# Implementation of CBCS

## Minutes of Meetings (MoM) of Board of Studies (BoS)

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|---|---|
| **Academic Year : 2021-22** | |
| **School** | **: *School of Studies of Life Sciences*** |
| **Department** | **: *Zoology*** |
| **Date and Time** | **: *24/12/ 2021*** |
| **Venue** | **: *Department Of Zoology*** |

The scheduled meeting of member of Board of Studies (BoS) of Department of Zoology, School of Studies of Life Sciences, Guru Ghasidas Vishwavidyalaya, Bilaspur was held to design and discuss the M. Sc. scheme and syllabi (I to IV semester).

The following members were present in the meeting:

1. Prof. SK Prasad (External Expert Member BoS, Dept. of Biosciences, Pandit Ravishankar Shukla University, Raipur, CG.
2. Prof. LVKS Bhaskar (HOD, Dept. of Zoology, cum Chairman, BOS)
3. Dr. Rohit Seth (Member BoS, Associate Professor, Dept. of Zoology)
4. Dr. Sushant Kumar Verma (Assistant Professor, Dept. of Zoology)

The committee discussed and approved the CBCS scheme and syllabi for M. Sc. (I to IV Semesters) for session 2021-22.

L.V.K.S. Bhaskar

विभागाध्यक्ष
HEAD
प्राणी विज्ञान विभाग
Department of Zoology
गुरु घासीदास वि.वि., बिलासपुर
Guru Ghasidas Vishwavidyalaya, Bilaspur

Signature & Seal of HoD

# Scheme and Syllabus

For

# M. Sc. Zoology (CBCS)

**Applicable from Session 2021-2022 to onwards**

**Department of Zoology**

**School of Life Sciences**

**Guru Ghasidas Vishwavidyalaya, Bilaspur (CG)**

## Post Graduate Program: M. Sc. Zoology (CBCS)
## Offered by the Department of Zoology, School of Life Sciences

1. Name of the Program : Master of Science in Zoology

2. Specializations available : Biochemistry and Molecular Biology,
Fish Biology,
Mammalian Reproductive Physiology and Endocrinology,and
Toxicology.

3. Program Specifications
School of studies: School of Life Sciences
Department: Department of Zoology
Program: M.Sc. in Zoology
Date of approval in Board of Studies: 24/12/2021

4. Mode of study: Full time (semester system)
Class room teaching; experiential learning; tutorials; project assignments and dissertation work.

**Purpose of the Program:**
The Master of Science degree program in Zoology provides students the opportunity to enhance their knowledge and competence in the diverse field of animal science and encourages students to get indulges in the subject. Another focus of this program is to motivate students towards research. Students are encouraged to get involved in dissertation projects under the guidance of faculty mentors that address topics related to animal health, environment, nutrition, physiology, production, and behavior. The attainment of a master's degree also qualifies students to pursue further specialized training and gain entrance to professional schools, or to pursue a doctorate.

**Learning outcomes:**
- Students will be able to identify the major groups of organisms with an emphasis on animals and be able to classify them within a phylogenetic framework.
- Students will be able to compare and contrast the characteristics of animals that differentiate them from other forms of life.
- Students will be able to use the evidence of comparative biology to explain how the theory of evolution offers the only scientific explanation for the unity and diversity of life on earth.
- Students will able to understand the concepts of physiology, nutrition, health and economics with reference to animals.
- Students will be able to explain the mechanisms and role of reproductive physiology, Immunology, toxicology & neurobiology in health & disease
- Students will be able to apply the scientific method to questions in biology by formulating testable hypotheses, gathering data that address these hypotheses, and analyzing those data and will be able to demonstrate critical thinking and problem solving skills in Biostatistics course.
- Students will be able to explain how organisms function at the level of the gene, genome, cell, tissue, organ and organ-system.
- Students will be able to demonstrate proficiency in the experimental techniques and methods of analysis appropriate for their area of specialization within biology.

# Semester-wise Theory Papers/ Practical
# Masters ofScience in Zoology(CBCS)
# Department of Zoology, School of Life Science

| Course Opted | Course Code | Name of the Course | T-L-D /Week | Credits | CCA | ESE | Total |
|---|---|---|---|---|---|---|---|
| | | **Semester – I[st]** | | | | | |
| CC 1 | **ZOPATT1** | Comparative Anatomy of Vertebrates | T-3 | 3 | 30 | 70 | 100 |
| CC 1 | **ZOPALT1** | Comparative Anatomy of Vertebrates | L-4 | 2 | 15 | 35 | 50 |
| CC 2 | **ZOPATT2** | Cell Biology | T-3 | 3 | 30 | 70 | 100 |
| CC 2 | **ZOPALT2** | Cell Biology | L-4 | 2 | 15 | 35 | 50 |
| CC 3 | **ZOPATT3** | Endocrinology | T-3 | 3 | 30 | 70 | 100 |
| CC 3 | **ZOPALT3** | Endocrinology | L-4 | 2 | 15 | 35 | 50 |
| OE 1 | **ZOPATO1** | To be drawn from the pool of OE | T-3 | 3 | 30 | 70 | 100 |
| OE 1 | **ZOPALO1** | To be drawn from the pool of OE | L-4 | 2 | 15 | 35 | 50 |
| | ***Certificate** | **UACE, VAC, CC, OCC and others offered by university** | | | | | |
| | | | **28H/W** | **20** | **180** | **420** | **600** |
| | | **Semester II[nd]** | | | | | |
| CC 4 | **ZOPBTT1** | Biochemistry and Molecular Biology | T-3 | 3 | 30 | 70 | 100 |
| CC 4 | **ZOPBLT1** | Biochemistry and Molecular Biology | L-4 | 2 | 15 | 35 | 50 |
| CC 5 | **ZOPBTT2** | Basic Mammalian Physiology | T-3 | 3 | 30 | 70 | 100 |
| CC 5 | **ZOPBLT2** | Basic Mammalian Physiology | L-4 | 2 | 15 | 35 | 50 |
| CC 6 | **ZOPBTT3** | Animal behavior | T-3 | 3 | 30 | 70 | 100 |
| CC 6 | **ZOPBLT3** | Animal behavior | L-4 | 2 | 15 | 35 | 50 |
| DSE: 1 | **ZOPBTD1** | Molecular Genetics | T-3 | 3 | 30 | 70 | 100 |
| DSE: 1 | **ZOPBLD1** | Molecular Genetics | L-4 | 2 | 15 | 35 | 50 |
| RM | **ZOPBTA1** | Research Methodology | T-2 | 2 | 30 | 70 | 100 |
| | ***Certificate** | **UACE, VAC, CC, OCC and others offered by university** | | | | | |
| | | | **30H/W** | **22** | **210** | **490** | **700** |
| | | **Semester III[rd]** | | | | | |
| CC 7 | **ZOPCTT1** | Developmental Biology | T-3 | 3 | 30 | 70 | 100 |
| CC 7 | **ZOPCLT1** | Developmental Biology | L-4 | 2 | 15 | 35 | 50 |
| CC 8 | **ZOPCTT2** | Regulatory Mammalian Physiology | T-3 | 3 | 30 | 70 | 100 |
| CC 8 | **ZOPCLT2** | Regulatory Mammalian Physiology | L-4 | 2 | 15 | 35 | 50 |
| CC 9 | **ZOPCTT3** | Evolution, Environmental Biology and Sustainable Development | T-3 | 3 | 30 | 70 | 100 |
| CC 9 | **ZOPCLT3** | Evolution, Environmental Biology and Sustainable Development | L-4 | 2 | 15 | 35 | 50 |
| DSE: 2 | **ZOPCTD1** | Brain function and Mental Awareness | T-3 | 3 | 30 | 70 | 100 |
| DSE: 2 | **ZOPCLD1** | Brain function and Mental Awareness | L-4 | 2 | 15 | 35 | 50 |
| | ***Certificate** | **UACE, VAC, CC, OCC and others offered by university** | | | | | |
| | | | **28H/W** | **20** | **180** | **420** | **600** |
| | | **Semester IV[th]** | | | | | |
| CC 10 | **ZOPDTT1** | Biotechniques | T-3 | 3 | 30 | 70 | 100 |

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|---|---|---|---|---|---|---|---|
| CC 10 | **ZOPDLT1** | Biotechniques | L-4 | 2 | 15 | 35 | 50 |
| DSE: A | **ZOPDTD1** | Biochemistry of Intermediary Metabolism and Enzymology | T-3 | 3 | 30 | 70 | 100 |
| DSE: A | **ZOPDLD1** | Biochemistry of Intermediary Metabolism and Enzymology | L-4 | 2 | 15 | 35 | 50 |
| DSE: A | **ZOPDTD2** | Molecular Biology of Information Pathway: Nucleic Acids | T-3 | 3 | 30 | 70 | 100 |
| DSE: A | **ZOPDLD2** | Molecular Biology of Information Pathway: Nucleic Acids | L-4 | 2 | 15 | 35 | 50 |
| DSE: B | **ZOPDTD3** | Neuroendocrinology, Non-Classical Hormones and Signaling | T-3 | 3 | 30 | 70 | 100 |
| DSE: B | **ZOPDLD3** | Neuroendocrinology, Non-Classical Hormones and Signaling | L-4 | 2 | 15 | 35 | 50 |
| DSE: B | **ZOPDTD4** | Mammalian Reproduction, Fertility and Sterility | T-3 | 3 | 30 | 70 | 100 |
| DSE: B | **ZOPDLD4** | Mammalian Reproduction, Fertility and Sterility | L-4 | 2 | 15 | 35 | 50 |
| DSE: C | **ZOPDTD5** | Fish Anatomy, Physiology and Biotechnology | T-3 | 3 | 30 | 70 | 100 |
| DSE: C | **ZOPDLD5** | Fish Anatomy, Physiology and Biotechnology | L-4 | 2 | 15 | 35 | 50 |
| DSE: C | **ZOPDTD6** | Fish Culture, Capture Fishery and Fish Pathology | T-3 | 3 | 30 | 70 | 100 |
| DSE: C | **ZOPDLD6** | Fish Culture, Capture Fishery and Fish Pathology | L-4 | 2 | 15 | 35 | 50 |
| DSE: D | **ZOPDTD7** | Mechanism of Toxicity | T-3 | 3 | 30 | 70 | 100 |
| DSE: D | **ZOPDLD7** | Mechanism of Toxicity | L-4 | 2 | 15 | 35 | 50 |
| DSE: D | **ZOPDTD8** | Reactive Metabolites and Defense System in Biology | T-3 | 3 | 30 | 70 | 100 |
| DSE: D | **ZOPDLD8** | Reactive Metabolites and Defense System in Biology | L-4 | 2 | 15 | 35 | 50 |
| Dissert-ation | **ZOPDDD1** | Based on DSE Elected (I/II/III/IV) | D-14 | 7 | 60 | 140 | 200 |
| | ***Certificate** | **UACE, VAC, CC, OCC and others offered by university** | | | | | |
| | | | **35H/W** | **22** | **195** | **455** | **650** |

1. Discipline Specific Electives (DSE) in forth semester for each session will be offered to students on the basis of availability of faculty and infrastructure.
2. Offering of DSE in any particular session will be decided after a formal meeting of all faculty members of Department of Zoology.
3. Each student may study any one out of the given electives (A, B, C and D). Elective papers will be distributed among the students on the basis of merit/choice.
4. The project work/dissertation will be carried out in the field of respective elective papers opted by the students.
5. Open Elective Courses will be offered by department in first semester is fundamental of public health / Applied Zoology.

Abbreviations:

**CC**= Core Course
**DSE**= Discipline Specific Electives
**DSE: II** = Mammalian Reproductive Physiology and Endocrinology
**DSE: III**=Fish Biology
**CCA**=Continuous Comprehensive Assessment
**UACE**= University Additional Credit Electives,
**CC**= Certificate Courses,
**OE**= Open Elective
**DSE: I**=Biochemistry and Molecular Biology
**DSE: IV**=Toxicology
**ESE**=End-Semester Examinations
**VAC**=: Value Added Course
**OCC**=: Online certificate Courses

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|---|---|---|---|
| **Prof. LVKS Bhaskar** | **Prof. S K Prasad** | **Dr. Rohit Seth** | **Dr. S K Verma** |
| **(HOD)** | **(External Expert)** | **(Member)** | **(Member)** |