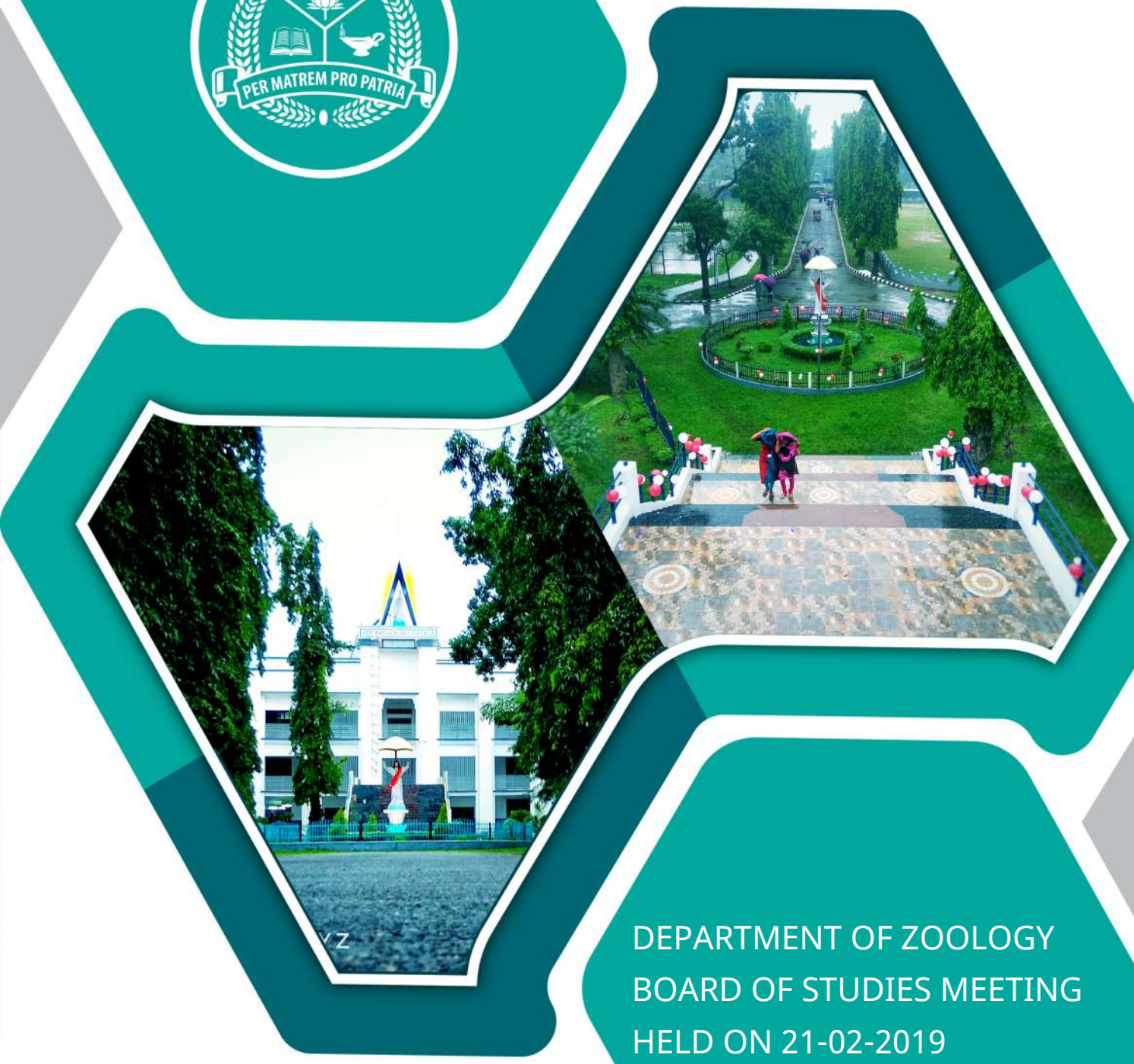
FATIMA MATA NATIONAL COLLEGE

AUTONOMOUS

(Reaccredited with 'A' Grade by NAAC)

Affiliated to University of Kerala



DEPARTMENT OF ZOOLOGY

BOARD OF STUDIES MEETING

HELD ON 21-02-2019

IQAC INTERNAL QUALITY ASSURANCE CELL

Minutes of the Board of Studies meeting in Zoology held at the Department of Zoology on 21/2/19 at 10. am.

Members present.

1. Dr. G. Prasad.
2. Dr. Laurence Hazard
3. Arjun S. Nair
4. Dr. K. B. Padmakumar
5. Dr. B. Santhosh
6. Dr D. Akhila Thomas
7. Dr Sherly Williams
8. Ms Nisha Thomas P.
9. Dr. Sarlin P. J
10. Dr. Vijayasree A. S.
11. Dr. Sreelekshmy S B.
12. Ms. Jennifer Ann Thomas
13. Dr Mumtaz
14. Ms Arya P.

The Board of studies meeting in Zoology commenced at 10.15 am with silent prayer. The meeting was chaired by the Head of the Department Dr. Antony Akhila Thomas and 13 members were present. Dr. Sherly Williams welcomed the gathering and the chairman introduced the agenda for the day. The spiral bound copy of the syllabus for UG (Main and complementary – Botany, Psychology) PG and Add on programmes were tabled for reference and discussions. Dr Lawrence Harold, Managing Director, Kerala State Cooperative Federation for Fisheries Development Ltd. Kerala (MATSYAFED) addressed the members and he contributed immensely for the restructuring of the syllabus for Fisheries Biology special paper. He whole heartedly agreed to facilitate the internship programme for the PG students for a period of 30 days during the month of April- May. He gave a detailed account of areas were of our PG students could get a skill enhancement exposure mainly Fisheries export, Fish processing, Fisheries resource management, etc. Next, our Alumni Mr. Arjun S, Marketing & Production Manager, India Food Export and Assorted Food Packers Private Limited, interacted with members and assured full cooperation for exploring avenues of placement and internship for our UG & PG students.

Next on the agenda was syllabus revision of UG programme. The core courses were taken up for discussion semester wise with the detailed course outcome. The main point discussed were as follows.

Semester I Animal Diversity I

Module I- Introduction to Zoology and Taxonomy: Define Zoology, (Numerical, Evolutionary, Cladistic and Molecular taxonomy). Two kingdom classification and Whittaker's five kingdom classification, Advantages and disadvantages of five kingdom classification. (Self-study), Taxonomic aids.

Module II - Kingdom Protista: *Paramecium* Parasitic protozoans –*Entamoeba,* and *Plasmodium*:morphology, life history, pathogenicity and prophylaxis

Module III - Kingdom Animalia: General topic – Canal system in Sponges

Module V - Phylum Platyhelminthe: Mention Regeneration, Trematoda eg. *Fasciola* (brief account of life cycle ;Cestoda, eg. *Taeniasolium* (life cycle).

ModuleVI- Phylum Arthropoda: Pests of Paddy- *Leptocorisa* and *Spodoptera*, Pests of stored food grains- *Sitophilusoryzae, Trilobiumcastaneum*.Coconut pests- *Oryctes rhinoceros* and *Eriophyesguerreronis* **Phylum Echinodermata:** General Topic: Larval forms and Water Vascular System in Echinoderms.

Core Course II: 19UZO241: Animal Diversity II

Module II: Subphylum Hemichordata: Eg: Balanoglossus. Sub phylum Urochordata

Core Course III: 19UZO341: Methodology and Perspectives of Zoology

Module I: Introduction to Science: Application of scientific methods in life, Characteristics of science

Module III: Experimentation in science; Examples of statistical software's used for data analysis (R software, SPSS, and PRIMER).

Core Course IV: 19UZO441: Environmental Biology, Habitat destruction and Disaster Management

As per the direction of UGC regarding syllabus revision a new course accommodating Disaster management has been restructured into the existing frame work.

CORE COURSE VI: 19UZO541: Cell Biology and Molecular Biology

Module I: Cell and Cell organelles: *Cell communication- cell signaling and signal transduction,* basic elements involved.

Core Course VII: 19UZO542: Genetics, Biotechnology and Bioinformatics

ModuleVII: Population Genetics: Introduction to population genetics,Gene pool and Gene frequency-Factors influencing gene frequency, Hardy- Weinberg's law- Applications

Module XIII Ethical issues and Regulations in Biotechnology: Definition, Biosafety-guideline, Implementation of biosafety guidelines, Ethical implications on transgenic animals

Module XIV Introduction to Bioinformatics: Definition, Contrast between Bioinformatics and Computational Biology; Key Biosequences in Molecular Biology - DNA, RNA and Amino acid sequences -Popular Databases in Bioinformatics - NCBI, DDJB, PDB, OMIM; BLAST & FASTA sequence file formats, Approach of Comparative Biology based on sequence comparison - The basic idea of sequence comparison (algorithms not required) - idea of scoring matrices

Open course:

19UZO551.4: Sustainable Health and Nutrition and 19UZO551.5: Sustainable Ecotourism

Core Course VIII:19UZO543: Microbiology and Immunology

ModuleI: Introduction to Microbiology

Core Course X: 19UZO641: Physiology and Biological chemistry

Module I: Nutritional Physiology: Food groups and the concept of a balanced diet, (self-study), Diseases:Protein Energy Malnutrition; Life style related diseases- hypertension, diabetes mellitus, and obesity- their causes and prevention through dietary or lifestyle, Food hygiene

Core Course XII:19UZO643: Ethology, Evolution and Zoogeography:Module IX Brain and Behaviour : Neural mechanisms in behaviour role of hypothalamus and other brain centers, hormones and behaviour. Innate release mechanism and Fixed action plan.

Elective Course: 19UZO661.1: Ornamental Fish culture

Module VII Transgenic fishes: Transgenic fishes: introduction, technique (Microinjection) two examples (salmon, Zebra fish), advantages and disadvantages.

Module VIII Ornamental fish trading: Ornamental fish trading: Marketing potential, convention on biological diversity, procedure for export of ornamental fish, entrepreneurship and funding agencies.

Elective course:19UZO661.4: Entomology, 19UZ0661.5: Environmental Pollution

PG SYLLABUS REVISION

Semester 1Biosystematics, Taxonomy and Evolutionary BiologyCourse-19PZ011

Module 2. Taxonomic tools and techniques: Online taxonomic tools- concepts and applications, Royal BC Museum, GIS,GPS, WikIT

Module 4. Trends in Systematics: Micro andMacro taxaonomy.DNA taxonomy (BDM)phylogenetic taxonomy including incorporation of fossils; Phylocode (BDM)

Semester I Course Code- 19PZ012 BIOCHEMISTRY

Module 10. Energy metabolism: The existing module has been split precisely for better teaching learning.

Module 11 Oxidative stress and Antioxidants: The existing module has been rescripted to include the finer details for better teaching learning exercise

Module 12. CLINICAL BIOCHEMISTRY: Introduction to Clinical Biochemistry Analysis of body fluids: Urine: Normal composition of urine –Abnormal constituents – glucose, albumin, ketone bodies, variations in urea, creatinine, pigments and their clinical significance in brief. Blood: Normal constituents of blood and their variation in pathological conditions

SEMESTER I BIOPHYSICS, INSTRUMENTATION AND COMPUTER SCIENCE 19PZO13

Module 3 Radiation Biophysics: Radio Pharmaceuticals – Properties of ideal diagnostics and therapeutic radio pharmaceuticals

Module 5. Methodology and working of microscopes Differential interference contrast microscope, Laser microscope, Multiphoton excitation microscope, Structured illumination microscope. Total internal reflection fluorescence microscope.Atomic Force Microscope (AFM), Scanning Nearfield optical Microscope (SNOM) FTIR

Module 16: System Maintenance: Installation - Operating System, CD-ROM Drive, Sound Card, printer, Control panel - Display properties, Adding and removing software, setting date and time, screen saver, appearance. Antivirus installation, Formatting, Disk clean up, Disk defragmenter. Configure and Connect Dial-Up Networking, configure a Peer-to-Peer Network, Writing data on disc- CD/DVD Burning, Customize the Windows Desktop, Use Files and Folders Core.

Semester – II ADVANCED PHYSIOLOGY AND FUNCTIONAL ANATOMY (100 Hrs)

Course Code 19PZ021

Module 8- Endocrinology

8.4. Endocrinology and metabolic syndrome,endocrine disorders

8.5 Endocrinology test- diebetis test, thyroid test, bone test, reproduction test and growth test.

Semester II: Genetics, Quantitative Analysis and Research Methodology Course Code 19PZO 22

Three new modules were discussed for introduction: Mendelian Genetics and its Application, Population genetics and Epigenetics and Metagenomics

Module 6 Genetics in Medicine and Forensics: Application of genetic engineering in gene expression studies and gene knockout technologies to study molecular biology, chromosome engineering.

Semester II: Cell Biology, Molecular Biology and Bioinformatics

Module 1 Biological membrane and Cell cycle: Cell division and: Phases of cell cycle, role of Rb and p53.Apoptosis (extrinsic and intrinsic pathways), Aging and cell senescence, signaling cell survival.

Module 2 Cell signaling: Cell adhesion and roles of different adhesion molecules, tight junction, desmosome, hemidesmosome, gap junctions; extracellular matrix, cadherins, integrins and selectins; Immunoglobulin like molecules; neurotransmission and its regulation.

Module 3 Biology of cancer: Cancer types, stages and causes, tumor suppressor genes, virus-induced cancer, metastasis, interaction of cancer cells with normal cells, therapeutic interventions of uncontrolled cell growth.

Module 9 Gene Regulation Mechanisms: Gene expression studies with cloned DNA fragments, DNA microarrays, cluster analysis of multiple expression, transient transfection, stable transfection, retroviral expression systems, gene and protein tagging, In vitro mutagenesis and deletion techniques.

Module 11 Bioinformatics: Phylogenetic softwares- ClustalW, Mega, Phyml, RaxML.Brief overview of Computer Aided Drug Discovery: Review of basic biological concepts- diseases and their causes, molecular basis of diseases, immune system, antigens & antibodies, immune response, vaccines, molecular targets, Characteristics of a drug compound, Drug docking software basics.

Semester III Course Code 19PZO31

Module IV. Industrial & Environmental Microbiology: Microbial fermentation and production of micro and macro molecules.Bioresource and uses of biodiversity.

Module VIII. Recent Trends in Biotechnology: Protein engineering Metabolic Engineering, site directed mutagenesis. Biogeotechnology: Bioleaching of metals, biobeneficiation, microbially enhanced oil recovery, bio desulfurization of coal

SEMESTER III:19PZO32 ECOLOGY, ETHOLOGY AND BIODIVERSITY CONSERVATION

Module X: Conservation Biology: National and State biodiversity conservation agencies, National Biodiversity Action Plan 2008: a brief outline of objectives & plans. Biodiversity evalution for developmental process.

Semester III: Immunology and Developmental Biology:19PZO33

Module 4 Antigen-antibody interactions: Antigen presenting and processing- Class I, II, MHC molecules, role of antigen presenting cells. Strength of antigen-antibody interactions,Cross reactivity, precipitation reaction, Agglutination reaction. Alternatives to antigen-antibody reaction. Immunodiagnostics-Radio immunoassay, ELISA, Western blotting, Immunoprecipitation, Immunofluorescence

Developmental Biology

Module 5 Stem cells: Stem cells – properties, types, treatments, advantages and disadvantages of stem cells.

Semester IV: Special Course: 19PZO42: Fisheries and Aquaculture

Breeding and Culture of economically important fin fish, shell fish were discussed for addition.

Skill enhancement exposure mainly Fisheries export, Fish processing, Fisheries resource management, etc. were discussed for incorporation in the syllabus.

- The details for introducing internship for PG students was discussed.
- Add on programme entitled ORNAMENTAL FISH BREEDING AND AQUARIUM MANAGEMENT was discussed and approved.
- List of examiners for question paper setting, valuation and practical examination was prepared course wise

The meeting came to a close at 5:30 with Ms. Nisha Thomas proposing vote of thanks

21/02/19

Dr Antony Akhila Thomas (HOD)
Chairman, Board of studies in Zoology

Date:21/02/2019