# GONDWANA UNIVERSITY GADCHIROLI
## SEMESTER SYSTEM SYLLABUS
### FOR
#### B.Sc. Part II
##### Subject- Zoology
##### Semester III – Paper I
Life and Diversity of Animals
(Chordates)

<table>
<thead>
<tr>
<th>Unit</th>
<th>Periods</th>
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<tr>
<td><strong>Unit-I</strong></td>
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<tr>
<td>Pisces–Salient features of Chondrychthyes and Osteichthyes.</td>
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<tr>
<td>Labeo rohita : External morphology, Digestive, Circulatory and Respiratory systems. Economic importance of fishes. Fish Migration and Accessory Respiratory organs.</td>
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<td><strong>Unit-II</strong></td>
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<td>Amphibia – Classification, Parental care and Neotony.</td>
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<td>Reptilia- Classification based on temporal vacuities. Snake venom, Poision apparatus &amp; Biting mechanism</td>
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<td><strong>Unit-III</strong></td>
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<tr>
<td>Birds – Origin of birds Types of feathers Flight adaptations (Morphological, Anatomical and Physiological) Migration and its significance Ratitae and Carinitae</td>
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<tr>
<td><strong>Unit-IV</strong></td>
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<td>Mammals – General characters of Prototheria, Metatheria and Eutheria Comparative account of Aortic arches and Heart.</td>
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Semester - III
DEVELOPMENTAL BIOLOGY
Paper-II

Unit-I
Types of eggs- classified on the basis of amount and distribution of yolk. 5
Chemical composition of yolk.
Mechanism and significance of Fertilization.
Parthenogenesis- Definition, types and its significance. 3
Cleavage- Types of cleavages 2
Blastulation- Definition and types of blastulation. 2

Unit-II
Morphogenetic movements in the early development of frog 6
(Invagination, Epiboly, Emboly, Involution, Ingression and Delamination).
Development of chick up to the formation of Primitive streak 3
Development of Extra embryonic membranes in chick and their 3
Significance.

Unit-III (Mammalian development)
Gametogenesis- (Oogenesis and Spermatogenesis). 4
Structure of Sperm and Ovum. 2
Implantation- Definition and types. 2
Placentation- Definition, Types (Based on the Morphological and 4
histological structures). Functions of placenta.

Unit –IV
Stem Cells- Totipotancy, Sources, Types and their use in human welfare. 4
In Vitro Fertilization (Test tube Baby)- Technique advantages and 4
disadvantages.
Semen Bank, Artificial Inseminations and Contraceptives 4

PRACTICALS
B.Sc.II (Zoology), Semester-III

Laboratory practical course and examination pattern is given below:
1. Identification, Classification : distinguishing characters and adaptive features of
   a) Fishes : Pristis, Torpedo, Notopterus, Exocoetus, Clarius, Ophiocephalus,
      Catla, Rohu, Mrigal.
b) Amphibia: *Bufo, Salamaner, Ichthyophis*

c) Reptilia: *Chameleon, Varanus, Pharynosoma, Draco, Tortoise, Cobra, krait, Russill’s viper, Echis, Sea snake.*

d) Birds: Owl, Woodpecker, Kingfisher, Kite, Duck, Parrot.

e) Mammals: Squirrel, Mongoose, Bat, Loris, Rabbit.

2. Anatomical Observations

Anatomical observations, demonstration and detailed explanation of the following with the help of ICT tools/ models/ charts/ photographs etc. (Any fish)

i. Digestive system
ii. Reproductive system
iii. Brain and Cranial Nerves

3. Study of skeleton of Rabbit/ Fowl

(Loose bones of skull not to be studied)

4. Developmental Biology –

Study of the following slides-

1. Study of permanent slide of Frog embryology, Chick embryology

(18 hrs, 24 hrs, 30 hrs, 36 hrs, 72 hrs)

5. Study of permanent slides-

V.S. skin of Frog and Mammal

6. Study of permanent Preparation of the following with the help of already available permanent slides ICT tools/ models/ charts/ photographs etc.

Fish scales – placoid, cycloid, ctenoid
Hyaline cartilage and striated muscle

7. Collection, study tour and submission of report

Distribution of Marks –

1. Anatomical observations 10
2. Spotting- (4 specimens, 4 slides, 2 bones). 10
3. Permanent stained micro preparation 4
4. Class record, 3
5. Submission of slides and study tour report 3

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