



**Minutes of the Zoology Board of Studies meeting held  
on 03.02.2021 at 9.30 AM**

**Via Google Meet-<https://meet.google.com/qzv-rejw-zua>**



**Ref. No.: ZOOL/BOS/2020-'21/15**

**Members**

Dr. S. Mary Mettilda Bai	- Chairperson & Head of the Department
Dr. S.P. Sevarkodiyone	- University Nominee
Dr. K. Sahayaraj	- Subject Expert
Dr. V. Robin Perinba Smith	- Subject Expert
Dr. V.N. Ariharan	- Industrialist
Dr. S. Mary Baptista Janet	- Alumna
Dr. F. Brisca Renuga	- Member
Dr. J. Vinoliya Josephine Mary	- Member
Dr. A. Shyla Suganthi	- Member
Dr. P.T. Arokya Glory	- Member
Dr. Jeni Chandar Padua	- Member
Dr. C. Josephine Priyatharshini	- Member
Dr. A. Punitha	- Member
Dr. X. Venci Candida	- Member
Dr. S. Prakash Shoba	- Member
Dr. C. Anitha	- Member

## Agenda

1. Prayer
2. Welcome by the Chairperson
3. Reading of the minutes of the previous meeting
4. Restructuring / Revision of Curriculum of UG
5. UG Syllabus for Semester III and IV
6. Restructuring / Revision of Curriculum of PG
7. PG Syllabus for Semester III and IV
8. Classification of New Courses
9. Classification of courses as Employability / Entrepreneurship / Skill Development
10. Classification of courses as Local / National / Regional / Global
11. Classification of courses as Crosscutting Issues Gender Equity / Environment and Sustainability / Human Values / Professional Ethics
12. Conduct of UG and PG Practical Examination
13. Recommendation of books and journals for UG and PG
14. Conduct of seminars / workshops in collaborations with Government Agents / Universities / NGOs.
15. Suggestion for innovative teaching and evaluation techniques for UG and PG
16. New measures to be undertaken by the department
17. Feedback and action taken
18. Next Meeting of BoS
19. Any other.

The 15<sup>th</sup> Board of studies meeting (online) was held on 03.02.2021 *via* Google meet at 9.30 AM. The meeting commenced with silent prayer. All the members of the Board, the Chairperson, University Nominee, Subject experts, Industrialist, Alumna and faculty of the Department, were present for the meeting.

**Chairperson's Address:** The Chairperson and Head of the Department, Dr. S. Mary Mettilda Bai, welcomed the members and presented the agenda of the meeting. The following items were discussed.

### **Item 01/BoS03.02/03: Approval of the minutes of the meeting held on 21.01.2020**

Dr. F. Brisca Renuga, Associate Professor of Zoology read the minutes of the previous meeting and the members approved it.



Item 02/BoS03.02/04: Approval of Restructuring / Revision of Curriculum of UG - The Board approved the Restructuring/Revision of the curriculum for B.Sc. Zoology.

Semester	Course	Course Code	Paper	Hours /Week	Credits
I	Part I	TL2011/ FL2011	Language: Tamil/French	6	4
	Part II	GE2011	General English	6	4
	Part III	ZC2011	Major Core I-Invertebrate Zoology	4	4
		ZC20P1	Major Practical I	2	-
		ZA2011	Allied I-Theory	4	3
		ZA20P1	Allied I-Practical	2	-
	Part IV	ALS201	Add on course –Professional English	2	2
		ZNM20	NMEC-Public Health and Hygiene	2	2
		SEC201/ SEC202	Skill Enhancement Course (SEC): Meditation and Exercise/ Computer Literacy	2	2
	Part V	FCV201	Foundation Course I-Values for Life	-	-
		STP201	Student Training Programme (STP) Clubs & Committees / NSS	-	-
		SDP201	*Skill Development Programme (SDP)	-	-
	II	Part I	TL2021/ FL2021	Language: Tamil/ French	6
Part II		GEZ202	General English	6	4
Part III		ZC2021	Major Core II-Chordate Zoology	4	4
		ZC20P1	Major Practical I	2	2
		ZA2021	Allied I-Theory (Applied Zoology)	4	3
		ZA20P1	Allied I-Practical	2	2
Part IV		ALS202	Add on course –Professional English	2	2
		ZNM202	NMEC - Common Ailments and Simple Remedies	2	2
		SEC201/ SEC202	Skill Enhancement Course (SEC): Meditation and Exercise/Computer Literacy	2	2
Part V		FCV201	Foundation Course I–Values for Life	-	1
		SLP201	Service-Learning Programme (SLP) -Community Engagement Course	-	1
		STP201	Student Training Programme (STP) - Clubs & Committees / NSS	-	1
		SDP201	*Skill Development Programme (SDP)	-	-
III	Part I	TL2031/ FL2031	Language: Tamil/French	6	4
	Part II	GEZ203	General English	6	4
	Part III	ZC2031	Major Core III-Cell Biology	4	4
		ZC2032	Major-Elective I (a) Biochemistry, Biophysics	4	3

			and Histatinities			
		ZV2014	(b) Histoinformatics			
		ZV2014	(c) Wildlife Biology			
		ZV20P2	Major Practical II	2	2	
		ZV2011	Allied II - Theory (General Zoology)	4	4	
		ZV20P1	Allied II Practical	2	2	
	Part IV	ALS203	Add on course - Professional English	2	2	
	Part V	FCV202	Foundation Course II - Personality Development	1	1	
		STP201	Student Training Programme (STP) Clubs & Committees / NSS	1	1	
		SLP201	Service Learning Programme (SLP) Community Engagement Course	1	1	
		SLP202	Service Learning Programme (SLP) Extension Activity (RUN)	1	1	
	Part I	FL2011/FL2011	Language: Tamil/French	0	4	
	Part II	GE2011	General English	0	4	
	Part III	ZC2011	Major Core IV - Genetics	4	4	
	Part IV		Major - Elective II	4	4	
		ZC2042	(a) Clinical Laboratory Technology/			
		ZC2043	(b) Animal Care & Services/			
		ZC2044	(c) Entomology			
		ZC20P2	Major Practical II	2	2	
		ZV2011	Allied II - Theory (Applied Zoology)	4	4	
		ZV20P1	Allied II - Practical	2	2	
	V	Part III	ZC20S1	Major Core V - Physiology	0	0
			ZC20S2	Major Core VI - Biotechnology	0	0
			ZC20S3	Major Core VII - Ecology and Toxicology	3	3
			ZC20PR	**Major Elective III - Project	4	4
			ZC20P3	Major Practical III	4	4
			ZC20P4	Major Practical VI	2	2
	Part IV	AEC201	AEEC - Ability Enhancement Compulsory Course: Environmental Studies	2	2	
	Part V	FCV203	Foundation Course III - Human Rights Education	1	1	
	Part V	ALS204	Add on course - Professional English	2	2	

#### Self-Learning Courses (Extra Credit Courses)

Semester	Course code	Title of the paper	Hours/ week	Credits
III/V	ZC20S1	Ornamental Fish Culture	1	2
IV/VI	ZC20S2	Nutrition and Dietetics	1	2



**Value-Added Courses (No credits, only Certificates)**

Course code	Name of the course	Total hours
VAZ201	First Aid	30
VAZ202	Household Waste Management	30

**Item 03/BoS03.02/05: Approval of UG Syllabus for Semester III and IV**

The Chairperson presented the modifications in the overall structure of the curriculum framed in 2020:

**i. Part IV and V of UG programme:**

- o Part IV includes Add on Course, Non-Major elective Course, SEC and AECC.
- o Part V includes Foundation course, Service-Learning Programme, Student Training Programme and Skill Development Programme.

**ii. ADD on Course– “Professional English for Life Sciences”**

As per the guidelines of TANSCH and University, Add on Course – “Professional English for Life Sciences” is incorporated in the curriculum: The contact hours and content of NMEC syllabi is reduced, AECC of III semester “English communication” is removed and AECC of IV semester “Environmental Studies” is shifted to V semester in the place of SEC-project.

- iii. The elective papers of V semester are replaced with subject based project.
- iv. The Practical examinations will be conducted during even semester and the ratio of Internal and External is 40: 60 (Total marks -100)

**The modifications done in the overall structure of the curriculum framed in 2020 was accepted by the Board with the following recommendations/suggestions:**

- i. Being an autonomous college allotment of 8 hours for Professional English is not acceptable and this can be represented in the academic council and the feedback can be obtained from the members.
- ii. The modules, test pattern and the authors of the recommended book for Professional English was discussed and clarified.
- iii. The teaching hours should not be specified as 45 hours and it should be as allotted.
- iv. The syllabi of certain courses (Biochemistry, Biophysics and Biostatistics –ZC2032, Immunology– PZ2043) can be minimized.
- v. Classification of the courses based on Skill development/ Employability Entrepreneurship and Courses relevant to local/ national/ regional/ global needs and cross cutting issues should be content-related rather than course wise.
- vi. Third elective of the III semester “Bioinstrumentation” was replaced by “Wildlife Biology” as the board felt that the content of Bioinstrumentation was more or less similar to the first elective of that semester “Biochemistry, Biophysics and Biostatistics”.
- vii. It was recommended not to use the beneficial insects and the animals for the practical, even though not enlisted under ethical category. Virtual laboratory can be used in such cases.

Changes made in the courses of Semester III and IV for the UG programme (Major & Elective) compared with that of 2017 board syllabus

Sl. No.	Semester	Course Code	Course Title	Changes	
				Removed (if any)	Addition (if any)
1.	III	ZC2031	Cell Biology	<p><b>Scope</b>  <b>Unit V:</b> mitotic apparatus, anaphase chromosomal movements and synaptonemal complex</p>	<p><b>Unit I:</b> Cytological techniques/ Sectioning, Micrometry  <b>Unit III:</b> Nucleosomes  <b>Unit V:</b> regulation of cell cycle cdk-dependent, Proto oncogenes, tumour suppressor genes</p>
2		ZC2032	Biochemistry, Biophysics and Biostatistics	<p><b>Unit I:</b> Mechanism of Buffer Action  <b>Unit II:</b> Fructose Lactose Hyaluronic acid triglycerides  <b>Unit III:</b> Redox reactions and redox potential; ATP Bioenergetics, Membrane Conductivity-diffusion, Osmosis and Active Transport.  <b>Unit IV</b>  <b>Unit V</b></p>	<p><b>Shifted from Unit II to Unit I:</b> Proteins - Classification, structure and properties of amino acids and proteins. Haemoglobin and Biological functions of proteins. Enzymes - Classification, nomenclature and properties.  <b>Shifted from Unit III to Unit II:</b> Carbohydrates and Lipids: Carbohydrates - classification, Monosaccharides - glucose, Disaccharides - lactose, Polysaccharides - glycogen, biological functions of carbohydrates. Lipids - classification, simple lipids - waxes, Compound lipids - lecithin, Derived lipids - cholesterol, biological functions of lipids.  <b>Unit IV shifted to Unit III</b>                      Addition: Fluorescence Nanoscopy, Fourier Transform Infrared Spectroscopy (FTIR).                      Unit V shifted to Unit IV  <b>Biostatistics:</b> Population, Data, Sample and variable. Collection of data - sampling methods. Processing of data - classification and tabulation. Presentation of data - Diagrams and graphs. Measures of central tendency, Measures of</p>



					dispersion – Range, Quartile deviation, Percentiles, Mean deviation, Co- efficient deviation - standard deviation. Variance, coefficient of variation, Standard error. Test of significance: Chi square test and Student's <i>t</i> - test.
3		ZC2033	Bioinformatics	-	Rearranged the topics
5	IV	ZC2041	Genetics	-	<b>Unit I: Mendelian inheritance:</b> inheritance of comb in fowl, inheritance of colour pattern in poultry and coat colour in mice <b>Unit II:</b> Chromosome mapping and Syndromes <b>Unit III:</b> Cytoplasmic inheritance and Mutation(title), F- factor <b>Unit IV:</b> Human chromosomes and genetic diseases (title) <b>Unit V:</b> Population genetics (title)
6		ZC2042	Clinical Laboratory Technology	Learning Objective2 Course outcomes. <b>Unit I</b> Cleaning of Glass wares	Learning Objective 2 Course outcomes <b>Reference book</b> Himadri Panda (2019). <i>Biomedical Waste Management, Recycling and Applications</i> (1 <sup>st</sup> ed.). India:
9		ZC20P2	III & IV Semester Major Core & Electives	<b>Cell Biology</b> Preparation of human blood smear	<b>Cell Biology:</b> Measurement of cells using stage and ocular micrometer, drawing of a cell/organism by using Camera Lucida. <b>Biochemistry, Biophysics and Biostatistics:</b> Preparation of standard acid and alkali (normal, molar and percent). Practical for Bioinformatics, Wildlife Biology, Clinical Laboratory Technology, Animal Care and Services, Entomology is added.

**B.Sc. Allied Courses**

Sl.No.	Semester	Course Code	Course Title	Removed (if any)	Added (if any)
1	III	ZA2031	General Zoology	<p><b>Unit II:</b> Dentition in mammals</p> <p><b>Unit III:</b> Structure of prokaryotic and eukaryotic cells</p>	<p><b>Unit II:</b> Dentition in man</p> <p><b>Unit III:</b> differences between plant and animal cells</p>
				<p><b>Unit IV:</b> 'placenta: types and functions'</p> <p><b>Unit V:</b> Digestion of carbohydrates, proteins and fat. Central, peripheral, sympathetic and parasympathetic.</p>	<p><b>Unit IV:</b> Natural Selection theory</p> <p><b>Unit V:</b> Structure and functions of digestive system of man. Functions of neuron</p>
2	IV	ZA2041	Applied Zoology	-	<p><b>Unit I:</b> Food of Honeybees</p> <p><b>Unit III:</b> Nutritive value of poultry flesh</p> <p><b>Unit IV:</b> Nutritive value of milk</p> <p><b>Unit V:</b> Ornamental fish culture</p>
3	IV	ZA20P1	General & Applied Zoology	<p><b>General Zoology:</b> Analysis of albumin in urine</p> <p><b>Spotters:</b> Industrial melanism, DNA – Watson and Crick model, colour blindness, shark and Echineis, Amphioxus,</p> <p><b>Applied Zoology:</b> Visit to places having importance related to theory</p>	<p><b>General Zoology:</b> Culture of Paramecium, Identification of stages of cleavage in frog, Observation of colour vision using Ishihara test, Observation of blood groups in human, <b>Spotters:</b> Down's syndrome, human kidney, human heart.</p> <p><b>Applied Zoology:</b> Identification of cells in the honey Bee comb, mounting of mouthparts of a worker bee, Testing of purity of honey in 3 different samples, Dissection of silk gland of <i>Bombyx mori</i> Measurement of shell ratio of mulberry silk cocoon., Qualitative analysis of milk – methylene reductase test. Estimation of protein in Hen's egg. <b>Spotters:</b> Dairy products: skimmed milk, curd, cheese ghee.</p>



**Other corrections suggested:**

**Major Core III (Cell Biology –ZC2031):**

Unit I: “stage and ocular micrometer” is replaced by Micrometry. Unit II:  
Title “Cell organelle” changed to” Plasma membrane and Cell organelles”.  
Unit IV: Lac”–should be italicized.

**Major Elective 1(a): Biochemistry, Biophysics and Biostatistics (ZC2032)**

The syllabus was restructured.

**Major Elective 1(b): Bioinformatics (ZC2033)**

The syllabus was restructured.

Course outcomes were included for evaluation and creativity.

It was recommended to have interdisciplinary course with the Department of  
Computer Science.

**Allied Zoology –General Zoology (ZA2031)**

The word, “Man” in the syllabus was replaced with “human”

**Unit II:** Rearranged the topics from fishes to humans.

**Unit III:** Title, “Cell Biology and Genetics” were replaced as, “Cytogenetics”

**Unit III:** Structure of prokaryotic and eukaryotic cells was replaced with” differences  
between plant and animal cells”.

“Early development” and “placenta: types and functions” were removed.

“Natural Selection theory” was added.

Unit V: Title changed from Physiology to Human Physiology.

**Allied Zoology: Applied Zoology (ZA2041)**

The units were reshuffled in an order: Unit I – Apiculture, Unit II –Sericulture, Unit III–  
Aquaculture, Unit IV– Poultry Farming and Unit V

Dairy Farming. Common diseases and their management were added under Apiculture,  
Sericulture and Aquaculture.

**Self-learning Courses:** Self-learning I: Ornamental fish culture (ZC20S1) – rearrangement of unit/  
topics and Unit V: Title changed as Transportation and disease management. Self-learning II: Nutrition  
and Dietetics (ZC20S2) - rearrangement of unit/topics.

**New Courses Introduced for B.Sc. Zoology** in the new structural revision of Curriculum

**Semester I to IV:** Professional English (Code: ALS201 to ALS204)

**Semester III:** Wildlife Biology-Major Elective I(c)

**Semester IV:**

(1) Animal Care and Services-Major Elective II (b)

(2) Entomology-Major Elective II (c)

Item 04/BoS03.02/06: Approval of restructuring / Revision of Curriculum of PG - The following structure was approved by the Board.

Semester	Course Code	Title of the paper	Hours/ week	Credits
I	PZ2011	Core I-Biochemistry	6	4
	PZ2012	Core II- Ecobiology	6	4
	PZ2013	Core III-Structure and Function of Invertebrates	5	4
	PZ2014	Core IV-Comparative Anatomy of Chordates	5	3
	PZ2015	Elective-(a) Animal Husbandry/ (b)HealthCare	4	3
	PZ2016			
	PZ20P1	Practical I- Biochemistry & Ecobiology	4	-
	LST202	Life Skill Training (LST)- I	-	-
II	PZ2021	Core V - Biostatistics, Computer Applications and Bioinformatics	6	4
	PZ2022	Core VI- Cell and Molecular Biology	6	4
	PZ2023	Core VII- Developmental Biology	5	4
	PZ2024	Core VIII- Research Methodology	5	3
	PZ2025	Elective II- a) Animal Behaviour & Chronobiology/ b) Bioinformatics	4	3
	PZ20P1	Practical I-Biochemistry & Ecobiology	-	4
	PZ20P2	Practical II - Biostatistics, Computer Applications and Bioinformatics & Cell and Molecular Biology	4	4
LST202	Life Skill Training (LST)- I	-	1	
SLP201	Community Engagement Course	-	-	
III	PZ2031	Core IX - Physiology	6	4
	PZ2032	Core X- Genetics and Evolution	6	4
	PZ2033	Core XI-Culture and Capture Fisheries	5	4
	PZ2034	Elective III-(a)General Endocrinology/ (b)Forensic Biology	4	3
	PZ2035			
	PZ20P3	Practical III-Physiology & Genetics and Evolution	4	-
	PZ20PR	Project	5	4
	LST204	Life Skill Training (LST)-II	-	-
SLP201	Community Engagement Course	-	2	
IV	PZ2041	Core XII - Microbiology	6	4



	PZ2042	Core XIII-Biotechnology and Nanobiology	6	4
	PZ2043	Core IVX- Immunology	5	4
	PZ2044	Core XV - Medical Laboratory Technology	5	4
	PZ2045 PZ2046	Elective IV-(a) Parasitology/ (b) Applied Entomology	4	3
	PZ20P3	Practical III-Physiology & Genetics and Evolution	-	4
	PZ20P4	Practical IV - Microbiology & Biotechnology and Nanobiology	4	4
	LST204	Life Skill Training (LST)- II	-	1
<b>Vacation</b>	STP201	Summer Training Programme/ Internship	-	1

\*Subject based group project (2 students per group) with an individual viva voce during the III semester

#### Self-Learning Courses (Extra-credit Courses)

Semester	Course code	Title of the paper	Hours/ week	Credits
I/III	PZ20S1	Life Science for Competitive Examinations/Online Course (MOOC)	-	2
II/IV	PZ20S2	Environmental Impact - Assessment and Audit/Online Course (MOOC)	-	2

#### Value-Added Courses

Course code	Name of the course	Total hours
VACPZ1	Techniques in Biology	30

#### Item 05/BoS 03.02/07: Approval of PG Syllabus for Semester III and IV

The BoS members approved the following changes in the courses in Semester III and IV for PG programme with few Recommendations/suggestions

- The learning objectives, Course outcome was modified/revised for all the courses.
- The courses were revised/modified based on the feedback from the students & Alumni.

Changes made in the courses of Semester III and IV for the PG programme – compared with that of 2017 board syllabus

Semester	Course Code	Course Title	Removed (if any)	Addition (if any)
III	PZ2031	Physiology	<b>Unit II:</b> Aestivation and hibernation <b>Unit IV:</b> Inborn and conditioned reflex actions, Structure functions of ear. <b>Unit V:</b> Excretory organs in different groups of animals.	<b>Unit V:</b> Counter-current mechanism,
	PZ2032	Genetics & Evolution	<b>Unit II:</b> , Chromosomal aberrations. Ploidy-kinds-mechanism- significance. Pompe's disease <b>Unit IV</b> Origin of new gene functions-evolution of novel genes and proteins. Reconstruction of phylogenetic relationship	<b>Unit II:</b> Von Gierke's disease <b>Unit V</b> Australopithecines. <b>Unit I</b> Aquaculture (title) <b>Unit II:</b> Breeding techniques (title) <b>Unit III:</b> Culture and Pathology (title) <b>Unit IV:</b> Sex Control-Genome centromere mapping-Inbreed depression- Production of inbred lines. Gonochorism-hermaphroditism- Diandry and Digyny-Dichromatism <b>Unit V:</b> Remote sensing and GIS in fisheries
	PZ2033	Culture & capture fisheries	<b>Unit IV</b> Chromosomal abnormalities.	
	PZ2034	General Endocrinology	<b>Unit I:</b> Assay of hormones, surgical methods, radioisotope studies, pharmacological methods and replacement therapy. Animal models for research. Hormonal therapy (shifted to <b>Unit V</b> ). <b>Unit II:</b> Evolution of regulator mechanisms <b>Unit III:</b> Mechanism of hormone action-receptors (membrane and cytosolic)- second	<b>Unit I:</b> Hormones - classification of hormones, gastro-intestinal hormones and maternal – foetal/placental hormones. Patho-physiology of hypothalamus, pituitary, thyroid, parathyroid, adrenal, pancreas, gonads. <b>Unit III:</b> Unit IV shifted to Unit III <b>Unit IV:</b> Unit V shifted to Unit IV <b>Unit V:</b> Shifted from Unit I



			messengers, signal transduction, termination of Hormone activity.	
IV	PZ2041	Microbiology	<p><b>Unit I:</b> Structure of viruses, cytocidal infections and cell damage, persistent, late and slow virus infections, Viruses and cancer</p> <p><b>Unit II:</b> Bacterial morphology, Influence of environmental factors on growth, synchronous growth, continuous culture, chemostat and turbidostat</p> <p><b>Unit III:</b> <i>Psuedomonas</i>, Fermenters and types of fermenters, food spoilage and food preservation</p> <p><b>Unit IV:</b> purification of water</p> <p><b>Unit V:</b> Title Antimicrobial agents – classification, drug resistance, drug dosage, antibacterial drug (penicillin), antifungal drug (Nystatin), antiviral drug amantadine), Mechanism of microbial pathogenesis, malaria and amoebiasis, Mycotoxicosis, meningitis, cholera, anthrax, AIDS</p>	<p><b>Unit I:</b> Title – Virus, fungi and protists, Subviral agents – virusoids and satellite virus, virus-host interactions</p> <p>Fungi: Classification – morphology – filamentous – non-filamentous and dimorphic fungus.</p> <p><i>Apicomplexa</i> – <i>Toxoplasma</i></p> <p><b>Unit II:</b> Morphology, structure and functions of cell walls (gram-positive and Gram-negative), flagella, fimbriae and pili</p> <p><b>Unit III:</b> <i>Trochoderma</i> production of yeast, industrial uses of yeast and moulds, probiotics – <i>Lactobacillus</i> and <i>Saccharomyces</i></p> <p><b>Unit IV:</b> Bioremediation, Biosorption, Microbes as Biofilms, Biosensors and nanomaterial</p> <p><b>Unit V:</b> Title – Medical Microbiology Methods of controlling microbes, candidiasis, SARS, MERS, Covid-19</p>
	PZ2042	Biotechnology and Nanobiology	<p><b>Unit II:</b> Knockouts, Biotechnology and aquaculture-ploidy induction, gynogenesis and androgenesis.</p>	<p><b>Unit I:</b> Blotting techniques and DNA fingerprinting</p> <p><b>Unit II:</b> Culture media, cattle, sheep, fish and pigs - transgenic animals as models of human disease. Ethical issues in transgenesis.</p> <p><b>Unit III:</b> design of fermenter, sterilization, media design.</p> <p><b>Unit V:</b> Scaffolds for tissue engineering.</p>

PZ2043	Immunology	<b>Unit I</b> : Scope and History <b>Unit IV</b> : Autoimmune diseases – systemic lupus erythematosus	<b>Unit II</b> shifted to <b>Unit III</b>
PZ2045	Parasitology	Learning objective 2 <b>Unit 1</b> : Historical perspective <b>Unit V</b> : ELIZA, IBMWB	Learning objective 2

- The content of the course Immunology (PZ2043) was reduced as the board felt it was heavy, with the consent of the course handling teachers.  
**Unit I**: Added history and scope of Immunology.
- **Core XV: Medical Laboratory Technology (PZ2044)**  
**Unit III**: Added, test for Covid-19".
- **Elective IV(b) Applied Entomology (PZ2046)**  
**Unit II**: Added more pest insects (sugarcane, maize, tomato, rubber) of Tamil Nadu. Removed common names of pests.  
**Unit III**: Included Ticks and Mites, Insects associated with house-hold material "is replaced by house-hold insects"  
**Unit IV**: Insect collection, mounting and preservation "is replaced by Medically important insects".  
**Unit V**: Insecticides replaced by pesticides, added-predators, Integrated Pest Management (IPM)" is replaced with „Concepts of Bio-intensive Integrated Pest Management (BIPM)".  
**Practical IV: Microbiology & Biotechnology and Nanobiology (PZ20P4)**
  - The first two practical of Biotechnology and Nanobiology was combined as
  - Extraction and estimation of DNA from goat liver.
  - Removed antibiotic sensitivity assay from Biotechnology and Nanobiology as it was a repetition of the practical given in Microbiology.
  - Added two more practical: a) Preparation of Nano-solution with Fe, Ag, Au, etc.
  - Bio-fabrication of nanomaterial using plant extracts or microbial culture.

**Item 06/BoS03.02/08: Approval of new courses** - Following courses introduced was approved by the Board.

**UG:** Bioinformatics (ZC2033), Wild-life Biology (ZC2034), Clinical Laboratory Technology (ZC2042), Animal Care and services (ZC2043), Entomology (ZC2044).

**PG:** Forensic Biology (PZ2035), Medical laboratory course (PZ2044) and Applied entomology (PZ2044)



**Item 07/BoS03.02/09: Approval of courses relevant to Employability (EM), Entrepreneurship (EN) and Skill development (SD).**

UG					
Semester	CourseCode	Course Title	EM	EN	SD
II	ZC2031	Cell Biology			✓
	ZC2032	Biochemistry, Biophysics and Biostatistics	✓		✓
	ZC2033	Bioinformatics	✓		✓
	ZC2034	Wildlife Biology	✓		✓
IV	ZC2041	Genetics			✓
	ZC2042	Clinical Laboratory Technology	✓		✓
	ZC2043	Animal Care and Services		✓	✓
	ZC2044	Entomology			✓
	ZC20P2	III & IV Semester Major Core & Electives			✓

PG					
Semester	Course Code	Course Title	EM	EN	SD
III	PZ2031	Physiology			✓
	PZ2032	Genetics & Evolution			✓
	PZ2033	Culture & capture fisheries		✓	✓
	PZ2034	General Endocrinology			✓
	PZ2035	Forensic Biology			✓
IV	PZ2041	Microbiology	✓		✓
	PZ2042	Biotechnology & Nanobiology			✓
	PZ2043	Immunology			✓
	PZ2044	Medical Laboratory Technology		✓	✓
	PZ2045	Parasitology		✓	✓
	PZ2046	Applied Entomology	✓		✓
	PZ20P3	Physiology & Genetics and Evolution			✓
	PZ20P4	Microbiology & Biotechnology and Nanobiology	✓		✓

Item 08/BoS03.02/10: Approval of the courses relevant to local/ regional /national and global developmental needs – The Board Approved.

UG						
Semester	Course Code	Courses	Local	Regional	National	Global
III	ZC2031	Cell Biology	✓	-	✓	✓
	ZC2032	Biochemistry, Biophysics and Biostatistics	✓	✓	✓	✓
	ZC2033	Bioinformatics	✓	✓	✓	✓
	ZC2034	Wildlife Biology	✓	-	✓	-
IV	ZC2041	Genetics	✓	✓	✓	
	ZC2042	Clinical Laboratory Technology				
	ZC2043	Animal Care and Services	✓	✓	✓	✓
	ZC2044	Entomology	✓	✓	✓	✓
	ZC20P2	III & IV Semester Practical of Major Core & Electives	✓	✓	✓	✓

PG						
Semester	Course Code	Course Title	Local	National	Regional	Global
III	PZ2031	Physiology	✓	✓	✓	✓
	PZ2032	Genetics & Evolution	✓	✓	✓	✓
	PZ2033	Culture & capture fisheries	✓	✓	✓	✓
	PZ2034	General Endocrinology	✓	✓	✓	✓
	PZ2035	Forensic Biology	✓	✓	✓	✓
IV	PZ2041	Microbiology	✓			✓
	PZ2042	Biotechnology & Nanobiology		✓		✓
	PZ2043	Immunology		✓		✓
	PZ2044	Medical Laboratory Technology	✓		✓	
	PZ2045	Parasitology		✓	✓	
	PZ2046	Applied Entomology	✓	✓	✓	
	PZ20P3	Physiology & Genetics and Evolution			✓	
	PZ20P4	Microbiology & Biotechnology and Nanobiology	✓			



**Item 09/BoS 03.02/11:** Approval of the courses classified on the basis cross cutting issues such as gender equity (GE), environmental susceptibility (EVS), human values (HV) and professional ethics (PE)

UG						
Semester	Course code	Paper	GE	EVS	HV	PE
III	ZC2031	Cell Biology	-	✓	✓	-
	ZC2032	Biochemistry, Biophysics and Biostatistics				✓
	ZC2033	Bioinformatics				✓
IV	ZC2034	Wildlife Biology		✓		-
	ZC2041	Genetics	✓	✓	✓	✓
	ZC2042	Clinical Laboratory Technology	✓		✓	✓
	ZC2044	Entomology		✓		

PG						
Semester	Course code	Paper	GE	EVS	HV	PE
III	PZ2031	Physiology	-	✓	✓	-
	PZ2032	Genetics & Evolution				✓
	PZ2033	Culture & capture fisheries		✓		✓
	PZ2034	General Endocrinology	✓			✓
	PZ2035	Forensic Biology	✓			✓
IV	PZ2041	Microbiology		✓		-
	PZ2042	Biotechnology & Nanobiology	✓	✓	✓	✓
	PZ2043	Immunology	✓		✓	✓
	PZ2044	Medical Laboratory Technology	✓			
	PZ2045	Parasitology		✓	✓	
	PZ2046	Applied Entomology		✓		

**Item 10/BoS03.02/12:** Approval for the conduct of UG and PG Practical Examination - Board members approved the conduct of practical examinations in the even semester.

The Board suggested the guidelines for submitting the report of their project work.

- All the students must undertake dissertation work at the final year (III semester).
- The students, with the consent of the Supervisor, HOD and the Principal can pursue their project in another institution, especially with MoU/ Collaboration for the successful completion of the project work.

Evaluation	Marks	Month/ Date	Evaluator
Proposed title, review of literature and objectives.	-	III Week of III Semester	-
I Review	10	July	Supervisor
II Review	10	August	Supervisor
Final- Internal/ External	20/40	September/ October	Internal /Ext. examiner
*Viva-voce (individual & open)	20	October /November	Ext. examiner
Total marks	100		

\* Mode of presentation by Power Point

### **Dissertation framework**

#### **I. The dissertation format should be in:**

- Font - Times New Roman
- Heading - Font size 14 (Bold) – Uppercase
- Sub headings - Font size 12 (Bold) – Lowercase; should be numbered.
  - (Eg: Introduction 1; Subheading 1.1; 1.2 ....)
- Text, the content of the dissertation – Font size -12 (Normal).
- Citation - Any works of other researchers, if used either directly or indirectly should be indicated at appropriate places in the text.  
The citation may assume any one of the following forms:
  - i) A paper, a monograph or a book with single author may be designated by the name of the first author followed by the year of publication, placed inside brackets at the appropriate places in the text.
  - ii) A paper, a monograph or a book with two authors may be designated by the name of the first and second author followed by the year of publication, placed inside brackets at the appropriate places in the text.
  - iii) A paper, a monograph or a book with more than two authors may be designated by the name of the first author followed by et al, and the year of publication, placed inside brackets at the appropriate places in the text.
- Line space - 1.5
- Margin - 2" on the left and 1" on the right, Gutter -0.5.
- Page Numbering – Bottom middle alignment; excluding initial pages and reference
- Total number of pages - Minimum 30 - Maximum 50 (excluding initial pages and ~~figures~~)
- The Tables and Figures should be included subsequently after referring them in the text of the Thesis.
- The thesis from Chapters should be printed on both sides.
  - i. Dissertation must be completed within the stipulated time.
  - ii. Submission of Dissertation:
- one soft copy (PDF format in CD)
- three hard copies (soft binding) duly signed and endorsed by the Supervisor and the Head.

#### **The report - dissertation will have three main parts:**

##### **I. Initial Pages - in the following sequence**

- a. Title Page
- b. Certificate from the Supervisor
- c. Declaration by the candidate endorsed by the Supervisor and HOD.
- d. Acknowledgement (within one page - signed by the candidate).
- e. Table of Contents
- f. List of abbreviations
- g. Abstract

##### **II. Main body of the dissertation**

#### **Item 11/BoS03.02/13: Approval for the Recommendation of books and journals for UG and PG**

##### **Reference Books:**

**UG:** Text book for Wildlife biology: Goutam Kumar Saha & Subhendu Mazumdar (2017).

*Wildlife Biology: An Indian Perspective.* New Delhi: PHIL earning Pvt. Ltd

**PG:** Roitt's Essential Immunology: Peter J Deves, Seamus J, Martin, Dennis R Burton and Ivan M



Roitt, (2017)13<sup>th</sup> Edition, Blackwell publishing.

Immunology: Dulsy Fathima & Arumugam, N (2020), Nagercoil: Saras Publications  
E-contents: can be included for each course under reference books.

**Journals:** The members suggested subscribing reputed life science-related journals.

**Item 13/BoS03.02/14: Approval of Conduct of seminars / workshops collaborations with Government Agents / Universities / NGOs**

- Collaborative Workshops/ seminars with other reputed institutions, NGOs were suggested.
- Organize UGC, TNSCST, DST sponsored seminars/ workshops/conferences.

**Item 13/BoS03.02/15: Suggestions for innovative teaching and evaluation techniques.**

The BoS members appreciated and encouraged to continue the methodologies adopted.

**The Suggestions given by the board members during the meeting:**

- The number of copies of Books in the library can be between 5 and 10 for 20 students.
- Latest edition of the reference books can be added.
- Simple topics from each course can be given asself-study for the PG students.
- Recommended individual projects for II PG students.
- Project norms should be framed including the following recommendations:
  - Projects should be considered as a course.
  - Two evaluations should be conducted during the tenure of the project and the marks obtained can be included under internal components.
  - DOI number and recent citations of the journals can be included under reference.

**Item 14/BoS03.02/16: Approval of new measures to be undertaken:**

Organise innovative student projects (DISCOVER). **Organise programme for school teachers.**

**Item 19/BoS03.02/17:** The Board analysed the feedback of the stakeholders and recommended to introduce new value-added courses.

	Stakeholders	Feedback Received	Action Taken
<b>B.Sc. Zoology</b>	Students	Subject-wise exhibitions can be organised.	Executed
	Parents	Syllabus is good	-
	Teachers	Courses increase knowledge	-
	Employers	Need of courses developing skills.	Added skill-oriented courses.
<b>M.Sc. Zoology</b>	Students	Satisfied with the off-line class of teaching and learning.	Resumed offline classes
	Teachers	Satisfied with teaching.	-
	Alumni	Enhance knowledge.	-

**Students:** Offline classes are more satisfactory. Subject related activities can be increased.

Tony Lesline (III B. Sc, Zoology) *Tony R.*

Nageswari, S. (II M.Sc. Zoology) *S. Nagesh*

**Item 16/BoS03.02/18: Next Meeting of the BoS**

The members of the board suggested having the next meeting of BoS in the month of August 2021.




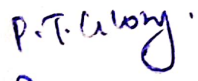
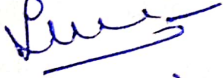

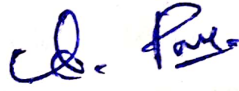

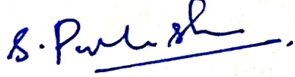

- Recommended to conduct two BoS (separate UG and PG Boards) per academic year that could enhance wide discussion.

The meeting ended at 1.45 pm with the vote of thanks by the Chairperson of the BoS.

**Item 17/BoS03.02/19: Any other - Nil**

ZOOL/BOS/2020-'21/15

The meeting ended at 1.45 pm with the vote of thanks by the Chairperson of the BoS.

Name of the Members	Designation	Signature
Dr. S. Mary Mettilda Bai	Chairperson & HoD	S. Mary Mettilda Bai
Dr. S.P. Sevarkodiyone	University Nominee	
Dr. K. Sahayaraj	Subject Expert	
Dr. V. Robin Perinba Smith	Subject Expert	
Dr. V.N. Ariharan	Industrialist	
Dr. S. Mary Baptista Janet	Alumna	
Dr. F. Brisca Renuga	Member	
Dr. J. Vinoliya Josephine Mary	Member	
Dr. A. Shyla Suganthi	Member	
Dr. P.T. Arokya Glory	Member	
Dr. Jeni Chandar Padua	Member	
Dr. C. Josephine Priyatharshini	Member	
Dr. A. Punitha	Member	
Dr. X. Venci Candida	Member	
Dr. S. Prakash Shoba	Member	
Dr. C. Anitha	Member	

Record – Video link:

<https://drive.google.com/file/d/1xtkt9fZGYaKpfJh9YqZy97iv94doIKMH/view?usp=sharing>

<https://drive.google.com/file/d/1xtkt9fZGYaKpfJh9YqZy97iv94doIKMH/view>



Attendance Certificate

From

Dr. S. Mary Baptista Janet  
Associate Professor of Zoology  
PG & Research Dept. of Zoology  
St. Mary's College (Autonomous)  
Theodhukudi.

To

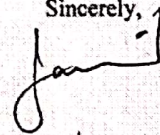
The Deans  
Holy Cross College, Nagercoil,  
Kanyakumari District, Tamil Nadu.

Dear Madam,

This is to certify that myself Dr. S. MARY BAPTISTA JANET.

.....attended the Board of Studies  
meeting conducted by the Department of ..... ZOOLOGY..... Holy Cross College,  
Nagercoil, Kanyakumari District, Tamil Nadu, via Google meet, as University Nominee/ Subject  
Expert/ Industrialist/ Alumna on ..... 3.02.2021.

Sincerely,





Attendance Certificate

From

SP. Sevarkadiyone,  
Associate Professor & Head,  
PG and Research Dept. of Zoology,  
A.N.J.A. College,  
Sivakasi

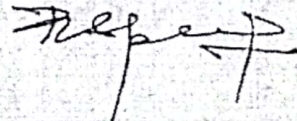
To

The Deans  
Holy Cross College, Nagercoil,  
Kanyakumari District, Tamil Nadu.

Dear Madam,

This is to certify that myself Dr. SP. SEVARKADIYONE attended the  
Board of Studies meeting conducted by the Department of ZOOLOGY,  
Holy Cross College, Nagercoil, Kanyakumari District, Tamil Nadu, via Google meet, as  
University Nominee/ Subject Expert, on 03-02-2021.

Sincerely,





2/18/2021

Attendance Certificate

From

V. Robin Perinba Smith  
Associate Professor  
Scott Christian College, Nagercoil 629 003  
Kanyakumari District, Tamil Nadu.

To

The Deans  
Holy Cross College, Nagercoil,  
Kanyakumari District, Tamil Nadu.

Dear Madam,

This is to certify that myself Dr.

V. Robin Perinba Smith.....

.....attended the Board of Studies

meeting conducted by the Department of .....Zoology..... Holy Cross College,

Nagercoil, Kanyakumari District, Tamil Nadu, via Google meet, as University Nominee/ Subject

Expert/ Industrialist/ Alumna on ..03.....02....., 2021.

Sincerely,

Smith