DEPARTMENT OF ZOOLOGY OF BERHAMPORE GIRLS COLLEGE

**Module wise Syllabus distribution of 4th 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 Examination**

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| Course Code: ZOOL-H-CC-T-08 Course Title: Comparative Anatomy of Vertebrates | | | | |
| **Theory (Total 60 Lectures)** | | | | |
| Unit | Name of teacher | Unit Title | Topics | No of Classes |
| 1 | SC | **Integumentary System** | Structure, function and derivatives of integument in amphibian, birds and mammals. | 8 |
| 2 | DKC | **Skeletal System** | Jaw suspension; structure of branchial and visceral arches. | 7 |
| 3 | SCC | **Digestive System** | Comparative anatomy of stomach; dentition in mammals. | 8 |
| 4 | SR | **Circulatory System** | Comparative account of heart and aortic arches. | 7 |
| 5 | SC | **Respiratory System** | Respiratory organs in Pisces, Aves and Mammalia. | 8 |
| 6 | DKC | **Urinogenital System** | Succession of kidney, Types of mammalian uteri. | 8 |
| 7 | SCC | **Nervous System** | Cranial nerves in mammals. | 6 |
| 8 | SR | **Sense Organs** | Classification of receptors, Brief account of auditory receptors in vertebrate. | 8 |
| **Practical (Total 30 Lectures)** | | | | |
| 1 | DM Gr.A  TM Gr.B |  | Study of placoid, cycloid and ctenoid scales through permanent slides/photographs. | 8 |
| 2 | RH Gr.A  SR Gr.B |  | Study of disarticulated skeleton of Toad/ Pigeon/Guineapig. | 7 |
| 3 |  |  | Demonstration of Carapace and plastron of turtle. |  |
| 4 | RH Gr.A  SR Gr.B |  | Identification of mammalian skulls: One herbivorous (Guineapig) and one carnivorous (Dog) animal. | 7 |
| 5 | DM Gr.A  TM Gr.B |  | Dissection of Tilapia/carp: Circulatory system/urino-genital system, Brain/pituitary, | 8 |
| Instruction: Either 3 or 4.  Lab note book, with labelled diagrams and identifications, with reason | | | |  |

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| Course Code: ZOOL-H-CC-T-09 | | | Course Title: Animal Physiology II (Life Sustaining Systems) | | |
| **Theory (Total 60 Lectures)** | | | | | |
| Unit | Name of teacher | Unit Title | | Topics | No of Classes |
| 1 | BM | **Physiology of Digestion** | | Structural organisation and functions of Gastrointestinal tract and Associated glands; Mechanical and chemical digestion of food. | 8 |
| 2 | RH | **Physiology of Respiration** | | Mechanism of Respiration, Respiratory volumes and capacities, transport of Oxygen and Carbon dioxide in blood, Dissociation curves and the factors influencing it, respiratory pigments; Carbon monoxide poisoning. | 8 |
| 3 | TM  (Topic 1,2)  SR  (Topic 3,4) | **Physiology of Circulation** | | 1.Components of Blood and their functions; Structure and functions of haemoglobin.  2.Haemostasis; Blood clotting system, Fibrinolytic system.  3.Haemopoiesis; Basic steps and its regulation.  4.Blood groups; ABO and Rh factor. | 7 |
| 4 | BM | **Physiology of Heart** | | 1.Structure of mammalian heart, Coronary Circulation, Origin and conduction of cardiac impulses  2.Cardiac Cycle and cardiac output  3.Blood pressure and its regulation | 10 |
| 5 | TM  (Topic 1 and 2)  SR  (Topic 3 and 4) | **Thermoregulation & Osmoregulation** | | 1.Physiological classification based on thermal biology.  2.Thermal biology of endotherms.  3.Osmoregulation in aquatic vertebrates.  4.Extra renalosmoregulatory organs in vertebrates. | 5  5 |
| 6 | RH | **Renal Physiology** | | Structure of Kidney and its functional unit, Mechanism of urine formation, Regulation of acid-base balance. | 10 |
| **Practical (Total 30 Lectures)** | | | | | |
| 1 | RH Gr.A  DKC Gr.B |  | | Enumeration of red blood cells and white blood cells using haemocytometer. | 8 |
| 2 | RH Gr.A  DKC Gr.B |  | | Estimation of haemoglobin using Sahli’s haemoglobinometer. | 7 |
| 3 | BM Gr A  SCC Gr B |  | | Preparation of haemin/haemochromogen crystals from mammal/fish blood | 7 |
| 4 | BM Gr A  SCC Gr B |  | | Recording of blood pressure using a sphygmomanometer | 8 |

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| Course Code: ZOOL-H-CC-T-10 Course Title: Immunology | | | | |
| **Theory (Total 60 Lectures)** | | | | |
| Unit | Name of teacher | Unit Title | Topics | No of Classes |
| 1 | BM | **Overview of Immune System** | Basic concepts of health and diseases, Cells and organs of the Immune system. | 6 |
| 2 | RH | **Innate and Adaptive Immunity** | Anatomical barriers, Inflammation, Cell and molecules involved in innate immunity, Adaptive immunity (Cell mediated and humoral). | 6 |
| 3 | SC | **Antigens** | Antigenicity and immunogenicity, Immunogens, Adjuvants and haptens, Factors influencing immunogenicity. | 6 |
| 4 | DM | **Immunoglobulins** | Structure and functions of different classes of immunoglobulins, Antigen- antibody interactions, Immunoassays (ELISA and RIA), Hybridoma technology, Monoclonal antibody production. | 6 |
| 5 | RH | **Major Histocompatibility Complex** | Structure and functions of MHC molecules.Structure of T cell Receptor and its signaling. | 6 |
| 6 | BM | **Cytokines** | Types, properties and functions of cytokines. | 5 |
| 7 | BM | **Complement System** | Components and pathways of complement activation. | 5 |
| 8 | RH | **Hypersensitivity** | Gell and Coombs’ classification and brief description of various types of hypersensitivities. | 6 |
| 9 | DM | **Immunology of diseases** | Malaria, Filariasis, Dengue. | 6 |
| 10 | SC | **Vaccines** | Various types of vaccines. Active & passive immunization (Artificial and natural). | 8 |
| **Practical (Total 30 Lectures)** | | | | |
| 1 | BM Gr A  SMC GrB |  | Demonstration/virtual lab/dry lab of lymphoid organs. | 8 |
| 2 | RH Gr A  SR Gr B |  | Determination of ABO Blood group | 4 |
| 3 | RH Gr A  SR Gr B |  | Histological study of spleen, thymus and lymph nodes through slides/ photographs | 6 |
| 4 | RH Gr A  SR Gr B |  | Preparation of stained blood film to study various types of blood cells | 4 |
| 5 | BM Gr A  SMC GrB |  | Demonstration/virtual lab/dry lab of ELISA | 8 |

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| Course Code: ZOOL-H-SEC-02 Course Title: Sericulture | | | | |
| **Theory (Total 30 lectures)** | | | | |
| Unit | Name of teacher | Unit Title | Topics | No of Classes |
| 1 | DKC | **Introduction** | Types of silkworms, Distribution and Races.  Exotic and indigenous races.  Mulberry and non-mulberry Sericulture. | 4 |
| 2 | DKC | **Biology of Silkworm** | Life cycle of *Bombyx mori.*  Structure of silk gland and secretion of silk. | 4 |
| 3 | BM | **Rearing of Silkworms** | Rearing house and rearing appliances.  Disinfectants: Formalin, bleaching powder.  Silkworm rearing technology: Early age and Late age rearing.  Types of mountages.  Spinning, harvesting and storage of cocoons. | 7 |
| 4 | DKC | **Pests and Diseases** | Pests of silkworm: Uzi fly, dermestid beetles and vertebrates.  Pathogenesis of silkworm diseases: Protozoan, viral, fungal and bacterial.  Control and prevention of pests and diseases. | 8 |
| **Field Visit** | | | | |
| 5 | BM | **Entrepreneurship in Sericulture** | Report on a visit to a sericulture center. | 7 |