



# Parvatibai Chowgule College of Arts and Science Autonomous

Accredited by NAAC with Grade A (CGPA Score 3.41 on a 4 Point Scale)

Best affiliated College Goa University Silver Jubilee Year Award



F.133 /

17<sup>th</sup> January, 2015.

All the members of the Board of Studies in Zoology

**Subject: Minutes of the first meeting of the Board of Studies in Zoology held on 7<sup>th</sup> January, 2015.**

Sir / Madam,

I am forwarding the minutes of the first BOS (Zoology) meeting held on 7<sup>th</sup> January, 2015 at the Parvatibai Chowgule College of Arts and Science (Autonomous), Margao. If no exception is taken by any member of BOS to the correctness of the minutes of the meeting within 5 days of the dispatch of the minutes, they shall be deemed to be correct.

Yours Sincerely,

Dr. D. K. Tikare  
Chairman  
Board of Studies in Zoology

*Enclosures :*

1. Minutes of the meeting
2. Annexure I to VIII



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Following members of the Board of Studies in Zoology were present for the meeting convened on Wednesday, 7<sup>th</sup> January 2015 at 10.30 am. in College

Sr. No.	Name of the Faculty	Signature
1	Dr. D. K. Tikare - Chairman	
2	Dr. Manoj Borkar - Academic Council Nominee	
3	Prof. P. Prakash Babu - Academic Council Nominee	
4	Prof. B. A. Shanbhag - Vice-Chancellor Nominee	
5	Dr. Philip Mascarenhas - Allied Area Representative	
6	Ms. Suzy Fatima Fernandes - Alumnus	
7	Mr. K. N. Mishra - Member	
8	Dr. Nandini Vaz Fernandes - Member Secretary	
9	Dr. Shanti N. Dessai - Member	
10	Ms. Socorrinha D'Costa - Member	
11	Mrs. Doreen De Souza - Secretary	

**PARVATIBAI CHOWGULE COLLEGE OF ARTS AND SCIENCE  
(AUTONOMOUS)**

**DEPARTMENT OF ZOOLOGY**

**MINUTES OF THE FIRST MEETING OF BOARD OF STUDIES OF ZOOLOGY**

Date: 7<sup>th</sup> January, 2015

Time: 10:30 a.m. to 4:30 p.m.

Venue: Conference Room

**AGENDA:**

1. To approve the List of Core and Elective courses for undergraduate program in Zoology
2. To approve the syllabi of Semester I and Semester II for the academic year 2015-16
3. Recommend panel of Examiners to the Academic Council
4. Any Other Business (A.O.B.)

**ATTENDED BY:**

1. Dr. D. K. Tikare – Chairman
2. Dr. Manoj Borkar – Academic Council Nominee
3. Prof. P. Prakash Babu – Academic Council Nominee
4. Prof. B. A. Shanbhag – Vice-Chancellor Nominee
5. Dr. Philip Mascarenhas – Allied Area Representative
6. Ms. Suzy Fatima Fernandes – Alumnus
7. Mr. K. N. Mishra – Member
8. Dr. Nandini Vaz Fernandes – Member Secretary
9. Dr. Shanti N. Dessai – Member
10. Ms. Socorrinha D'Costa - Member
11. Mrs. Doreen De Souza – Secretary

The meeting commenced at 10:30 a.m. The Chairman, Dr. D. K. Tikare welcomed the Board members and also introduced the members to each other. Thereafter, he informed that the college will introduce the new course structure from the academic year 2015 – 16. He gave an overview of the new course structure of Choice based Credit system, under which each student will have to complete 130 credits. The subdivision of the course structure into component A, B and C



was discussed. He stated that Component 'A' will be exclusively handled by the faculty of Zoology Department and consisted of core and elective papers, amounting to 84 credits for single major. Number of Core and elective papers for Single major, Major-Minor and Double major was explained.

Dr. Manoj Borkar, Academic Council Nominee asked for some clarifications about Double Major / Major-Minor and Prof. B. A. Shanbhag, Vice-Chancellor Nominee had some queries about Major and Minor papers. Dr. Nandini Vaz Fernandes, Member Secretary gave explanation and clarified their queries. Prof. B. A. Shanbhag expressed apprehension about the same papers being offered for both Single Major and Minor-Minor, stating that there cannot be equity as weight-age should be less for Minor Papers.

The Chairman then put forth the first point of the Agenda for discussion.

#### **AGENDA 1: To approve the List of Core and Elective courses for undergraduate program in Zoology.**

##### **Proceedings:**

- Dr. Tikare displayed the list of Core and elective papers planned for the undergraduate programme in zoology. Prof. B. A. Shanbhag said that the syllabus should be useful to the students and all the units should be connected and not like islands.
- Dr. Philip Mascarenhas, Allied Area Representative suggested that the syllabus should be such that it should have more job openings for students.
- Prof. P. Prakash Babu, Academic Council Nominee said that the syllabus should have more of Zoology and not more of subjects like microbiology but cater to the global village.
- Dr. Manoj Borkar said that the syllabus has interesting papers like Parasitology but some more papers like Animal Behavior and Evolution should be introduced as Elective Papers and should be open for all. He said the syllabus should have right combination of classical and modern zoology to strike a balance.
- Dr. Nandini Vaz Fernandes added that the list of papers decided upon by the department was done considering the objective of the department and focusing on the prospective employment opportunities in fishery, forest, research and paramedical sectors.
- Dr. Manoj Borkar, asked the other members about their view on ban on dissections. He said that dissection of some specimen should be permitted to develop dissection skills in the students. Dr. Phillip added that categorizing of list of animals as protected and laboratory animals is essential.

- Dr. Borkar recommended constitution of 'Dissection monitoring Committee' for monitoring the dissections in the department and 'Institutional ethical committee' for permitting research activities involving animals /humans.
- Prof. B. A. Shanbhag, suggested rewording of the titles of the papers ZOO-I-C-1 and ZOO-II-C-3, which was agreed upon by all members.
- Prof. B. A. Shanbhag suggested that the Core Papers ZOO.II.C.4 – Fundamentals of Animal and Human Genetics and Core Papers ZOO.II.C.5 – Human Physiology should not have the word 'Human' as Zoology is basically the study of animals. Dr. Nandini Vaz Fernandes, explained that since the students may seek employment in paramedical sector, knowledge of human is more essential rather than all animals in general. Dr. Manoj Borkar added that students feel connected with zoology as they study about 'Human' too. Prof. P. Prakash Babu suggested that there should be more of Zoology first and Human study should come in the later Semesters. Dr. Phillip Mascarenhas, being from medical background said that studying about humans, expands the horizons of job sectors for zoology students.
- Prof. P. Prakash Babu, suggested changes be made in title of paper ZOO-III.E-1.
- Dr. Manoj Borkar and Prof. P. Prakash Babu suggested change in titles of papers ZOO-III.E-2 and ZOO-IV.E-5. Dr. Nandini Vaz Fernandes explained that the papers were so arranged for the students to know the concepts in biotechnology and have a foundation of microbiology in order to understand the applications and innovations in biotechnology.
- Prof. B. A. Shanbhag and Dr. Borkar suggested rewording of the paper ZOO-III.E-3 and ZOO-VI.E-15. Dr. Borkar suggested rewording of the paper ZOO-III.E-16.
- After discussion, changes were made in some Paper Titles of both Core and Elective Papers, and the changes were accepted. List of papers with titles reworded are given below.

PAPER CODE	TITLE	CHANGED TO
ZOO-I.C-1	Diversity of non Chordates	Animal Diversity: Non-Chordates
ZOO-II.C-3	Diversity of Chordates	Diversity and Biological systems of Chordates
ZOO-III.E-1	Vertebrate Endocrinology	Endocrinology
ZOO-III.E-2	Fundamentals and applications of animal cell culture	Basic microbiology and Fundamentals of animal biotechnology
ZOO-III.E-3	Toxicology	Environmental Toxicology
ZOO-IV.E-5	Basic microbiology and animal biotechnology	Animal cell culture and Applications
ZOO-VI.E-14	Pest Control	Basic and applied entomology
ZOO-VI.E-15	Pathological laboratory techniques	Laboratory techniques in Pathology
ZOO-VI.E-16	Entrepreneurship development	Bio Entrepreneurship



- In view of the other core and elective papers of semester 3- 6, Prof. B.A. Shanbhag mentioned that as far as possible, NET syllabus should also be kept in mind while drafting syllabus and added that there should be standard reference books, preferably by foreign authors for the benefit of students. Dr. Manoj Borkar volunteered to help in drafting the syllabus for Ecology and Ethology. He also suggested that Polar Biology may be included as component of one paper, considering the NCAOR in Goa. Mr. K N Mishra supported the suggestion.

- **Resolution on the list of core and elective courses for undergraduate program in Zoology:**

Based on the suggestions stated above, the list of core and elective courses for undergraduate program in Zoology are modified. The modified list is presented in **Annexure I**.

## **AGENDA 2 : To approve the syllabi of Semester I and Semester II for the academic year 2015-16**

### **Proceedings:**

#### **1) Paper: ZOO-I.C-1- Animal Diversity: Non Chordates**

- Was presented by Dr. D.K Tikare.
- The syllabus of the paper ZOO-I.C-1- Animal Diversity : Non Chordates, was presented for deliberation.
- Dr. Manoj Borkar suggested that 'Type Study' is very important and should be incorporated in the syllabus as it helps to study variation within the phyla.
- The term 'Invertebrate' in the syllabus was suggested to be replaced with the term 'Non-Chordates' by Prof. B.A. Shanbhag and Dr. Manoj Borkar. Dr. Borkar also suggested replacement of the term 'Biological systems' with 'Life processes' for non-chordates.
- Prof. B.A. Shanbhag suggested that some faculty should undergo training on Cladogram construction at Bangalore. She also added that some more reference books should be added.
- Prof. B.A. Shanbhag, recommended usage of some important books by William and Marshal and Dr. Manoj Borkar, stressed importance of Hyman series.
- Dr. Manoj Borkar, again stressed on the need for formulation of 'College dissection committee' for conducting the practicals of this paper. Field trip of the practical component was suggested to be made as 'Field exercise'.

- **Resolution on the syllabi of paper ZOO-I.C-1- Animal Diversity: Non Chordates**

The syllabi of the paper ZOO-I.C-1- Animal Diversity: Non Chordates along with the redrafted syllabi will be circulated among all the members of BOS for their approval. The

revised syllabi of the paper ZOO-I.C-1- Animal Diversity: Non Chordates with the recommended changes is presented in *Annexure –II*.

## 2) Paper: ZOO-I.C-2- Cell and Molecular Biology.

- Dr. Nandini Vaz Fernandes presented the syllabus of this paper. She stated that the syllabus was based on the book 'Essential Cell Biology' By Albert *et. al*, 2014 (fourth edition).
- Prof. B.A. Shanbhag, stated that book by Albert is of High standard and the modules drafted in the syllabus can be accepted as presented.
- However minor changes of addition of 'IEM and STEM' was suggested for module 1 by Dr. Manoj Borkar, and replacement of the term 'Synaptic signaling' to 'synaptic transmission' in module 5 by Prof. P. Prakash Babu.
- For practical component, Prof. P. Prakash Babu suggested addition of 'lab solution / buffer preparation'. He also emphasized the need to put up a list of Do's and Don'ts for Chemicals and Equipment in the Laboratories.
- **Resolution on the syllabi of paper ZOO-I.C-2- Cell and Molecular Biology:**

The syllabi of the paper ZOO-I.C-2- Cell and Molecular Biology was approved and accepted with the above said minor changes. The final approved and accepted syllabus of the Paper: ZOO-I.C-2- Cell and Molecular Biology is presented in *Annexure- III*.

## 3) Paper: ZOO-II.C-3- Diversity and Biological Systems of Chordates

- Was presented by Dr. D.K Tikare.
- The Paper Title for ZOO.II.C.3 was deliberated upon and reframing of the title was suggested considering the content of the paper, which was also emphasizing on study of body systems in different phyla.
- The term 'Vertebrate' in the syllabus was suggested to be replaced with the term 'Chordates' by Prof. B.A. Shanbhag.
- Major reshuffling of topics in all the modules, was suggested by Dr. Manoj Borkar and Prof. B.A. Shanbhag. Dr. Borkar again emphasized the need for type study.
- Dr. Manoj Borkar said that all the modules involving comparative study should be reframed using Type Study and subsequently mailed to all the members for suggestions.
- For practical component, 'Systematic classification' was suggested to be included with identification by Prof. B.A. Shanbhag,
- Dr. Manoj Borkar suggested study of any 3 specific nests of birds and lay emphasis on study of 'Indian venomous snakes' rather than general.
- Considering the suggestions of the members and also considering the need to know the variations which may occur within the phyla, the syllabus was revised.



- **Resolution on the syllabi of paper of ZOO-II.C-3- Diversity and Biological Systems of Chordates:**

The syllabi of the paper of ZOO-II.C-3- Diversity and Biological Systems of Chordates along with the redrafted syllabi will be circulated among all the members of BoS for their approval. The revised syllabi of the Paper: of ZOO-II.C-3- Diversity and Biological Systems of Chordates is presented in *Annexure- IV*.

**4) Paper: ZOO-II.C-4: Fundamentals of Animal and Human genetics.**

- Dr. Nandini Vaz Fernandes presented the syllabus of this paper.
- Prof. B.A. Shanbhag, suggested shifting of the module 'Transmission genetics' from 4 to 1, as they need to know Gregor Mendel before studying genetics.
- Addition of 'Gene Mutation' in the title of Module 3 was suggested.

- **Resolution on the syllabi of paper ZOO.II.C-4- Fundamentals of Animal and Human Genetics:**

The syllabi of the paper of ZOO.II.C-4- Fundamentals of Animal and Human Genetics was approved and accepted with the above said minor changes. The final approved and accepted syllabus of the Paper: ZOO.II.C-4- Fundamentals of Animal and Human genetics is presented in *Annexure- V*

**AGENDA 3: Recommend panel of Examiners to the Academic Council**

**Proceedings:**

- List of Examiners was presented before the members by the chairman, for approval of the same.
- This was accepted by all the members.
- Approved list of examiners is presented in *Annexure - VI*

**AGENDA - 4: Any Other Business (A.O.B.)**

**Proceedings:**

- A rough draft of the syllabus for 'Environmental Studies' was presented by Ms. Socorrinha D'Costa.
- Many Suggestions of subtopics to be incorporated were made by Dr. Manoj Borkar, Prof. B.A. Shanbhag, Prof. P. Prakash Babu and Dr. Phillip Mascarenhas.
- However the members felt that the sub topics should be well defined and some changes should be made and later mailed to all members for suggestions.



- **Resolution on the syllabi of paper Environmental Studies' :**

The syllabi of the paper Environmental Studies along with the redrafted syllabi will be circulated among all the members of BoS for their approval. The revised syllabi of the Paper Environmental Studies' is presented in *Annexure – VII* and *VIII*.

The meeting ended at 4:30 p.m., with a Vote of Thanks by the Chair.



Dr. D. K. Tikare  
CHAIRMAN  
BOS ZOOLOGY



Dr. Nandini V. Fernandes  
MEMBER SECRETARY  
BOS ZOOLOGY

Dated : 14<sup>th</sup> January, 2015.