



Central University of Himachal Pradesh

(ESTABLISHED UNDER CENTRAL UNIVERSITIES ACT 2009)

Dharamshala, Himachal Pradesh-176215



NAAC Criterion-I

Key Indicator –1.1.2

**Approved Minutes of relevant BOS
meeting highlighting the syllabus revision**

1.1.2 Evidences



Department of Animal Science

**Central University of Himachal Pradesh, Dharamshala,
Kangra**



Central University of Himachal Pradesh

(ESTABLISHED UNDER CENTRAL UNIVERSITIES ACT 2009)

Dharamshala, Himachal Pradesh-176215

आचार्य
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Department of Animal Science

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2	Approved Minutes of the meeting of relevant 3 rd BOS highlighting the syllabus revision dt. 27-09-2021	ANANS-BOS-3/21-3	23

विभागाध्यक्ष/Head

पशु विज्ञान विभाग/Department of Animal Sciences

जीव विज्ञान विभाग/School of Life Sciences

हिमाचल प्रदेश केन्द्रीय विश्वविद्यालय धर्मशाला

Central University of Himachal Pradesh



हिमाचल प्रदेश केन्द्रीय विश्वविद्यालय

Central University of Himachal Pradesh

(Established under Central Universities Act 2009)

अस्थायी शैक्षणिक खण्ड, शाहपुर, जिला काँगड़ा, हिमाचल प्रदेश -176206
Temporary Academic Block, Shahpur, Distt. Kangra (HP) - 176206
Website: www.cuhimachal.ac.in

फाइल संख्या: जन्तु विज्ञान/1-5/पाठ्य समिति/हि.प्र.के.वि./18/ 505

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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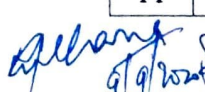

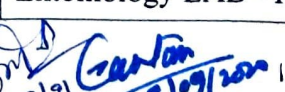
Foundation Courses (Human Making, 02 credits)			
9	ZOO 409	Sericulture and Apiculture	2
Foundation Courses (Skill Development, 02 credits)			
10	ZOO 410	Advanced Techniques in Biology	2

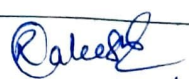
Semester – 2

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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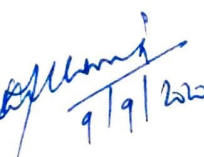
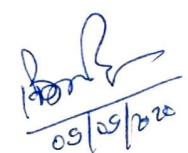
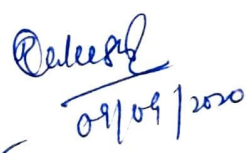

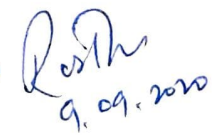

Fish and Fisheries			
12	ZOO 512	Fish Physiology	2
13	ZOO 513	Fish Taxonomy and Fisheries	2
14	ZOO 514	Limnology of Lakes, Streams and Ponds	2
15	ZOO 515	Fisheries and Limnology LAB - I	2
Molecular Biology			
16	ZOO 516	Advances in Molecular Biology	2
17	ZOO 517	Genomics and Proteomics	2
18	ZOO 518	Genetic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

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.


Dr. Ranjit Kumar,
(Special Invitee)



Dr. Tarkeshwar,
(Special Invitee)

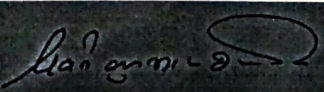

Dr. Rakesh Kumar
(Member)


Dr. Rishi Thakur
(Dean's Nominee)


Dr. Vikram Singh
(VC's Nominee)

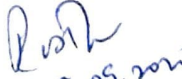

Dr. Mahesh Kulharia
(VC's Nominee)


Dr. Yogesh Kumar Rawal
(Subject Expert)


Dr. Pawan Sharma
(Subject Expert)


Dr. Sunil Kumar
Chairman & Convener









हिमाचल प्रदेश केंद्रीय विश्वविद्यालय

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फाइल संख्या: जीव विज्ञान/-1-5/पाठ्य समिति/हि.प्र.के.वि./18/40(A)

दिनांक: 10.05.2018

MINUTES OF THE FIRST BOARD OF STUDIES MEETING HELD ON

10TH May, 2018

The meeting of the First Board of Studies of the Department of Zoology, School of Life Sciences was held on 10th May, 2018 in the Committee Room of Central University of Himachal Pradesh, Temporary Academic Block, Shahpur. Prof. Ambrish Kumar Mahajan, Head, Department of Zoology, and, Dean, School of Life Sciences welcome all the Hon'ble members and presided over the meeting.

Following members attended the meeting:

1. **Prof. Ambrish Kumar Mahajan – Head and Convener**
Head, Department of Zoology and Dean, School of Life Sciences, Central University of Himachal Pradesh, Temporary Academic Block, Shahpur.
2. **Prof. Nripendranath Mandal – Subject Expert**
Division of Molecular Medicine, Bose Institute, Kolkata.
3. **Prof. Desh Raj Thakur – Subject Expert**
Department of Bio-Sciences, Himachal Pradesh University, Summer Hill, Shimla.
4. **Dr. Vikram Singh – Vice Chancellor's Nominee**
Centre for Computational Biology and Bioinformatics, School of Life Sciences, Central University of Himachal Pradesh, Temporary Academic Block, Shahpur.
5. **Dr. Polamarasetty Aparoy – Vice Chancellor's Nominee**
Centre for Computational Biology and Bioinformatics, School of Life Sciences, Central University of Himachal Pradesh, Temporary Academic Block, Shahpur.
6. **Ms. Nivedita Rana – Resource Person (Special Invitee)**
Department of Zoology, School of Life Sciences, Central University of Himachal Pradesh, Temporary Academic Block, Dehra.
7. **Dr. Vivek Sharma – Resource Person (Special Invitee)**
Department of Zoology, School of Life Sciences, Central University of Himachal Pradesh, Temporary Academic Block, Dehra.
8. **Dr. Rakesh Chauhan – Resource Person (Special Invitee)**
Department of Zoology, School of Life Sciences, Central University of Himachal Pradesh, Temporary Academic Block, Dehra.

Following Decision were taken in BOS meeting as per the Agenda.

Item ZOO-BOS-1/18-1: Approval of Rules of Business for the Board of Studies.

It was unanimously resolved that the draft rules of Business for the Board of Studies presented before the Board of Studies approval as "Rules of Business for the Board of Studies" which would come into effect from this day i.e. Thursday the 10th May, 2018. (Annexure-I)

[Signatures and dates: 09/05/2018, 09/05/2018, 09/05/2018, 09/05/2018, 09/05/2018]

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.

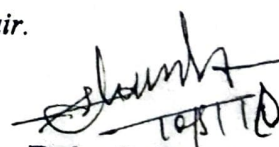
Item ZOO-BOS-1/18-6: Invited Talks/Lectures

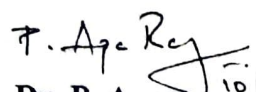
Unanimously resolved that Scientists, Professors and Eminent Scholars in the field of Zoology should be invited for delivering talks for the benefit of M.Sc. students.

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


Ms. Nivedita Rana,
(Special Invitee)

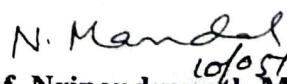

Dr. Vivek Sharma,
(Special Invitee)


Dr. Rakesh Chauhan
(Special Invitee)



Dr. P. Aparaj
(VC's Nominee)


Dr. Vikram Singh
(VC's Nominee)

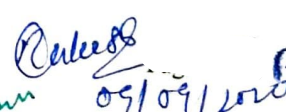

Prof. Desh Raj Thakur
(Subject Expert)


Prof. Nripendranath Mandal
(Subject Expert)


Prof. Ambrish Kumar Mahajan
Chairman & Convener


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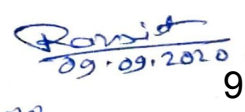

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Table – 1: Revised Curricular Framework for M.Sc. in Zoology based on Choice Based Credit System (CBCS) (Year 2018)

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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Rakesh
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Poonam
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Eshika
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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

Approved 09/09/2020
 Approved 09/09/2022
 Approved 09/09/2020
 Approved 09/09/2020
 Approved 09/09/2020

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 555 - Medical Microbiology	2
		ZOO 599 - M.Sc. Dissertation	4		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

Alham
9/9/2020

Ram
09/09/2020

Rakesh
09/09/20

Gautam
09/09/2020

Prashant
9.9.2020

Ram
09.09.2020

Prashant
9/9/2020

Detailed List of Experts/Examiners

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13. **Dr. Pankaj Sood**, Principal Scientist, KVK Mandi at Sundernagar-175019, Mandi-Himachal Pradesh. pankajplp@rediffmail.com
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28. **Prof. Ashok Kumar Ghosh**, Chairman, Bihar State Pollution Control Board, Patna & Head of Department, Research Centre, Mahavir Cancer Institute and Research Centre, Phulwarisharif, Patna (Bihar), Mobile: 9934304251, Email: ashok.ghosh51@gmail.com
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35. **Dr. Anjana Singha Naorem**, Assistant Professor, Department of Zoology, Cotton University, Guwahati, Assam, Ph. No. 9910720094, Email: anjanasingha@gmail.com
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37. **Dr. Indrakant Kumar Singh**, Assistant Professor, Department of Zoology, Deshbandhu College, University of Delhi, Delhi, Ph. No. 9310071333, Email: iksingh@db.du.ac.in
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हिमाचल प्रदेश केन्द्रीय विश्वविद्यालय
Central University of Himachal Pradesh
(Established under Central Universities Act 2009)



शाहपुर परिसर , ज़िला काँगड़ा, हिमाचल प्रदेश -176206
Shahpur Campus , Distt. Kangra (HP) - 176206
Website: www.cuhimachal.ac.in

**27 सितम्बर 2021 को आयोजित जंतु विज्ञान विभाग की तृतीय बोर्ड ऑफ
स्टडीज (BOS) की बैठक
के कार्यवृत्त (MINUTES OF MEETING)**

स्थान: ऑनलाइन परिसंचरण

समय: 12:00 PM

27 सितम्बर 2021 को पदोपहर 12:00 बजे, शाहपुर परिसर के सेमिनार हॉल में जंतु विज्ञान विभाग की 3rd बोर्ड ऑफ स्टडीज (BOS) की बैठक ऑनलाइन परिसंचरण माध्यम से हुई। जिसमें निम्नलिखित सदस्यों ने बैठक में भाग लिया:

1. डॉ. सुनील कुमार
विभागाध्यक्ष, जंतु विज्ञान विभाग
(अध्यक्ष/संयोजक)
2. डॉ. योगेश कुमार रावल,
एसोसिएट प्रोफेसर,
जूलॉजी विभाग, पंजाब
विश्वविद्यालय, चंडीगढ़ (विषय विशेषज्ञ)
3. डॉ. पवन शर्मा,
प्रिंसिपल साइंटिस्ट,
एंटीमोलोजी डिपार्टमेंट
चौधरी सरवण कुमार हिमाचल प्रदेश
कृषि विश्वविद्यालय, पालमपुर, हि.प्र. (विषय विशेषज्ञ)
4. डॉ. महेश कुल्हारिया,
एसोसिएट प्रोफेसर
संगणकीय जीव विज्ञान एवं जैव सूचना केन्द्र
(माननीय कुलपति महोदय द्वारा मनोनीत सदस्य)
5. डॉ. राकेश कुमार, सहायक प्रोफेसर,
जंतु विज्ञान विभाग (सदस्य)
6. डॉ. रंजीत कुमार, सहायक प्रोफेसर
जंतु विज्ञान विभाग (विशेष आमंत्रित सदस्य)

मद ANANS-BOS-3/21-1: 20.09.2020 को आयोजित हुई जंतु विज्ञान विभाग की दूसरी पाठ्य समिति (2nd BOS) के अनुमोदन हेतु प्रस्ताव प्रस्तुत है। (अनुलग्नक – I)

निर्णय:

जन्तु विज्ञान विभाग की दूसरी पाठ्य समिति (2nd BOS) का कार्यवृत्त अनुमोदित किया गया।

मद ANANS-BOS-3/21-2: राष्ट्रीय शिक्षा नीति (एनईपी-2020) के अनुसार एमएससी, जन्तु विज्ञान (M.Sc. Zoology) के लिए नए पाठ्यक्रमों को जोड़ने और मौजूदा पाठ्यक्रमों के पुनर्गठन के लिए अनुमोदन हेतु प्रस्ताव प्रस्तुत है (अनुलग्नक-II)।

जिसका विवरण इस प्रकार से है :

Tentative List of Courses to be offered for M.Sc, Zoology

(2021 batch onwards) NEP-2020

SEMESTER-I

S. No.	Courses Name	Courses Code	Credits
Major Courses (Total Credits = 10)			
1	Animal Physiology	ZOO 415	2
2	Structure and Function of Invertebrate	ZOO 416	2
3	Cell and Molecular Biology	ZOO 417	2
4	Cell and Molecular Biology & Animal Physiology LAB	ZOO 418	2
5	Structure and Function of Invertebrate LAB	ZOO 419	2
**Minor Courses (Total Credits =04)			
1	Entomology	ZOO 420	2
2	Ecology, Environment and Biodiversity	ZOO 421	2
3	Immunology	ZOO 422	2
**Vocational / Skill Courses (Total Credits =04)			
1	Advanced techniques in Biology	ZOO 423	2
2	Basics of Wild Life Study	ZOO 424	2
3	Medical Microbiology	ZOO 425	2
Indian Knowledge system (Total Credits=02)			
1	Indian Knowledge System	#	2

= The Course will be Developed by University Level Committee

SEMESTER-II

S. No.	Courses Name	Courses Code	Credits
--------	--------------	--------------	---------

Major Courses (Total Credits = 12)			
1.	Cytogenetics	ZOO 465	2
2.	Comparative anatomy of Vertebrate	ZOO 466	2
3	Biosystematics and Evolution	ZOO 467	2
4	Developmental Biology	ZOO 468	2
5	Cytogenetics and Developmental Biology Lab LAB	ZOO 469	2
6	Comparative anatomy of Vertebrate and Biosystematics LAB	ZOO 470	2
**Minor Courses (Total Credits =04)			
1	Endocrinology and Neural Physiology	ZOO 471	2
2	Principles of Biochemistry	ZOO 472	2
3	Animal Behaviour	ZOO 473	2
**Vocational / Skill Course (Total Credits =02)			
1	Applied Zoology	ZOO 474	2
2	Histology and Histochemistry	ZOO 475	2
Indian Knowledge system (Total Credits=02)			
1	Traditional Uses of Animals for sustainable social and health welfare	ZOO 476	2

SEMESTER-III

S. No.	Courses Name	Courses Code	Credits
***Major Courses (Elective Specialization) (Total Credits = 04)			
1a	Agricultural Entomology	ZOO 515	2
1b	Entomology LAB	ZOO 516	2
2a	Advances in Aquaculture and Fishery	ZOO 517	2
2b	Advances in Aquaculture and Fishery LAB	ZOO 518	2
3a	Advances in molecular biology	ZOO 519	2
3b	Advances in molecular biology LAB	ZOO 520	2
Minor Courses (Research Methodology) (Total Credits = 04)			
1	Research Methodology	ZOO 521	4
Vocational / Skill Courses (Analysis of Data through Software) (Total Credits = 04)			
1	Application of Computer, GPS, Image Analysis and PAST in Research	ZOO 522	2

2	Role of Biostatistics in Research	ZOO 523	2
Review of Literature, Research Proposal (Total Credits = 08)			
1	Review of Literature	ZOO 524	4
2	Research Proposal Writing Skill	ZOO 525	4

SEMESTER- IV

S. No.	Courses Name	Courses Code	Credits
***Major Courses (Elective Specialization) (Total Credits = 04)			
1a	Medical Entomology	ZOO 565	2
1b	Medical Entomology LAB	ZOO 566	2
2a	Fisheries and limnology	ZOO 567	2
2b	Fisheries and limnology LAB	ZOO 568	2
3a	Molecular Genetics	ZOO 569	2
3b	Molecular Genetics LAB	ZOO 570	2
Minor Courses (Total Credits = 04)			
1	Academic writings	ZOO 571	2
2	Paper Publications/Seminar, Conferences Presentation at National Level	ZOO 572	2
Vocational / Skill Courses (Analysis of Data through Software) (Total Credits = 04)			
1	Role of Artificial Intelligence in Animal Science Research	ZOO 573	2
2	Use of advanced software like: Biorender, GIS, Mendeley and Turnitin etc. in Research	ZOO 574	2
Dissertation (Total Credits = 08)			
1	M.Sc Dissertation (50% Dissertation and 50% Presentation and viva-voce)	ZOO 595	8

***Students has to opt one course (2 credits)**

****Students has to opt two courses (4 credits)**

***** Students have to opt one set of subject (4 Credit = 2 theory and 2 practical)**

निर्णय:

राष्ट्रीय शिक्षा नीति (एनईपी-2020) के अनुसार एमएससी, जन्तु विज्ञान (M.Sc. Zoology) के लिए नए पाठ्यक्रमों को जोड़ने और मौजूदा पाठ्यक्रमों के प्रस्ताव को अनुमोदित किया गया।

मद ANANS-BOS-3/21-3: मूल्य वर्धित प्रमाणपत्र एवं डिप्लोमा (Value Added Certificate Course and Diploma Course) पाठ्यक्रमों को जोड़ने के लिए स्वीकृति हेतु प्रस्ताव प्रस्तुत है (अनुलग्नक-III)।।

List of Skill Value added Certificate course

Sr.No	Name of Certificate course	Course Code	Credit
1	Apiculture and sericulture	VAT-C-01	20
2	Aquaculture	VAT-C-02	20
3	Industrial Microbiology	VAT-C-03	20
4	Integrated Pest Management (IPM)	VAT-C-04	20

Diploma Course

Sr.No	Name of Diploma course	Course Code	Credit
1	Medical Laboratory Technology	DIP – MLT-1	40

निर्णय:

मूल्य वर्धित प्रमाणपत्र एवं डिप्लोमा (Value Added Certificate Course and Diploma Course) पाठ्यक्रमों को जोड़ने के प्रस्ताव को अनुमोदित किया गया।

मद ANANS-BOS-3/21-4: पीएचडी (जूलॉजी) कार्यक्रम के पाठ्यक्रम कार्य के लिए नए पाठ्यक्रम आरम्भ करने की स्वीकृति हेतु प्रस्ताव प्रस्तुत है (अनुलग्नक-IV)।

1. IKS – (Indian Traditional Knowledge & practice) - 02 क्रेडिट
2. Pedagogy of Teaching Learning Process – 02 क्रेडिट

जिसका विवरण इस प्रकार से है :

List of courses added in PhD Course work

Sr.No	Name of course	Course Code	Credit
1	Indian Traditional Knowledge & practice	-----	02
2	Pedagogy of Teaching Learning Process	-----	02

निर्णय:

पीएचडी (जूलॉजी) कार्यक्रम के पाठ्यक्रम कार्य के लिए नए पाठ्यक्रम आरम्भ करने के प्रस्ताव को अनुमोदित किया गया।

मद ANANS-BOS-3/21-5: जन्तु विज्ञान विभाग में प्रायोगिक एवं मौखिक (Practical and Viva-Voce) परीक्षा हेतु बाह्य परीक्षकों की सूची के अनुमोदन हेतु प्रस्ताव प्रस्तुत है (अनुलग्नक-V)।

जिसका विवरण इस प्रकार से है :

विषय विशेषज्ञों के नामों की सूची

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3	Prof. Deshraj Thakur	Professor	Zoology (Entomology)	Deptt. of Biosciences, HPU Shimla,	drdr4@gmail.com	94184-80248
4	Prof. H.S. Banyal	Vice Chancellor	Zoology	Abhilashi University, Mandi	hsbanyal@yahoo.co.in	94180-26223
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8	Dr. Prem Chand Sharma	Senior Scientist	Applied Zoology	CSK Himachal Pradesh Agriculture University, Palampur	premento@rediffmail.com	98050-30066
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26	Dr. Anjali Dhar	Assistant Professor	Zoology	Department of Zoology, Central University of Jammu	anjaliidhar29@gmail.com	98113-32921, 98113-54477
27	Dr. Stanzin Ladol	Assistant Professor	Zoology	Department of Zoology, Central University of Jammu	stladol22@gmail.com	70513-00574

निर्णय:

जंतु विज्ञान विभाग में प्रायोगिक एवं मौखिक (Practical and Viva-Voce) परीक्षा हेतु बाह्य परीक्षकों की सूची के प्रस्ताव को अनुमोदित किया गया।

मद ANANS-BOS-3/21-6: डॉ. तारकेश्वर के इस्तीफे के कारण सुश्री कनिका (CUHP20RDANS05) और श्रीमती रुचिका (CUHP20RDANS06) के पीएचडी पर्यवेक्षक बदलने हेतु प्रस्ताव प्रस्तुत है। (अनुलग्नक-VI)।

निर्णय:

डॉ. तारकेश्वर के इस्तीफे के कारण सुश्री कनिका (CUHP20RDANS05) और श्रीमती रुचिका (CUHP20RDANS06) के पीएचडी पर्यवेक्षक बदलने हेतु प्रस्ताव को अनुमोदित किया गया तथा डॉ. सुनील कुमार को इनके पी-एच.डी. पर्यवेक्षक निर्धारित करने की अनुमति दी गई।

मद ANANS-BOS-3/21-7: विभिन्न एंट्री-एग्जिट सिस्टम को अपनाने के लिए अनुमोदन हेतु प्रस्ताव प्रस्तुत है। (अनुलग्नक-VII)

जिसका विवरण इस प्रकार से है :

Annexure VII**ENTRY and EXIT OPTIONS in****MASTER'S DEGREE PROGRAMME (2 Years) to be considered by Board of Studies**

S.No.	Entry Semester	Exit Semester	Condition	Certificate/Diploma/Degree/Advance
				Diploma/Others
1	1 st	2 nd	Candidate has to successfully complete the all courses offered in 1 st to 2 nd semesters.	PG Diploma in Zoology
2	1 st	4 th	Candidate has to successfully complete the all courses offered in 1 st to 4 th semesters	M.Sc. Zoology
3	3 rd	4 th	Candidate has to successfully complete the all courses offered in 1 st to 4 th semesters.	M.Sc. Zoology

निर्णय:

विभिन्न एंट्री-एग्जिट सिस्टम को अपनाने के प्रस्ताव को अनुमोदित किया गया।

मद ANANS-BOS-3/21-8: जंतु विज्ञान विभाग के वर्ष 2020-21सत्र के लिए प्रवेश हुए शोध छात्रों के लिए अनुसंधान सलाहकार समिति (RAC) अनुमोदन हेतु प्रस्ताव है (अनुलग्नक-VIII)।

जिसका विवरण इस प्रकार से है :

Sr. No	Roll No:	Name	Supervisor/Co-Supervisor	Subject Experts (Head Nominee(s)) (on the Recommendation of the Concerned Supervisor)
1	CUHP20RDANS01	Bhavna	Dr. Rakesh Kumar	Dr. Ranjit Kumar
2	CUHP20RDANS02	Disha Chauhan	Dr. Ranjit Kumar	Dr. Rakesh Kumar
3	CUHP20RDANS03	Geetika	Dr. Ranjit Kumar	Dr. Rakesh Kumar
4	CUHP20RDANS04	Jigmet Yangchan	Dr. Sunil Kumar	Dr. Ranjit Kumar
5	CUHP20RDANS05	Kanika Choudhary	Dr. Sunil Kumar	Dr. Rakesh Kumar
6	CUHP20RDANS06	Kumari Ruchika	Dr. Sunil Kumar	Dr. Ranjit Kumar
7	CUHP20RDANS07	Kushal Thakur	Dr. Rakesh Kumar	Dr. Ranjit Kumar

निर्णय:

जंतु विज्ञान विभाग के वर्ष 21-2020 सत्र के लिए प्रवेश हुए शोध छात्रों के लिए अनुसंधान सलाहकार समिति) (RAC के प्रस्ताव को अनुमोदित किया गया।

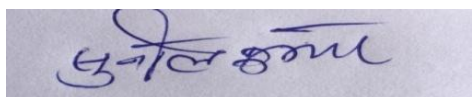
मदAN ANS-BOS-3/21-9 : कोई अन्य मामले जो कि अध्यक्ष की अनुमति से विचारजांएगे किए विमर्श - ।

निर्णय:

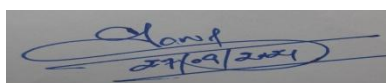
पाठ्यक्रम को छात्रों के अनुकूल बनाने के लिए समय-समय पर बैठक संचालित करने की सलाह बाह्य विशेषज्ञों द्वारा दी गई।

The meeting ended with the thanks to the Chair.

Signatures:

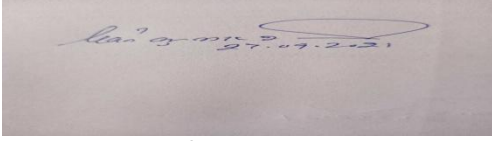


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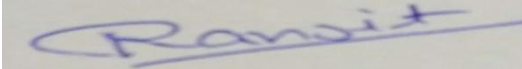
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5. डॉ. राकेश कुमार, सहायक प्रोफेसर,
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