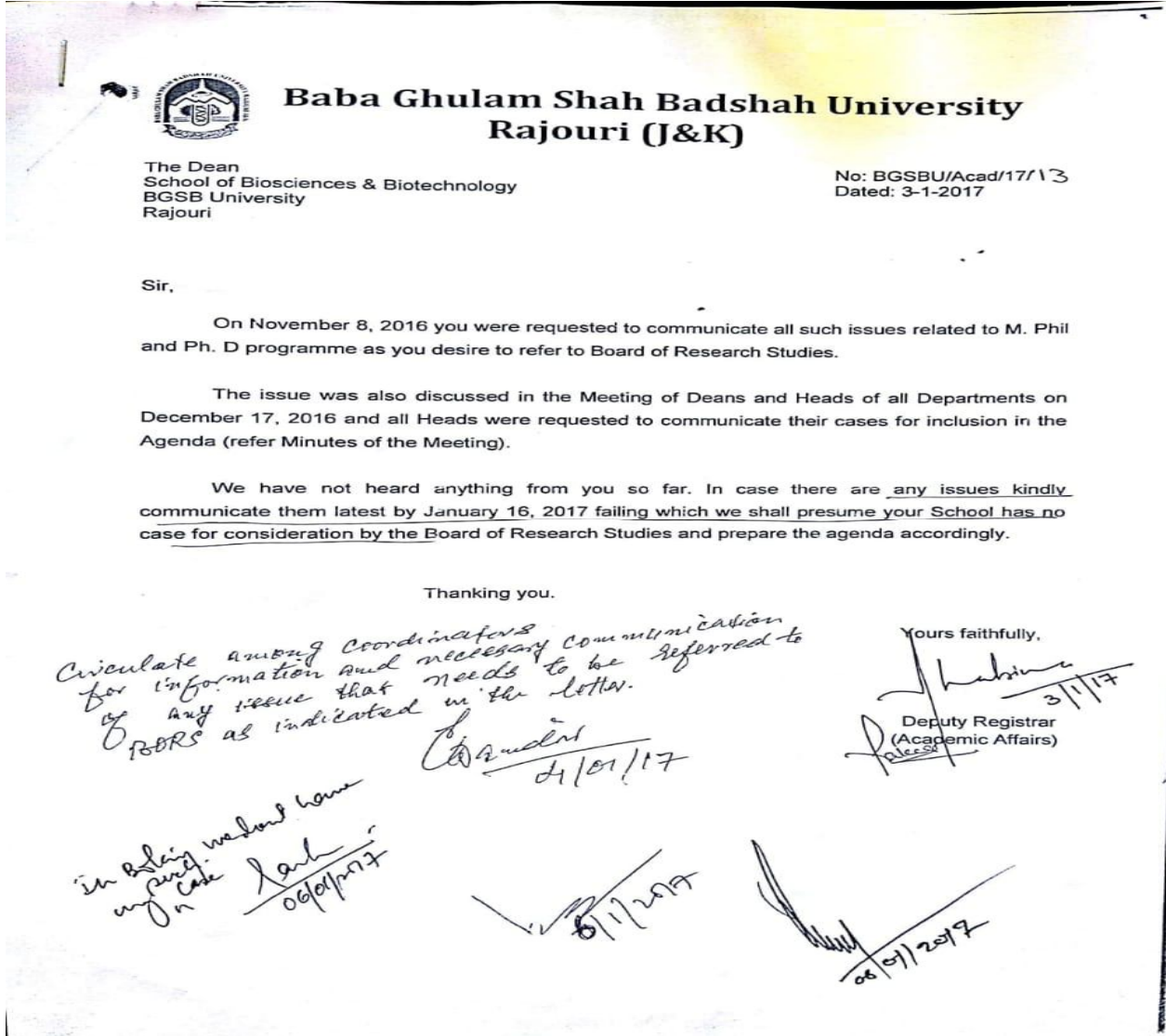


Annexure I-B

Syllabus revision during last five years

BOS meeting



**Minutes of the meeting of Board of Studies in Zoology
School of Biosciences and Biotechnology**

Pursuant upon Registrar office letter No. BGSBU/Acad/790-95, dated 20-12-2016, the meeting of the Board of Studies in Zoology was held today, on December 29, 2016 in the office of the Dean, School of Biosciences and Biotechnology.

Present:

The following were present:

1. Prof. G.H. Dar, Dean, School of Biosciences and Biotechnology (Convener)
2. Prof. S. M. A. Abidi, Department of Zoology, Aligarh Muslim University, Aligarh (External Expert)
3. Dr. Susheel Verma, Academic Coordinator, Biotechnology, BGSB University (Member)
4. Dr. A.A. Shah, Academic Coordinator, Zoology, BGSB University (Member)
5. Dr. Shreekar Pant, Academic Coordinator, Botany, BGSB University (Member)
6. Dr. Saima Aslam, Assistant Professor in Biotechnology, BGSB University (Member)
7. Dr. Amir Raja, Assistant Professor in Biotechnology, BGSB University (Co-opted)
8. Dr. Shavish Vaid, Assistant Professor (contractual), Department of Zoology, BGSB University (By special invitation)
9. Dr. M. A. Hannan Khan, Assistant Professor (contractual), Department of Zoology, BGSB University (By special invitation)

Agenda:

- i. To draft syllabi for theory and laboratory courses for I to IV semesters of M. Sc. Zoology programme for the years as shown against each Semester below:

I Semester	2017, 2018 & 2019
II Semester	2017, 2018 & 2019
III Semester	2018, 2019 & 2020
IV Semester	2018, 2019 & 2020

- ii. To draft syllabi of open courses in Zoology for students of other Departments/ Schools.

Resolution:

The members thoroughly went through the drafts of syllabi for theory and laboratory courses for I to IV Semesters of M. Sc. Zoology prepared by the faculty for the years 2017-2020. Draft syllabi of Open Choice Courses in Zoology developed for students of other Departments/Schools were also discussed. The following recommendations were made after prolonged deliberations:

A-Semester-Wise Recommendations:

The draft syllabi developed for theory and lab. courses for I to IV Semesters be approved with modifications/incorporations shown in each Semester as follows:

Semester I

- i. A paper on Toxicology should be introduced.
- ii. To add programmed cell death in Zol-153 unit 3rd subunit 3.4.
- iii. To add exercise on preparation of stained permanent slides of given specimens.
- iv. To add exercise in Zol-161- lymphocyte chromosome preparation using DAPI dye and visualizing under fluorescent microscope.
- v. To replace *Paramecium* and *Euglena* from Zol-162, lab exercise number 2. with Tape worm and Liver fluke.
- vi. To add exercise-Agarose gel electrophoresis.
- vii. To replace exercise 11 with 'isolation of RNA using Trizol-method' in Zol-162.
- viii. To add Northern, Southern and Western blotting as 14th exercise in Zol-162.
- ix. Paper entitled bacteria and viruses should be opted out from the syllabi.

Semester II

- i. To add transgenic animals models (Zebra fish, *C. elegans*) in Zol 251 unit 3 subunit 3.2.

- ii. Replace subunit 1.2 with subunit 2.2 in Zol 251.
- iii. Reorganize unit 1 and 2 in Zol 251 as shown in draft.
- iv. Rearrange the units in Zol 253 as shown in draft.
- v. To add analysis of variance (one way and two way ANOVA) in Zol 260 lab course.
- vi. To add lab ethics and ozone formation in Zol 261.
- vii. To delete exercise in Zol 261 lab.

Semester III

- i. To introduce a new course entitled 'Embryology and Histology' of 02 credits as Zol- 354.
- ii. To reduce 4 credits paper of the entitled 'Animal Biotechnology' (Zol 350) to 2 credits.
- iii. To add in unit 4 subunit 4.2: Immunolocalization of antigens- fluorescence and confocal microscopy. RIA (Principles, properties and applications) advantages and disadvantages.
- iv. In Zol-352, introduce raising polyclonal antibodies and antigen preparation in unit 5 subunit 5.1.

Semester IV

- i. Dissertation with 4 credit work load of 100 marks (break up 80:20) shall be introduced.
- ii. Delete Zol-452 'Insects and Fishes: Structure and Diversity'.
- iii. Zol-453 be kept as a new course entitled 'Fundamentals of Endocrinology'
- iv. Zol-455 'Human Genetics' be redesigned as shown in the draft.
- v. Zol-456 'Wildlife Biology Conservation and Management' be rearranged.

B- General Observations/ Suggestions

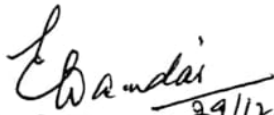
In addition to the aforesaid recommendations, the external expert emphatically made the following suggestions for taking up with the university authorities:

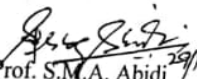
1. For undertaking Dissertation work in 4th Semester, each student be provided an amount of Rs. 10,000.

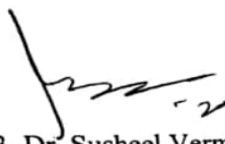
In the end, the Dean, School of Biosciences and Biotechnology (Convener of BoS) thanked the expert for sparing his time for the meeting and providing valuable inputs and expertise in developing a standard Course Curriculum for M.Sc. Zoology programme. He also thanked all members of the Board for their painstaking and active participation in this meeting.

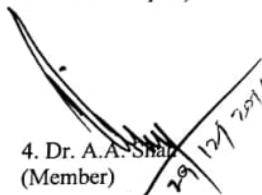
The meeting ended with a vote of thanks to the Chair.


**Baba Ghulam Shah Badshah University
Rajouri-185 234 (J&K)**

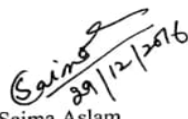

1. Prof. G.H. Dar
(Convener) 29/12/16

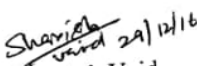

2. Prof. S.M.A. Abidi
(External Expert) 29/12/2016



3. Dr. Susheel Verma
(Member) 29/12/16

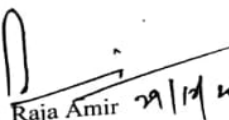

4. Dr. A.A. Shah
(Member) 29/12/2016


5. Dr. Shreekant
(Member) 29/12/2016


6. Dr. Saima Aslam
(Member) 29/12/2016


7. Dr. Shavish Vaid
(Special Invitee) 29/12/16


8. Dr. Hanan Khan
(Special Invitee)


9. Dr. Raja Amir
(Co-opted) 29/12/2016

ANNEXURE I-A
M. Sc. ZOOLOGY SYLLABUS

SUMMARY OF CREDIT DISTRIBUTION AND MARKS AS PER CBCS

SEMESTER	COURSES					Total Credits	Marks
	CORE			ELECTIVE			
	Theory (Core)	Practical (Core)	Dissertation	Open (OE)	Elective		
Semester-1	16	8				24	600
Semester-2	12	8	-	4		24	600
Semester-3	14	8	-		2	24	600
Semester-4	10	8	4		2	24	600
	TOTAL					96	2400

M. Sc. ZOOLOGY SYLLABUS

LIST OF PAPERS ALONG WITH CREDIT DISTRIBUTION AND MARKS AS PER CBCS

SEMESTER I

Paper				Credits	Marks			
S.No	Course Code	Course Title	Duration [Hours]		Internal Assessment	University Examination	Total	
01	Zol-150	Principles of Animal Taxonomy	02	02	20	30	50	
02	Zol-151	Animal Resources and their Utilization	02	02	20	30	50	
03	Zol-152	Invertebrates: Structure & function	03	04	40	60	100	
04	Zol-153	Cell Biology	02	02	20	30	50	
05	Zol-154	Molecular Biology	03	04	40	60	100	
06	Zol-155	Elements of Toxicology	02	02	20	30	50	
07	Zol-160	<i>Laboratory I: Animal Taxonomy & Animal Resources</i>	02	02	25	25	50	
08	Zol-161	<i>Laboratory II: Cell Biology and Elements of Toxicology</i>	02	02	25	25	50	
09	Zol-162	<i>Laboratory III: Invertebrates & Molecular Biology</i>	03	04	50	50	100	
Sub Total			Theory	16	160	240	400	
			<i>Practical</i>	8	100	100	200	
Total					24	260	240	600

SEMESTER II

Paper				Credits	Marks		
S.No	Course Code	Course Title	Duration [Hours]		Internal Assessment	University Examination	Total
01	Zol-250	Vertebrates: Structure and function	03	04	40	60	100
02	Zol-251	Genetic Engineering	02	02	20	30	50
03	Zol-252	Fundamentals of Biochemistry	03	04	40	60	100
04	Zol-253	Bioinformatics and Biostatistics	02	02	20	30	50
05		Open Course	03	04	40	60	100
07	Zol-260	<i>Laboratory I: Vertebrates & Bioinformatics and Biostatistics</i>	03	04	50	50	100
08	Zol-261	<i>Laboratory II: Fundamentals of Biochemistry and Genetic Engineering.</i>	03	04	50	50	100
Sub Total			Theory	16	160	240	400
			Practical	8	100	100	200
Total					24	260	600

SEMESTER III

Paper				Credits	Marks			
S.No	Course Code	Course Title	Duration [Hours]		Internal Assessment	University Examination	Total	
01	Zol-350	Animal Biotechnology	02	02	20	30	50	
02	Zol-351	Animal Resources, threats and conservation	02	02	20	30	50	
03	Zol-352	Biology of Immune system	03	04	40	60	100	
04	Zol-353	Cytogenetics	03	04	40	60	100	
05	Zol-354	Embryology & Histology	02	02	20	30	50	
Elective courses								
06	Zol-354	Principles of Parasitology	02	02	20	30	50	
07	Zol-355	Insect Morphology & Physiology	02	02	20	30	50	
08	Zol-356	Elements of Ichthyology	02	02	20	30	50	
09	Zol-360	<i>Laboratory I: Animal Biotechnology, Biology of Immune system & Embryology and histology</i>	03	04	50	50	100	
10	Zol-361	<i>Laboratory II: Elective course, Animal resources, threats and conservation & Cytogenetics</i>	03	04	50	50	100	
Sub Total			Theory	16	160	240	400	
				Practical	8	100	100	200
Total						24	260	240

SEMESTER IV

Paper			Credits	Marks				
S.No	Course Code	Course Title	Duration [Hours]		Internal Assessment	University Examination	Total	
01	Zol-450	Ecology & Environmental Biology	02	02	02	20	30	
02	Zol-451	Animal Physiology	03	04	03	40	60	
03	Zol-452	Fundamentals of Endocrinology	03	04	03	40	60	
04	Zol-453	Project Work		04	-	-	100	
Elective courses								
05	Zol-454	Fundamentals of Nematode Genomics	02	02	20	30	50	
06	Zol-455	Human Genetics	02	02	20	30	50	
07	Zol-456	Wildlife Biology, Conservation & management.	02	02	20	30	50	
08	Zol-460	<i>Laboratory I: Ecology & Environment Biology & Elective paper.</i>	03	04	50	50	100	
09	Zol-461	<i>Laboratory II: Animal physiology and Endocrinology.</i>	03	04	50	50	100	
Sub Total				Theory	16	160	240	
				<i>Practical</i>	8	100	200	
Total					24	260	240	600

LIST OF OPEN ELECTIVES

SECOND SEMESTER			
S. No.	Paper Code	Paper Title	Course Type
1	Math-201	Mathematical Tools for Real World Problems	OE
2	IT-202	Soft Skills in Information Technology	OE
3	Comp-203	Computer Applications and Operations	OE
4	Bot-205	Mysteries of Green Plants	OE
5	Bot-206	Botany in Rural Development	OE
6	Zol-207	Nutrition, Health and Hygiene	OE
7	Arab-208	Fundamentals of Arabic Language	OE
8	Eng-209	Applied English	OE
9	Edu-210	Higher Education	OE
10	Eco-211	Principles of Banking	OE
11	HT-212	Basics of Tourism and Travel Agencies	OE
12	HT-213	Tourism Resources of J&K	OE
13	Mgt-214	Business Communication and Soft Skills	OE
14	Edu-215	Instructional Technology	OE