



हिमाचल प्रदेश केन्द्रीय विश्वविद्यालय

Central University of Himachal Pradesh

(Established under Central Universities Act 2009)

अस्थाई शैक्षणिक खण्ड, शाहपुर, ज़िला काँगड़ा, हिमाचल प्रदेश - 176206
Temporary Academic Block, Shahpur, Distt. Kangra (HP) - 176206
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फ़ाइल संख्या: जन्तु विज्ञान/1-5/पाठ्य समिति/हि.प्र.के.वि./18/ *SKS*

दिनांक: 09.09.2020

MINUTES OF THE 2nd BOARD OF STUDIES MEETING HELD ON 9th SEPTEMBER, 2020

The **meeting** of the 2nd Board of Studies of the Department of Animal Sciences, School of Life Sciences, Central University of Himachal Pradesh, Dharamshala, HP was held through **online mode** on Cisco Webex {<https://meetingsapac20.webex.com/meetingsapac20/j.php?MTID=ma8d1c821600bac0e6fa869844d9c1bdc>, Meeting number (access code): 170 432 7156, Meeting password: pKHdFqPG858 (75433774 from video systems)} on 9th September, 2020 at 11:00 AM. During the meeting, the Subject Experts were available on Cisco Webex and all other members were present in the Seminar Hall, Central University of Himachal Pradesh, Temporary Academic Block, Shahpur. Dr. Sunil Kumar, Associate Professor & Head, Department of Animal Sciences Chaired the meeting.

Following members attended the meeting:

1. Dr. Sunil Kumar - **Head and Convener**
Head, Department of Animal Sciences,
Central University of Himachal Pradesh, Temporary Academic Block, Shahpur.
2. Dr. Yogesh Kumar Rawal – **Subject Expert**
Department of Zoology, Panjab University, Chandigarh.
3. Dr. Pawan Sharma – **Subject Expert**
Department of Entomology, CSKHPKV, Palampur.
4. Dr. Mahesh Kulharia – **Vice Chancellor's Nominee**
Associate Professor & Director, Centre for Computational Biology and Bioinformatics, School of Life Sciences, Central University of Himachal Pradesh, Temporary Academic Block, Shahpur.
5. Dr. Vikram Singh – **Vice Chancellor's Nominee**
Assistant Professor, Centre for Computational Biology and Bioinformatics, School of Life Sciences, Central University of Himachal Pradesh, Temporary Academic Block, Shahpur.
6. Dr. Rishi Thakur – **Dean's Nominee**
Assistant Professor, Department of Plant Sciences, School of Life Sciences, Central University of Himachal Pradesh, Temporary Academic Block, Shahpur.
7. Dr. Rakesh Kumar – **Member**
Assistant Professor, Department of Animal Sciences, School of Life Sciences, Central University of Himachal Pradesh, Temporary Academic Block, Shahpur.
8. Dr. Tarkeshwar – **Special Invitee**
Assistant Professor, Department of Animal Sciences, School of Life Sciences, Central University of Himachal Pradesh, Temporary Academic Block, Shahpur.
9. Dr. Ranjit Kumar – **Special Invitee**
Assistant Professor, Department of Animal Sciences, School of Life Sciences, Central University of Himachal Pradesh, Temporary Academic Block, Shahpur.

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The **Chairman** welcomed all the **Hon'ble members** and briefed about the **past activities** and also about the various **agenda items** to be **discussed** in the **meeting** which were **sent in advance** to all members through **e-mail** including **out-side experts**. Various **Agenda Items** were **placed** before the **committee** and after **detailed discussion and deliberations** on each, the **following decisions** were taken:

AGENDA ITEM NO. – ANS-BOS-2/20-1

Approval of the Minutes of the 1st Board of Studies meeting held on 10.05.2018 attached as Annexure I.

Decision:

The Minutes of the first meeting of the BoS were Approved

Agenda Item No. - ANS-BOS-2/20-2

Proposal for Restructure of the Course Curriculum and addition of New Courses for the M.Sc. Zoology in the CBCS format (for 2020 Batch onwards) as given in Annexure -II.

Suggestions':

The proposal for restructuring of the current course curriculum was placed before the BoS in view of the requirement for imparting better knowledge and practical skills to the students with justification. The members deliberated upon the tabled new structure as recommended by the Departmental Council of Department of Animal Sciences, CUHP and suggested several changes for betterment. It was suggested that in the beginning foundation courses be preferred and thereafter as the students gain basic knowledge, gradually advanced and application-oriented courses be provided. In addition, the course curriculum must contain the components of skill, more hands-on training during practicals and also exposure to advanced fields so that they can help to contribute in various related fields/disciplines in future. Finally, after detailed deliberations, the new course curriculum with addition of few new courses and modification of others courses was recommended for Masters Degree of M.Sc. Zoology in the CBCS format (for 2020 Batch onwards) as per the detail given below and in Annexure -II.

Semester - 1

Sr. No.	Course Code	Course Name	Credits
Core Compulsory (14 credits)			
1	ZOO 401	Cellular and Molecular Biology	4
2	ZOO 402	Invertebrate Biology	2
3	ZOO 403	Animal Taxonomy	4
4	ZOO 404	Cellular & Molecular Biology and Invertebrate Biology - LAB	2
5	ZOO 405	Animal Taxonomy and Histological Techniques - LAB	2
Core Open/Elective Open (02 credits)			
6	ZOO 406	Ecology and Environment	2
7	ZOO 407	Histology and Histochemistry	2
8	ZOO 408	Chronobiology	2

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Foundation Courses (Human Making, 02 credits)			
9	ZOO 409	Sericulture and Apiculture	2
Foundation Courses (Skill Development, 02 credits)			
10	ZOO 410	Advanced Techniques in Biology	2

Semester – 2

Sr. No.	Course Code	Course Name	Credits
Core Compulsory (12 credits)			
1	ZOO 451	Cytogenetics	4
2	ZOO 452	Principles of Biochemistry	2
3	ZOO 453	Functional Anatomy of Chordates	2
4	ZOO 454	Cytogenetics and Principles of Biochemistry - LAB	2
5	ZOO 455	Functional Anatomy of Chordates and Fundamentals in Microbiology - LAB	2
Core Open/Elective Open (04 credits)			
6	ZOO 456	Biostatistics and Bioinformatics	2
7	ZOO 457	Fundamentals in Microbiology	2
8	ZOO 458	Evolution	2
9	ZOO 459	Comparative Physiology	2
Foundation Courses (Human Making, 02 credits)			
9	ZOO 460	Aquaculture	2
Foundation Courses (Skill Development, 02 credits)			
10	ZOO 461	Fundamentals of Wild Life	2

Semester – 3

Sr. No.	Course Code	Course Name	Credits
Core Compulsory (08 credits)			
1	ZOO 501	Entomology	2
2	ZOO 502	Immunology	4
3	ZOO 503	Ichthyology	2
Core Open/Elective Open (04 credits)			
4	ZOO 504	Animal Behavior	2
5	ZOO 505	Animal Biodiversity	2
6	ZOO 506	Animal Biotechnology	2
7	ZOO 507	Medical Biochemistry and Health	2
Elective Specialization (08 credits)			
Entomology			
8	ZOO 508	Pesticides Hazards and Environment	2
9	ZOO 509	Advances in Entomology and Pest Management	2
10	ZOO 510	Agricultural Entomology	2
11	ZOO 511	Entomology LAB - I	2

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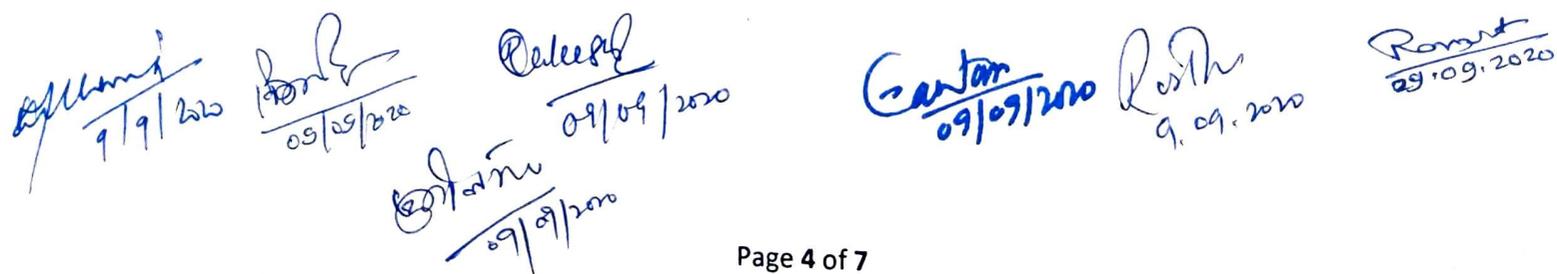
Fish and Fisheries			
12	ZOO 512	Fish Physiology	2
13	ZOO 513	Fish Taxonomy and Fisheries	2
14	ZOO 514	Limnology of Lakes, Streams and Ponds	2
15	ZOO 515	Fisheries and Limnology LAB - I	2
Molecular Biology			
16	ZOO 516	Advances in Molecular Biology	2
17	ZOO 517	Genomics and Proteomics	2
18	ZOO 518	Genetic Disorders and Cancer	2
19	ZOO 519	Molecular Biology LAB - I	2

Semester – 4

Sr. No.	Course Code	Course Name	Credits
Core Compulsory (12 credits)			
1	ZOO 551	Animal Physiology	4
2	ZOO 552	Developmental Biology	4
3	ZOO 599	M.Sc. Dissertation	4
Core Open/Elective Open (04 credits)			
4	ZOO 553	Parasitology	2
5	ZOO 554	Applied Zoology	2
6	ZOO 555	Medical Microbiology	2
7	ZOO 556	Endocrinology	2
Elective Specialization (04 credits)			
Entomology			
8	ZOO 557	Medical Entomology	2
9	ZOO 558	Entomology Lab-II	2
Fish and Fisheries			
10	ZOO 559	Fish Diseases and Control	2
11	ZOO 560	Fisheries and Limnology LAB- II	2
Molecular Biology			
12	ZOO 561	Molecular Genetics	2
13	ZOO 562	Molecular Genetics LAB - I	2

Decision:

All members agreed and approved the list of above new courses with above minor modifications and need based reshuffling.



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AGENDA ITEM NO. – ANS-BOS-2/20-3

Proposal for framing New Courses for Ph.D. programme in the Department of Animal Sciences in the CBCS format (for 2020 Batch onwards) as given in Annexure III.

Decision:

All members agreed and approved the list of new courses with minor modifications.

AGENDA ITEM NO. – ANS-BOS-2/20-4

Proposal of the Faculty Members of the Department of Animal Sciences to become M.Phil./Ph.D. Supervisor/Guide.

Decision:

The members unanimously resolved that since all Faculty Members possess requisite qualifications and desired experience to guide research students for M.Phil. and Ph.D. Degrees, hence they are approved as Supervisor(s)/Guide(s) for M.Phil./Ph.D scholars as per UGC guidelines.

1. Dr. Sunil Kumar, Associate Professor, Department of Animal Sciences, School of Life Sciences.
2. Dr. Rakesh Kumar, Assistant Professor, Department of Animal Sciences, School of Life Sciences.
3. Dr. Tarkeshwar, Assistant Professor, Department of Animal Sciences, School of Life Sciences.
4. Dr. Ranjit Kumar, Assistant Professor, Department of Animal Sciences, School of Life Sciences.

AGENDA ITEM NO. – ANS-BOS-2/20-5

Proposal of the allotment of Supervisor/Guide for the newly admitted Ph.D. Scholars (2020 batch).

Decision:

All members unanimously resolved to approve the following faculty members as Supervisor(s)/ Guide(s) for the newly admitted Ph.D. Scholars (2020 batch).

Sr. No.	University Roll No.	Name	Father Name	Supervisor Name
1	CUHP20RDANS01	Bhavna	Purshottam Chand	Dr. Rakesh Kumar
2	CUHP20RDANS02	Disha Chauhan	Rakesh Chauhan	Dr. Ranjit Kumar
3	CUHP20RDANS03	Geetika	Ashwani Choudhary	Dr. Ranjit Kumar
4	CUHP20RDANS04	Jigmet Yangchan	Tsering Motup	Dr. Sunil Kumar
5	CUHP20RDANS05	Kanika Choudhary	Subhash Chand	Dr. Tarkeshwar
6	CUHP20RDANS06	Kumari Ruchika	Wilson P. Dass	Dr. Tarkeshwar
7	CUHP20RDANS07	Kushal Thakur	Pawan Kumar Thakur	Dr. Rakesh Kumar

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AGENDA ITEM NO. – ANS-BOS-2/20-6

Proposal for the allotment of Dissertation students in 2nd or 3rd semester (M.Sc. Zoology).

Decision:

All Members agreed and approved the allotment of Dissertation students in 3rd semester (M.Sc. Zoology)

AGENDA ITEM NO. – ANS-BOS-2/20-7

Proposal of List of Experts as Examiners for the Practical and Viva Voce Examinations of M.Sc. Zoology as given in Annexure IV.

In accordance with the draft ordinance 4(i), Section 23 and Statute 16(2) of the Central Universities Act 2009, section 4(b) i and ii, the Head, Department of Animal Sciences placed before the members of the Board of Studies (BoS) the list of examiners for M.Sc. Practicals and Viva Voce Examination for their approval, as per list attached at Annexure IV.

Decision:

All members agreed and approved the list of examiners as proposed at Annexure IV. It was also suggested that the list will be updated regularly by the faculty members of the Department of Animal Sciences (DoAS) with the consent of the HoD, Animal Sciences and the same be reported in the next meeting of BoS. It was also suggested that preferably the subject/ course experts be invited for specific courses. The BoS also recommended that, if needed, HoD, Animal Sciences may invite a Subject Expert (External Examiner) not included in the list on the recommendations of the concerned faculty member(s) and after approval of Competent Authority of the University.

AGENDA ITEM NO. – ANS-BOS-2/20-8

To approve Dr. Sunil Kumar, Associate Professor, Department of Animal Sciences, SoLS, as Co-supervisor in the PhD thesis of Ms. Kanika Mahajan, Research Scholar, Department of Environmental Sciences. SoEES, CUHP, Dharamshala

Decision:

All members agreed and approved this agenda item.

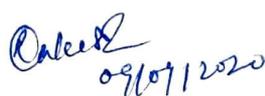
AGENDA ITEM NO. – ANS-BOS-2/20-9

To approve Dr. Sunil Kumar, Associate Professor, Department of Animal Sciences, SoLS, as Co-supervisor in the PhD thesis of Ms. Diksha Pathania, Research Scholar, Ph.D. Botany (2017-18), Shoolni Univesity, Solan.

Decision:

All members agreed and approved this agenda item.

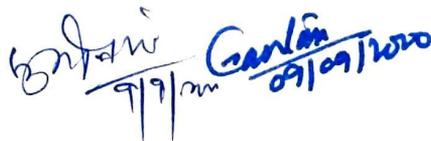

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AGENDA ITEM NO. – ANS-BOS-2/20-10

To Approve Dr. Rakesh Kumar, Assistant Professor, Department of Animal Sciences, SoLS, as Co-Supervisor in the PhD thesis of Mr. Bhagat Singh, Research Scholar, Department of Biotechnology, Delhi Technological University, Shahbad, Daulatpur, Delhi.

Decision:

All members agreed and approved this agenda item.

AGENDA ITEM NO. – ANS-BOS-2/20-11

Approval of New Courses in the Department of Animal Sciences, School of Life Sciences under B.Voc. (Bachelor of Vocational) category:-

1. Diploma in Medical Laboratory Technology.
2. Certificate Course in Insect Pest Management.
3. Certificate Course in Skill Development (Organic Farming, Apiculture, Sericulture and Aquaculture).

Decision:

All members agreed and approved the above mentioned new courses after the applying in University Grants Commission (UGC).

AGENDA ITEM NO. – CBB-BOS-5/18-8

Any item with the permission of the Chair: **No item was taken**

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


09.09.2020

**Dr. Ranjit Kumar,
(Special Invitee)**


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**Dr. Tarkeshwar,
(Special Invitee)**


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**Dr. Rakesh Kumar
(Member)**


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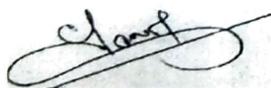
**Dr. Rishi Thakur
(Dean's Nominee)**


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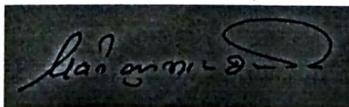
**Dr. Vikram Singh
(VC's Nominee)**


09/09/2020

**Dr. Mahesh Kulharia
(VC's Nominee)**



**Dr. Yogesh Kumar Rawal
(Subject Expert)**

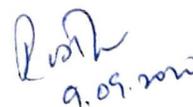


**Dr. Pawan Sharma
(Subject Expert)**


09/09/2020

**Dr. Sunil Kumar
Chairman & Convener**




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Item ZOO-BOS-1/18-2: Approval of Courses for PG and RD Program {As per the Ordinance 4 clause 4 b(i)}.

The BOS approved the minutes of the **Curriculum Development Committee (CDC), Zoology** held on **28.08.2017 (Placed as ANNEXURE-A)** with following minor amendment(s) for the ongoing batch.

1. Some of the Courses from Course Compulsory and Course Open have been interchanged from the CDC.
2. The Course name of 3rd and 4th semester have been re-aligned from the courses approved in CDC and added new courses for the ongoing session as per Annexure-II.
3. The Practical/Lab courses have also been added in the 3rd and 4th semester as per CBCS guidelines.
4. M.Sc. Dissertation has been added for the ongoing session as per Annexure-II.
5. The Curricular Framework has been prepared as per Annexure – II for the forthcoming session.
6. The course contents to be prepared by the faculty members and will be placed in next BOS meeting for approval

Item ZOO-BOS-1/18-3: Approval of Supervisors for Research Program

BOS members recommend taking up this agenda once the Department will have research scholar.

Item ZOO-BOS-1/18-4: Approval of Examiners for conducting Practical Examination in End Term. [As per Ordinance 4 clause b(i)]. (Annexure- V)

Head Department of Zoology in consultation with the concern faculty members may add any other name to this list depending upon the situation as per need.

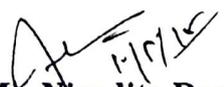
Item ZOO-BOS-1/18-5: Approval of Student's Industrial Training / Education Tours

It was unanimously resolved that students may go for Industrial/Research Training in different Research/Academic Institutes like FRI, FSI, ZSI, Wild Life Institute of India etc. and Educational Tours during summer/ winter vacations.

Item ZOO-BOS-1/18-6: Invited Talks/Lectures

Unanimously resolved that Scientists, Professors and Eminent Scholars in the field of Zoology should be invited for delivering talks for the benefit of M.Sc. students.

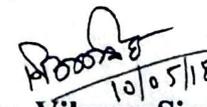
The meeting ended with a vote of thanks to the Chair.


Ms. Nivedita Rana,
(Special Invitee)

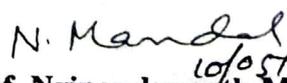

Dr. Vivek Sharma,
(Special Invitee)


Dr. Rakesh Chauhan
(Special Invitee)


Dr. P. Aparaj
(VC's Nominee)


Dr. Vikram Singh
(VC's Nominee)


Prof. Desh Raj Thakur
(Subject Expert)


Prof. Nripendranath Mandal
(Subject Expert)


Prof. Ambrish Kumar Mahajan
Chairman & Convener


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Table - 1: Revised Curricular Framework for M.Sc. in Zoology based on Choice Based Credit System (CBCS) (Year 2018)

Semester	Total Credits	Core-Compulsory	Credits	Total Credits	Core-Open	Credits
1 st	16	ZOOL 410: Animal Taxonomy	4			
		ZOOL 411: Ecology and Environment	2			
		ZOOL 412: Cellular and Molecular Biology	4			
		ZOOL 413: Invertebrate Biology	2			
		ZOOL 414: Zoology Lab I	2			
		ZOOL 415: Zoology Lab II	2			
2 nd	12	ZOOL 416: Cytogenetics and Evolution	2	4	ZOOL 424: Biostatistics	2
		ZOOL 417: Principles of Biochemistry	2		ZOOL 425: Bioinformatics	2
		ZOOL 418: Functional Anatomy of Chordates	4			
		ZOOL 419: Zoology Lab III	2			
		ZOOL 420: Zoology Lab IV	2			
3 rd	4	ZOOL 525A: Entomology	2	4	ZOOL 527: Immunology and Biotechnology	2
		ZOOL 526A: Animal Behaviour	2		ZOOL 528: Ichthyology	2
4 th	8	ZOOL 508: Animal Physiology	4	4	ZOOL 529: Parasitology	2
		ZOOL 510: Developmental Biology	4		ZOOL 530: Applied Zoology	2

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Pre Ph.D. Course in Animal Sciences (Zoology)

Scheme of Courses for Pre Ph.D. Course in Animal Sciences (Zoology)

Course Code	C/E*	Course Name	Credits
CPE-RPE	C	Research and Publication Ethics	2
ZOO - 601	C	Basic Research Methodology	4
ZOO - 602	E	Advanced Research Tools and Techniques	4
ZOO - 603	E	Cell and Molecular Biology	4
ZOO - 604	E	Advances in Entomology and Pest Management	4
ZOO - 605	E	Advances in Fish and Fisheries	4

*Students can select any two elective papers from above scheme.

C- Compulsory

E- Elective

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TABLE-I: Curricular Framework for M.Sc. Zoology based on Choice Based Credit System (CBCS) (Batch: 2020-21 onwards)

Semester	Credits	Core - Compulsory	Credits	Credits	Core Open	Credits
I	14	ZOO 401 - Cellular and Molecular Biology	4	02	ZOO 406 - Ecology and Environment	2
		ZOO 402 - Invertebrate Biology	2		ZOO 407 - Histology and Histochemistry	2
		ZOO 403 - Animal Taxonomy	4		ZOO 408 - Chronobiology	2
		ZOO 404 - Cellular & Molecular Biology and Invertebrate Biology - LAB	2			
		ZOO 405 - Animal Taxonomy and Histological Techniques - LAB	2			
II	12	ZOO 451 - Cytogenetics	4	4	ZOO 456 - Biostatistics and Bioinformatics	2
		ZOO 452 - Principles of Biochemistry	2		ZOO 457 - Fundamentals in Microbiology	2
		ZOO 453 - Functional Anatomy of Chordates	2		ZOO 458 - Evolution	2
		ZOO 454 - Cytogenetics and Principles of Biochemistry - LAB	2		ZOO 459 - Comparative Physiology	2
		ZOO 455 - Functional Anatomy of Chordates and Fundamentals in Microbiology - LAB	2			
Semester	Credits	Core - Compulsory	Credits	Credits	Elective Open	Credits
III	8	ZOO 501 - Entomology	2	4	ZOO 504 - Animal Behavior	2
		ZOO 502 - Immunology	4		ZOO 505 - Animal Biodiversity	2
		ZOO 503 - Ichthyology	2		ZOO 506 - Animal Biotechnology	2
					ZOO 507 - Medical Biochemistry and Health	2
IV	12	ZOO 551 - Animal Physiology	4	4	ZOO 553 - Parasitology	2
		ZOO 552 - Developmental Biology	4		ZOO 554 - Applied Zoology	2
		ZOO 599 - M.Sc. Dissertation	4		ZOO 555 - Medical Microbiology	2
					ZOO 556 - Endocrinology	2

Semester	Credits	Elective (Specialization) Entomology	Credits	Semester	Credits	Elective (Specialization) Entomology	Credits
III	8	ZOO 508 - Pesticides Hazards and Environment	2	IV	4	ZOO 557 - Medical Entomology	2
		ZOO 509 – Advances in Entomology and Pest Management	2			ZOO 558 - Entomology LAB - II	2
		ZOO 510 - Agricultural Entomology	2				
		ZOO 511 - Entomology LAB - I	2				
Semester	Credits	Elective (Specialization) Fish and Fisheries	Credits	Semester	Credits	Elective (Specialization) Fish and Fisheries	Credits
III	8	ZOO 512 - Fish Physiology	2	IV	4	ZOO 559 - Fish Diseases and Control	2
		ZOO 513 - Fish Taxonomy and Fisheries	2			ZOO 560 - Fisheries and Limnology Lab - II	2
		ZOO 514 - Limnology of Lakes, Streams and Ponds	2				
		ZOO 515 - Fisheries and Limnology LAB - I	2				
Semester	Credits	Elective (Specialization) Molecular Biology	Credits	Semester	Credits	Elective (Specialization) Molecular Biology	Credits
III	8	ZOO 516 - Advances in Molecular Biology	2	IV	4	ZOO 561 - Molecular Genetics	2
		ZOO 517 - Genomics and Proteomics	2			ZOO 562 - Molecular Genetics LAB - I	2
		ZOO 518 - Genetic Disorders and Cancer	2				
		ZOO 519 - Molecular Biology LAB - I	2				

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Human Making and Skill Development Courses to be offered by the Department of Animal Sciences:-

SEMESTER-I

Human Making Courses (Total Credits =02)			
1	ZOO 409	Sericulture and Apiculture	2
Skill Development Courses (Total Credits = 02)			
1	ZOO 410	Advanced Techniques in Biology	2

SEMESTER-II

Human Making Course (Total Credits = 02)			
1.	ZOO 460	Aquaculture	2
Skill Development Course (Total Credits = 02)			
1.	ZOO 461	Fundamentals of Wild Life	2

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Pre Ph.D. Course in Animal Sciences (Zoology)

Scheme of Courses for Pre Ph.D. Course in Animal Sciences (Zoology)

Course Code	C/E*	Course Name	Credits
CPE-RPE	C	Research and Publication Ethics	2
ZOO - 601	C	Basic Research Methodology	4
ZOO - 602	E	Advanced Research Tools and Techniques	4
ZOO - 603	E	Cell and Molecular Biology	4
ZOO - 604	E	Advances in Entomology and Management of Insect Pest	4
ZOO - 605	E	Advances in Fish and Fishery	4

*Students can select any two elective papers from above scheme.

C- Compulsory

E-Elective

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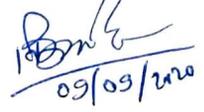
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Detailed List of Experts/Examiners

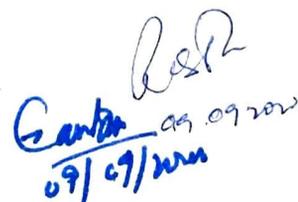
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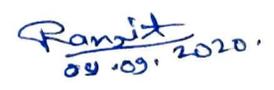

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