

Departments of Zoology
Certificate Course
on
“Innovative Zoological Practices”
(Academic Session 2019 – 2020)

Scheme of Examination

Paper	Topic of Paper	Marks distribution		
		Marks of each paper	Max. Marks.	Min. Marks
(A) THEORY PAPERS				
I	Advanced Zoology	25	50	17
II	Functional Zoology	25		
(B) INTERNALASSESSMENT				
Comprehensive viva voce based on Practical course work			50	17
Total marks			100	34

S. Banerjee
6/7/2019

(Dr. S. Banerjee)

S. Singh
6.7.19

(Dr. Sunita Singh)

R. Chandhary
6/7/19

(Dr. Ruchira Chandhary)

A. Rai
6/7/2019

(Aradhana Rai)

P. Mulhoneyee
6/7/2019

(Dr. P. Mulhoneyee)

A. Souza

(Dr. Anjali D'Souza)

Departments of Zoology
Certificate Course
on
“Innovative Zoological Practices”
(w.e.f. Academic Session 2018 – 2019)
[Ordinance for the Certificate Course]

This brochure of Certificate Course on “Innovative Zoological practices” based on Hands on training is broadly divided into three parts:

(A) General Information (B) Scheme of Examination (C) Course of Study

(A) General Information:

1. Objective of the Course:

Study of animals includes wide range of approaches such as genetics, molecular and cellular biology, taxonomy, anatomy, physiological processes as well as behavior and ecological aspects of the animal world including man and its surroundings. Thus keeping the above mentioned facts in view the proposed certificate course aims to impart theoretical as well as practical knowledge of various aspects of the applied zoological techniques in detail to the learners. This course is designed basically for the students who are interested in learning about different zoological techniques of human relevance. Some of the techniques taught during the course may help the students in their academic and professional endeavors.

2. Duration of the Course: The duration of Certificate course will be of 03 months.

3. Admission to the Course: The number of seats will be 25. Number of seats can be increased from time to time on the approval of the Principal, St. Aloysius College (Autonomous), Jabalpur. A candidate who is pursuing Bachelor degree in any subject can undertake this programme.

4. Registration Fees:

Candidates admitted to this course will pay the Registration fees of Rs 200/- for his / her Seats along with other fees of the College. Fee may be increased as and when required after due consideration. No concession will be made in the fees structure for the candidate of any category in this course.

5. Scope of students (Programme Study):

Each module of the Certificate course will have 01 Credit equivalent to fifteen hours including 5 hours of teaching (lecture) and 9 hours of practical work. The course of the studies in both papers and in practicals will be as per syllabus prescribed by the Board of Studies in Zoology of St. Aloysius College (Autonomous), Jabalpur.

6. Mode of Evaluation:

Every student will have to appear in one written test consisting of short answer type questions [Paper I + II] of 50 marks based on the syllabus of Module I & II and a Comprehensive viva voce of 50 marks based on Practical course work. The duration of test will be of two hours and will be conducted by the examination cell of St. Aloysius College (Autonomous), Jabalpur.

7. Condition for Pass: For passing the examination, a candidate must have secured a minimum of 33% marks in theory and practical separately. The students who do not pass the examination shall get an opportunity in the subsequent examination and will be allowed to keep term (ATKT). The candidate after passing the examination will be awarded a certificate in addition to his/her regular degree course.

8. Evaluation and Result:

The performance of a student in each course will be evaluated in terms of percentage of Marks (PM) and the result of the candidate will be declared on the basis of aggregate marks. The result of an examination shall be published as per the provisions of the concerned Ordinance.

(B) Scheme of Examination:

As and when required, the Board of Studies in Zoology of St. Aloysius College (Autonomous, Jabalpur) will be empowered to change the Scheme of the Examination.

(C) Course of Study:

The courses of the studies in different papers and in practicals will be as per the syllabus prescribed by the Board of Studies in Zoology of St. Aloysius College (Autonomous), Jabalpur and passed by the Academic council of the College.

Head / Chairman of BOS Committee
Department of Zoology

[Handwritten signatures and dates]
6/7/19, 6/7/19, 6/7/19, 6/7/19, 6/7/19

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Module -I

01 Credit [15 Hours]

Paper -1 Advanced Zoology

Total hours -05

MM : 25

Unit. I

- 1.Elementary knowledge of Biocomputer, Blast and Fasta.
- 2.DNA Bar-Coding for Mammalian Taxonomic Identification and Cryptic Species discovery.
- 3.Molecular Genetics Techniques for identification of Pests and Insect Vectors.
- 4.Phase contrast microscope and its application
- 5.Thin Layer Chromatography and its application.

Unit II

- 1.Study of Soniferous fishes using acoustic techniques
- 2.Xenotransplantation.
- 3.Species translocation.
- 4.IVF and study of Animal Semen.

Unit . III

1. Gene Bank and Germplasm Conservation
2. Study nest and eggs of birds wsr its conservation
3. Gender discrimination of tigers (Panthera tigris) using pugmarks
4. Tools & Techniques for Animal Rescue

Unit . IV

- 1.Role of genetic engineering in Zoology.
- 2.Tools and techniques wsr Q-PCR thermocyclers, HPLC, GC-MS and FTIR spectrometers
3. Gel electrophoresis / SDS- PAGE
- 4.Toll like receptors and Drug designing

Unit . V

1. Ocular micrometry and its significance
2. Camera Lucida and its application
3. Basic Museum keeping techniques wsr Dry and Wet Preservation of Zoological Specimens.
4. Molecular identification of genetic diversity of Global livestock breeds

PRACTICAL – I COURSE WORK

Total hours -9

1. Gel electrophoresis / SDS- PAGE
2. TLC analysis of Components of Biological Samples
3. Hands on Training in Dry preservation of insect specimen.
4. Determination of calcium carbonate in egg shell.
5. Hands on training of Alignment of DNA sequence by Clustal W method for mutation analysis using Mega 6 Software.
6. Sperm count and Sperm Motility.
7. Drawing through Camera lucida.
8. Ocular micrometry
9. Preparation of permanent dry mount of fish skeleton
10. Identification of Pugmarks of different animals
11. Study of Principle and working of PCR

Course End Examination -

Total hour -01

[Handwritten signatures and dates]
Dr. S. B. Baurge (6/7/19) Dr. Smita Ghosh (6/7/19) Dr. R. R. Choudhary (6/7/19) Dr. A. D. Souza (6/7/19)
Dr. P. Mukherjee (6/7/19)

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Module -II

Paper -II Functional Zoology

01 Credit [15 Hours]

Total hours -05

MM : 25

Unit. I

1. Body mass index (BMI), or Quetelet index and its significance
2. Typical Truss Morphometric Network (TMN)
3. Immunochromatography and its applications
4. Elementary knowledge Role of Herpetology in wildlife.

Unit II

1. Blood indices and its significance in clinical pathology.
2. Haemen crystals in human blood and its significance
3. Cooke's Arneth count and its relevance in biomedical science.
4. Identification of Malaria Parasite

Unit . III

1. Study of genetic Hybrids
2. Hair profile study.
3. Adulterants of milk samples
4. Study of Dairy Cattle Health and related diseases.

Unit . IV

1. Insect haemolymph and its components.
2. Forensic entomology wsr use of insects to estimate the time of death and Forensic Odontology.
3. Preparation and maintenance of Aquarium and Breeding of Aquarium Fishes
4. Ethno Zoology wsr study of human and animal interaction

Unit . V

1. Elementary knowledge of Biopharmaceutical Technology wsr Probiotics and Prebiotics.
2. Basic idea of Life style diseases and control.
3. Rheological properties of food items.
4. Antibacterial properties of cow urine.

PRACTICAL – II- COURSE WORK

Total hours -9

1. Study of Rheological Properties of food items using Viscometer
2. Study of Antibacterial activity of Cow Urine.
3. Determination of Cooke's Arneth count [Aging of Neutrophils]
4. Study of malaria parasite
5. Morphometric analysis of fish by Typical Truss Morphometric Network (TMN)
6. Comparative Hair profile study.
7. Preparation of Haemen Crystals in human blood
8. Total haemocyte count in insect haemolymph
9. Rapid tests for testing Adulterants of milk samples
10. Forensic dentistry or forensic odontology wsr Assessment of bite marks.
11. Preparation and maintenance of Aquarium.

Course End Examination -

Total hour -01

[Signature]
6/7/19
(Dr. P. Mukherjee)

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6/7/2019
(Dr. S. Banerjee)

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6-7-19
Dr. Smil Singh

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6/7/19
(Aradhana Rai)