षण एवं वर्गीकरण
(Nemathelminthes : General Characteristics) 117-121
10. एस्केरिस
(Ascaris) 122-144
11. हेलिमन्थ जन्तुओं में परजीवी अनुकूलन
(Parastic Adaptations in Helminths) 145-152

Section – B

12. संघ-एनेलिडा : सामान्य लक्षण एवं वर्गीकरण
(Phylum-Annelida : General Characteristics
and Classification) 153-169
13. संघ-आर्थ्रोपोडा : सामान्य लक्षण एवं वर्गीकरण
(Phylum-Arthropoda : General Characteristics
and Classification) 170-189
14. क्रस्टेशिया के लार्वा
(Larvae of Crustaceans) 190-199
15. कीटों में कायान्तरण
(Metamorphosis in Insects) 200-205
16. संघ-मॉलस्का : सामान्य लक्षण एवं वर्गीकरण
(Phylum-Mollusca : General Characteristics
and Classification) 206-220
17. गेस्ट्रोपोडा में टॉर्शन व डिटॉर्शन
(Torsion and Detorsion in Gastropoda) 221-226
18. मुक्ता निर्माण एवं मुक्ता संवर्द्धन
(Pearl formation and Pearl Culture) 227-235
19. संघ-इकाइनोडर्मेटा: सामान्य लक्षण एवं वर्गीकरण
(Phylum-Echinodermata : General Characteristics
and Classification) 236-246
20. एस्टेरॉइडिया में जल-संवहनी तंत्र
(Water-Vascular System in Asteroidea) 247-252

Section – C

21. प्रोटोचोर्डेटा : सामान्य लक्षण एवं वर्गीकरण
(Protochordata: General Characteristics
and Classification) 253-265
22. प्रतिगामी कायान्तरण
(Retgressive Metamorphosis) 266-274
23. एग्नेथा : सामान्य लक्षण वर्गीकरण तथा एमोसीट लार्वा
(Agnatha: General Characteristics Classification
and Ammocoete Larva) 275-283

24. पाईसीज : सामान्य लक्षण एवं वर्गीकरण
(Pisces : General Characteristics and Classification) 284-313
25. मछलियों में पैतृक रक्षण
(Parental care in fishes) 314-322
26. मछलियों में प्रवासन
(Migration in Fishes) 323-329
27. मछलियों में जलीय अनुकूलन
(Aquatic Adaptation in Fishes) 330-344
28. मछलियों में शल्क व पंख तथा उनकी उत्पत्ति
(Scales and fins and their Origin in Fishes) 345-357
29. मछलियों में परासरण नियन्त्रण
(Osmoregulation in Fishes) 358-366
- Section - D**
30. एम्फीबिया वर्गीकरण एवं लक्षण
(Amphibia : Classification & General Characteristics) 367-376
31. उभयचारी जन्तुओं में पैतृक रक्षण एवं चिरभ्रूणता
(Parental Care in Amphibians and Neoteny) 377-387
32. रेप्टीलिया : सामान्य लक्षण एवं वर्गीकरण
(Raptilia : General Characters and Classification) 388-400
33. जीविषालु व निर्विष सर्पों की पहचान
तथा दंशन की क्रियाविधि
(Venomous and non-venomous snakes
and Biting mechanism) 401-418
34. एवीस : सामान्य लक्षण एवं वर्गीकरण
(Aves : General Characteristics and Classification) 419-436
35. पक्षियों में उड़डयन अनुकूलन
(Flight Adapations in Birds) 437-452
36. पक्षियों में प्रवासन एवं पंखों के प्रकार
(Migration in Birds and types of Feathers) 453-467
37. मैमेलिया के सामान्य लक्षण एवं वर्गीकरण
(Mammalia : General Characters and Classification) 468-460
38. स्तनियों में दन्त विन्यास
(Dentition in Mammals) 481-494
39. स्तनियों की उत्पत्ति एवं अनुकूली विकिरण
(Origin of Mammals and Adaptive Radiations) 495-507