

Department of Zoology

Academic Calender and Academic Plan

1st Semester Honours Course (July 2018 - Dec 2018) CCH 01

Name of the paper	Module or Unit No	Topic	Name of the teacher	To be Completed during	No of PPT classes	Continuous Internal Assesment Schedule (write yes or no)
CCH 01	1	Basics of animal classification: 1. Definition: Classification, systematics and Taxonomy. 2. Taxonomy types, hierarchy, types, Principle of priority. 3. Classification: 3 Kingdom and 5 Kingdom concept	ABN	July		No
CCH 01	2	Protista and Metazoa: 1. Protozoa: 1. General Characters and Classification up to Phylum. 2. Locomotion: Euglena, Paramecium, Amoeba Conjugation : Paramecium 3. Life cycle and Pathogenicity : Plasmodium vivax and Entamoeba histolytica	ABN	August		Yes
CCH 01	3	Porifera: 1. General Characters and Classification 2. Water canal system.	AD	August		Yes
CCH 01	4	Cnidaria: 1. General Characters and Classification 2. Metagenesis in Obelia 3. Polymorphism in Cnidaria 4. Coral reef diversity and conservation.	AM	August-September	1	Yes
CCH 01	5	Ctenophora: Characters and classification.	AM	September	1	Yes
CCH 01	6	Platyhelminthes: 1. Characters and classification. 2. Life cycle, pathogenicity and control measures of <i>Fasciola hepatica</i> and <i>Taenia solium</i>	AD	October	1	Yes

CCH 01	7	Nematoda: 1. Characters and classification. 2. Life cycle, pathogenecity and control measures of <i>Ascaris lumbricoides</i> and <i>Wuchereria bancrofti</i>	AM	September-October	2	Yes
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Course Outcome	To gain knowledge on non chordate diversity, basics of animal classification, and know about morphological identifying characters and specialised structures and specialization like parasitism in Protozoa, segmentation in metazoa, water canal system in porifera, polymorphism and metagenesis in Cnidaria, coral reefs diversity and conservation, life cycle, pathogenecity and control measures of disesaes caused by platyhelminth and nematode worms.					
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1st Semester Honours Course (July 2018 - Dec 2018) CCH 02

Name of the paper	Module or Unit No	Topic	Name of the teacher	To be Completed during	No of PPT classes	Continuous Internal Assesment Schedule (write yes or no)
CCH 02	1	Nucleic acids: 1.Salient features of DNA 2.Watson and Crick model of DNA 3.Hypo and Hyperchromatic Shift 4. RNA : types and function	CS	July	1	Yes
CCH 02	2	DNA Replication: 1. Mechanism in prokaryotes. 2. Semi-conservative, bidirectional and discontinuous. 3. RNA priming, replication of telomeres.	CS	July	1	Yes
CCH 02	3	Transcription: 1. Mechanism in Prokaryotes and Eukaryotes. 2. Transcription factors.	CS	August		Yes
CCH 02	4	Translation: 1.Gentic code, degeneracy, wobble hypothesis. 2. Mechanism in prokaryotes	CS	August	1	Yes
CCH 02	5	Post transcriptional modification and processing of Eukaryotic RNA: 1. Capping and Poly A tail formation. 2. Split gene and splicing mechanism.	CS	September	1	Yes

CCH 02	6	Gene Regulation: 1. Regulation in prokaryotes: Lac and Trp operon. 2. Regulation in Eukaryotes: Activators-repressors, mi RNA and gene silencing. 3. Epigenetic regulation: DNA and histone methylation and acetylation.	CS	September		Yes
CCH 02	7	DNA repair mechanism: 1. Types, RecBCD model in prokaryotes. 2. Nucleotide and base excision repair, SOS repair.	CS	October-November	1	Yes
CCH 02	8	Molecular techniques: 1. PCR, Western Blot 2. Southern and Northern blot.	CS	October-November	1	Yes
Course Outcome	To acquire knowledge on Central dogma of Replication, transcription and translation in prokaryotes and Eukaryotes, basics of DNA and RNA, post transcriptional modification and post-translational modification in prokaryotes and eukaryotes, operon and other gene silencing mechanism, DNA repair mechanisms and different applied biomolecular tools like PCR, western, southern and northern blot.					

2nd Semester Honours Course (Jan 2019 - June 2019) CCH 03

Name of the paper	Module or Unit No	Topic	Name of the teacher	To be Completed during	No of PPT classes	Continuous Internal Assessment Schedule (write yes or no)
CCH 03	1	Evolution of Coelom: 1. Definition, types, origin and theories behind its evolution.	AD	January	1	Yes
CCH 03	2	Annelida: 1. General characters and classification. 2. Metamerism and excretion	AM	January	1	Yes
CCH 03	3	Arthropoda: 1. Characters and classification 2. Insect eye. 3. Respiration in Prawn and cockroach. 4. Metamorphosis in Lepidoptera and Eusociality in termites.	AM	February	2	Yes

CCH 03	4	Onychophora: 1. Characters and classification. 2. Evolutionary significance.	AM	March		Yes
CCH 03	5	Mollusca: 1. General characters and classification. 2. Nervous system and torsion in <i>Pila sp.</i> 3. Feeding and respiration in <i>Pila sp.</i>	BK	February-March	1	Yes
CCH 03	6	Echinodermata: 1. Characters and classification. 2. Water vascular system in <i>Asterias sp.</i> 3. Echinodermata larva and affinities with chordates.	AD	March	1	Yes
CCH 03	7	Hemichordata: 1. General characters and classification. 2. Affinities with non chordates and chordates.	AM	April	1	Yes
Course Outcome	To gain knowledge on non chordate diversity, basics of animal classification, and know about morphological identifying characters and specialised structures and specialization like Metamerism in Annelida, respiratory structures, metamorphosis and eusociality, torsion in mollusc, water vascular system and larval affinities in Echinoderms, affinities of hemichordates with non-chordates and chordates.					

2nd Semester Honours Course (Jan 2019 - June 2019) CCH 04

Name of the paper	Module or Unit No	Topic	Name of the teacher	To be Completed during	No of PPT classes	Continuous Internal Assessment Schedule (write yes or no)
CCH 04	1	Plasma membrane: 1. Ultrastructure, composition, fluid mosaic model. 2. Different types of transport across membrane and different cell junctions.	ABN	January		Yes
CCH 04	2	Cytoplasmic organelles: I 1. Structure function of ER, golgi, lysosome. 2. Protein sorting and mechanism of vesicular transport.	CS	January	1	Yes

CCH 04	3	Cytoplasmic organelles II: 1. Mitochondria structure, semi-autonomous, endosymbiotic theory and respiratory chain. 2. Periosmotic hypotheis, Peroxisome: structure and function. 3. Centrosome: structure and function.	ABN	February		Yes
CCH 04	4	Cytoskeleton: 1. Structure and function. 2. Accesory elements of microfilaments and microtubule.	CS	February	1	Yes
CCH 04	5	Nucleus: 1. Nuclear envelope, pore complex and nucleolus. 2. Euchromatin, heterochromatin and packaging (Nucleosome).	CS	March	1	Yes
CCH 04	6	Cell cycle: 1. concept and regulation. 2. Cancer: basic concept, p53, retinoblastoma, Ras. 3. Process of protooncogene activation.	ABN	March		Yes
CCH 04	7	Cell signalling: 1. Signal transduction pathways and types of signaling molecules and receptors. 2. RTK, JAK/STAT pathway and apoptosis.	CS	April	1	Yes
Course Outcome	To acquire knowledge on basic structure of cell, detailed structure and function of different cell organelles and nucleus, cell cycle concept and its regulation, cancer and its basic concept and different cell signalling pathways and types receptors and signaling molecules.					

3rd Semester Honours Course (July 2019 - Dec 2019) CCH 05

Name of the paper	Module or Unit No	Topic	Name of the teacher	To be Completed during	No of PPT classes	Continuous Internal Assesment Schedule (write yes or no)
CCH 05	UNIT 1	Introduction to Chordates	AM	JULY	1	Yes

CCH 05	UNIT 2	Protochordata	AM	JULY		YES
CCH 05	UNIT 3	Agnatha	AM	JULY		YES
CCH 05	UNIT 4	Pisces	AM	AUG	1	YES
CCH 05	UNIT 5	Class Amphibia	AM	AUG	1	YES
CCH 05	UNIT 6	Class Reptilia	AM	SEP	1	YES
CCH 05	UNIT 7	Class Aves	AM	SEP	1	YES
CCH 05	UNIT 8	Class Mammalia	AM	OCT	1	YES
CCH 05	UNIT 9	Identification of museum Chordates Specimen with reason	AM	JULY- SEPT		
CCH 05	UNIT 10	Ex-situ Dissection of Brain and Pituitary of Tilapia, Digestive and Urino-genital System of Tilapia	CS	AUG-SEPT	1	

CCH 05	UNIT 11	Pecten from Fowl Head	CS	JULY	1	
CCH 05	UNIT 12	PPT Presentation on study of habit,habitat/behavior of any one animal .	AM	OCT-NOV.		
Course Outcome	Detailed and comparative knowledge of different vertebrate groups by studying and identifying specific characteristics.Emphasis on the theoretical knowledge by observing characteristics of museum symptoms.					

3rd Semester Honours Course (July 2019 - Dec 2019) CCH 06

Name of the paper	Module or Unit No	Topic	Name of the teacher	To be Completed during	No of PPT classes	Continuous Internal Assesment Schedule (write yes or no)
CCH 06	UNIT 1	Tissues	CS	JUL	1	YES
CCH 06	UNIT 2	Bone and cartilage	CS	JULY	2	YES
CCH 06	UNIT 3	Nervous system	CS	AUG	2	YES
CCH 06	UNIT 4	Muscular System	CS	AUG	2	YES

CCH 06	UNIT 5	Reproductive System	CS	SEPT	4	YES
CCH 06	UNIT 6	Endocrine System	CS	SEP-NOV	3	YES
CCH 06	UNIT 7	Recording of Cardiac and simple muscle twitch with electrical stimulation.	CS	SEPT		
CCH 06	UNIT 8	Preparation of temporary mounts of squamous epithelium, striated muscle fibres and nerve cell	CS	JULY		
CCH 06	UNIT 9	Study of permanent slides of T.S. of Mammalian Tissues	CS	AUG/SEPT		
CCH 06	UNIT 10	Preparation of Permanent slides of any five Mammalian Tissues- MICROTOMY	CS	NOV		
Course Outcome	To get understanding of General physiological systems of mammals and thereby get a deeper insight of the working of human physiological systems. Understanding histological structures of various mammalian tissues. Getting hands on training of preparing permanent slides of histological sections.					
Name of the paper	Module or Unit No	Topic	Name of the teacher	To be Completed during	No of PPT classes	Continuous Internal Assesment Schedule (write yes or no)

CCH 07	UNIT 1	Carbohydrates	AD	JULY	1	YES
CCH 07	UNIT 2	Lipids	AD	AUG	1	YES
CCH 07	UNIT 3	Proteins	CS	JULY	1	YES
CCH 07	UNIT 4	Nucleic acids	CS	AUG	1	YES
CCH 07	UNIT 5	Enzymes	AD	SEPT	1	YES
CCH 07	UNIT 6	Oxidative Phosphorylation	CS	SEPT	1	YES
CCH 07	UNIT 7	Qualitative tests for Carbohydrates, Proteins and Lipids	AD	AUG	1	
CCH 07	UNIT 8	Qualitative estimation of Urea and uric acids	AD	SEPT	1	
CCH 07	UNIT 9	Paper Chromatography of Amino acids	CS	AUG	1	

CCH 07	UNIT 10	Quantitative Estimation of water soluble Proteins using Lowry's method	AD	NOV	1	
Course Outcome	Getting insight of the basic biochemical molecules structure, diversity , relevance and metabolism in biological systems. To gain practical expertise on qualitative identification of biomolecules.To learn basic techniques and principals of their identification , quantification and separation.					

3rd Semester Honours Course (July 2019 - Dec 2019) SEC

Name of the paper	Module or Unit No	Topic	Name of the teacher	To be Completed during	No of PPT classes	Continuous Internal Assesment Schedule (write yes or no)
SEC	UNIT 1	Introduction to sericulture, Types and Races of Silk Worm, Mulberry and Non Mulberry Sericulture	AM	JULY	1	YES
SEC	UNIT 2	Biology of Silk Worm	CS	JULY	1	YES
SEC	UNIT 3	Rearing of Silk Worm	AM	AUG-SEPT	1	YES
SEC	UNIT 4	Pests and Deseases	CS	AUG	1	YES
SEC	UNIT 5	Entrepreneurship in Sericulture	AM	SEPT-OCT	1	YES

SEC	UNIT 6	Visit to Sericulture Center	AM/CS	NOV		
Course Outcome	The student will be well-versed with the sericulture technique of mulberry silk cultivation, process of silkworm rearing at different stages, common pests and their management etc. As sericulture is a fast growing rural industry, the facts learned here could be useful for vocation after graduation.					

4th Semester Honours Course (Jan 2020 - Jun 2020) CCH 08

Name of the paper	Module or Unit No	Topic	Name of the teacher	To be Completed during	No of PPT classes	Continuous Internal Assessment Schedule (write yes or no)
CCH 08	UNIT 1	Integumentary System	AM	JAN		YES
CCH 08	UNIT 2	Digestive System	AM	JAN		YES
CCH 08	UNIT 3	Respiratory System	AM	FEB		YES
CCH 08	UNIT 4	Circulatory System	AM	FEB		YES
CCH 08	UNIT 5	Urino-Genital System	AM	MAR		YES

CCH 08	UNIT 6	Nervous system and Sense Organs	AM	MAR		YES
CCH 08	UNIT 7	Skeletal System	AM	APRIL		YES
CCH 08	UNIT 8	Study of Placoid,Cycloid and Ctenoid Scales	AM	FEB		
CCH 08	UNIT 9	Study of Disarticulated Skeleton of Toad,Pigeon, Guinea pig	AM	MAR		
CCH 08	UNIT 10	Comparative Study of Heart and Brain of Vertebrates	AM	April		
CCH 08	UNIT 11	Identification of Skulls of Pigeon, Guinea pig and Dog	AM	MAY		
Course Outcome	The classical Zoology learned in Semester 1 ,2 and 3 is augmented by the core course 08 in 4th semester.It gives an elaborate view of the comparative organ systems of various vertebrate classes, which would come in handy at the time of any taxonomical studies in future.Study of skeletal elements of a few selected animals re-iterates the same.					

4th Semester Honours Course (Jan 2020 - Jun 2020) CCH 09

Name of the paper	Module or Unit No	Topic	Name of the teacher	To be Completed during	No of PPT classes	Continuous Internal Assesment Schedule (write yes or no)
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CCH 09	UNIT 1	Physiology of Digestion	CS	JAN	1	YES
CCH 09	UNIT 2	Physiology of Respiration	CS	FEB	1	YES
CCH 09	UNIT 3	Physiology of Circulation	CS	MARCH	1	YES
CCH 09	UNIT 4	Physiology of Heart	CS	APRIL	1	YES
CCH 09	UNIT 5	Osmoregulation and Thermoregulation	CS	MAY	1	YES
CCH 09	UNIT 6	Renal Physiology	CS	MAY	2	YES
CCH 09	UNIT 7	Haematology practicals	CS	JAN-MARCH	2	
CCH 09	UNIT 8	Study of Cockroach haemocytes	CS	FEB	1	
CCH 09	UNIT 9	Demonstration of blood pressure by digital meter	CS	FEB		
Course Outcome	Physiological studies in mammals go hand in hand with the biochemical and anatomical studies performed through semester 1-4. It provides the student with an overall picture of working of various systems in an organism, specifically humans, based on histology and biochemistry of the involved components. The students will also learn to perform basic hematological examinations like measurement of blood pressure, haemoglobin, identification of blood group, distinguishing blood sample from other fluids, and also learn the significance of all these investigations.					
4th Semester Honours Course (Jan 2020 - Jun 2020) CCH 10						

Name of the paper	Module or Unit No	Topic	Name of the teacher	To be Completed during	No of PPT classes	Continuous Internal Assesment Schedule (write yes or no)
CCH 10	UNIT 1	Overview of Immune system	AM	JAN	1	YES
CCH 10	UNIT 2	Innate and adaptive immunity	AM	FEB		YES
CCH 10	UNIT 3	Antigens	AM	MAR		YES
CCH 10	UNIT 4	Immunoglobulins	AM	APRIL		YES
CCH 10	UNIT 5	Major histocompatibility complex	AM	MAY		YES
CCH 10	UNIT 6	Cytokines	CS	FEB	1	YES
CCH 10	UNIT 7	Complement System	CS	MARCH	1	YES

CCH 10	UNIT 8	Hypersensitivity	CS	APRIL		YES
CCH 10	UNIT 9	Vaccines	CS	MAY	1	YES
CCH 10	UNIT 10	Demonstration of Lymphoid organs	CS	JAN	1	
CCH 10	UNIT 11	Histological study of bursa fabricius,spleen,thymus and lymph nodes	AM	APRIL		
CCH 10	UNIT 12	Demonstration of ELISA	AM	APRIL-MAY		
Course Outcome	After completion of this course, the student would be equipped with the fundamental knowledge of immune system which would augment the scope of post graduation and research in the same field. As ELISA is used in many clinical investigations, knowledge of this module will enhance the students scope in para-medical courses.					

4th Semester Honours Course (Jan 2020 - Jun 2020) SEC

Name of the paper	Module or Unit No	Topic	Name of the teacher	To be Completed during	No of PPT classes	Continuous Internal Assesment Schedule (write yes or no)
SEC	UNIT 1	Diagnostic methods used for Analysis of blood	CS	JAN	1	YES
SEC	UNIT 2	Diagnostic methods used for Urine analysis	CS	FEB	1	YES

SEC	UNIT 3	Non-infectious diseases	CS	MARCH	1	YES
SEC	UNIT 4	Infectious diseases	CS	APRIL	1	YES
SEC	UNIT 5	Clinical biochemistry	CS	APRIL	1	YES
SEC	UNIT 6	Clinical microbiology	CS	MAY	1	YES
SEC	UNIT 7	Tumours	CS	MAY	1	YES
SEC	UNIT 8	Visit to pathological lab and submission of reports	CS	MAY	1	YES
Course Outcome	A detailed knowledge of various analytical parameters of blood and urine diversifies the chance of a Zoology graduate to choose between various professions. Basic information about clinical biochemistry, microbiology, infectious and non-infectious diseases brings them at par students with para-medical background. The overall course opens up a vast field of vocation before them.					