DEPARTMENT OF ZOOLOGY OF BERHAMPORE GIRLS COLLEGE

**Module wise Syllabus distribution of 2nd SEM B.Sc. Zoology Hons. (January to June, 2020)**

**Details about Teachers**

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| **Sl No** | **Name of the Teacher** | **Designation** | **Contact No** | **E mail id** |
| **1** | **Bhaskar Mahanayak (BM)** | **Assistant Professor and Head of the Dept.** | **6295260820** | **bmahanayak@gmail.com** |
| **2** | **Rabiul Hoque (RH)** | **Assistant Professor** | **9609268155** | **rhrabiulhaque486@gmail.com** |
| **3** | **Sarmistha Chattopadhyay (SC)** | **Guest Lecturer** | **9735602335** |  |
| **4** | **Tania Mondal (TM)** | **Guest Lecturer** | **8900548572** | **mondaltania20@gmail.com** |
| **5** | **Sanchari Chatterjee (SCC)** | **Guest Lecturer** | **9609549056** | **sanchar.sylvan@gmail.com** |
| **6** | **Debashree Konar Chowdhury (DKC)** | **Guest Lecturer** | **7031569916** | **debashreekonar@gmail.com** |
| **7** | **Somrita Rudra (SR)** | **Guest Lecturer** | **8016549943** | **somritarudra8@gmail.com** |
| **8** | **Deepsikha Mukherjee (DM)** | **Guest Lecturer** | **6294263865** | **deepsikhamukherjee103@gmail.com** |
| **9** | **Soumima Chattoraj (SMC)** | **Guest Lecturer** | **7044108774** | **soumimachattoraj007@gmail.com** |

**Details about Non-teaching staff**

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| --- | --- | --- | --- | --- |
| **Sl No** | **Name of the Staff** | **Designation** | **Contact No** | **Email Id** |
| **1** | **Mithu Hazra** | **Lab Attendant** | **9609252150** |  |
| **2** | **Rajesh Nabik** | **Lab Attendant (Casual)** | **7872114179** |  |

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**To be completed before 2nd Internal Exam**

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| Course Code: ZOOL-H-CC-T-03 Course Title: Perspectives in Ecology | | | | |
| **Theory (Total 60 Lectures)** | | | | |
| Unit | Name of teacher | Unit title | Topics | No of Classes |
| 1 | SC | **Introduction to Ecology** | Autecology and synecology, Levels of organization, Laws of limiting factors. | 6 |
| 2 | SC  ( Topic 1)  TM  ( Topic 2 and 3) | **Population** | 1. Unique and group attributes of population: Demographic factors, life tables, fecundity tables, survivorship curves, dispersal.  2. Geometric, exponential and logistic growth, equation, r and K strategies Population regulation - density-dependent and independent factors.  3. Gause’s Principle with laboratory and field examples, Lotka-Volterra equation for competition, predator-prey cycling. | 8  10 |
| 3 | RH | **Community** | Community characteristics: species diversity, abundance, dominance, richness,Vertical stratification, Ecotone and edge effect. Ecological succession with one example | 10 |
| 4 | TM  (Topic 1)  SC  (Topic 2) | **Ecosystem** | 1.Pond ecosystem in detail, Food chain: Detritus and grazing food chains, Linear and Y-shaped food chains, Food web, Energy flow through the ecosystem, Ecological pyramids and Ecological efficiencies.  2.Nitrogen cycle. | 8  4 |
| 5 | RH | **Applied Ecology** | 1.Wildlife Conservation (in-situ and ex-situ conservation).  2.Management strategies for tiger conservation; Wild life protection act (1972). | 14 |
| **Practical (Total 30 Lectures)** | | | | |
|  | BM Gr. A  DM Gr.B | 1 | Study of life tables and plotting of survivorship curves of different types from the hypothetical/real data provided. | 7 |
|  | BM Gr.A  DM Gr.B | 2 | Determination of population parameters (dominance, diversity, frequency) in a natural/hypothetical community by quadrate method and calculation of Shannon-Weiner diversity index and Importance Value Index for the same community. | 8 |
|  | SCC Gr.A  DKC Gr.B | 3 | Study of an aquatic ecosystem: Phytoplankton and zooplankton, determination of pH, and Dissolved Oxygen content (Winkler’s method), Chemical Oxygen Demand and free CO2. | 8 |
|  | SCC Gr.A  DKC Gr.B | 4 | Report on a visit to National Park/Biodiversity Park/Wild life sanctuary/Marine ecosystem. | 7 |

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| Course Code: ZOOL-H-CC-T-04 Course Title: Cell Biology | | | | |
| **Theory (Total 60 Lectures)** | | | | |
| Unit | Name of teacher | Unit Title | Topics | No of Classes |
| 1 | DM | **Overview of Cells** | Basic structure of Prokaryotic and Eukaryotic cells, Viruses. | 4 |
| 2 | TM  (Topic 1,2)  SCC  (Topic 3) | **Plasma Membrane** | 1.Ultra structure and composition of Plasma membrane: Fluid mosaic model.  2.Transport across membrane: Active and Passive transport, Facilitated transport.  3.Cell junctions: Tight junctions, Gap junctions, Desmosomes. | 7  4 |
| 3 | SCC  (Topic 1)  BM  (Topic 2) | **Cytoplasmic organelles I** | 1.Structure and Functions: Endoplasmic Reticulum, Golgi Apparatus, Lysosomes.  2.Protein sorting and mechanisms of vesicular transport. | 4  4 |
| 4 | RH | **Cytoplasmic organelles II** | Mitochondria: Structure, Semi-autonomousnature, Endosymbiotichypothesis. Mitochondrial Respiratory Chain, Chemi-osmotic hypothesis. | 7 |
| 5 | TM | **Cytoskeleton** | Type, structure and functions of cytoskeleton. | 6 |
| 6 | SCC | **Nucleus** | Chromatin: Euchromatin and Heterochromatin and packaging (nucleosome). | 6 |
| 7 | RH | **Cell Division** | Cell cycle and its regulation, Cancer (Concept of oncogenes and tumor suppressor genes with special reference to p53, Retinoblastoma and Ras and APC | 8 |
| 8 | BM | **Cell Signaling** | 1.Cell signalling transduction pathways; Types of signaling molecules and receptors.  2.GPCR and Role of second messenger (cAMP).  3. Apoptosis and Necrosis. | 10 |
| **Practical (Total 30 Lecturers)** | | | | |
| 1 | RH Gr.A  DKC Gr.B |  | Preparation of temporary stained squash of onion root tip to study various stages of mitosis. | 6 |
| 2 | BM Gr. A  DM Gr. B |  | Study of various stages of meiosis. | 12 |
| 3 | RH Gr.A  DKC Gr.B |  | Preparation of permanent slide to demonstrate:   * 1. DNA by Feulgen reaction.   2. Cell viability study by Trypan Blue staining. | 12 |