



Kalindi College

(NAAC Accredited 'A' Grade)

University Of Delhi



DEPARTMENT OF ZOOLOGY

ACADEMIC SESSION

2020-21



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1. Brief Introduction of Department:

The Department of Zoology started in 1967 since the inception of College. This Department has been working as the integral part from the very beginning of various courses in the college that come under Bachelor of Science General or Life Science streams. This Department has remained engaged actively in the successful journey of these programs and has started B.Sc. (H) Zoology since 2017-18, after erstwhile FYUP in Zoology.

Zoology is the study of animals wherein the student receives a highly comprehensive exposure to all levels of animal function and their diversity. As a subject it creates enormous interest in us as we are also part of the animal kingdom. Thus, understanding the development and evolution of animals help us to explore ourselves better. In this stream, students delve at a deeper level about how animals are integral component of the ecosystem. Animals also have a major impact on our economy either as a competing for our food or as parasites influencing the quality of public health.

The knowledge of animal forms and their physiological function opens the gateway to applications in a number of exciting and innovative fields. In recent years, the study of both fundamental and applied Zoology has induced a keen interest in students, researchers and animal science-based industries. These subjects have been able to grab the attention of the academic world and have motivated scientists to work towards biodiversity conservation, formulating ecological safeguards and to apply Biotechnology & Bioinformatics to the field of Biomedical and Pharmaceutical sciences.

The Department has played an active role in consistently producing the University positions in Life Sciences (a student of B. Sc. Life Sciences "*Jasmine Jaggarwal*" holds 1st position in Life Science (99.3%) in the history of University, for the academic year 2013-2014) and also experiencing the consecutive successes in B.Sc. (H) Zoology. Our students routinely get University ranks showing that they have the mettle and, given the right motivation and prospects, can move to greater heights. They are also conferred with the scholarships for good academic records at college level. The students for Sciences and Zoology have been the proud recipients of these awards every year.

To acquaint the students with a sound base of scientific training, the Department organizes various visit and excursions to important sites and scientific institutions. This helps them to include a scientific and innovative temperament and acquire new concepts of relevant technologies in Zoology.

Apart from this, the Department is regularly involved in co-curricular and extracurricular activities under the interdepartmental society called the "Biochemical Society" and the Department Society "*Zoonomia*". These societies are functional throughout the year wherein students and faculty members regularly participate in the activities with great enthusiasm.

The faculty members of the Department are well qualified with an extensive teaching/research experience. Therefore, the department has an environment of academicians and research fellows who provide the students a foundation to nurture their future scientific endeavours. Most of the members are currently engaged in projects under in house, UGC, DST and DBT schemes.

2. Scope of the Subject:

After completing Bachelors in Zoology, a large number of higher education avenues open up for the students as they are eligible for:

- i. **Master of Science Degree** in Zoology, Biochemistry, Biotechnology, Environmental Sciences, Forestry, Microbiology, Genetics, Wildlife and various fields of Conservatory Sciences, Health Sciences, etc.
- ii. **Research Training and Ph.D.**-A student of Zoology can pursue research training and Ph.D. at renowned National and International Institutions.
- iii. **Post-Doctoral Fellowships**- a large number of students also go in for research as Post- Doctoral Fellows in various Universities and Institutes all over the world.
- iv. **Assistant Professorships**- in various Colleges or University Departments after completion of Ph. D.
- v. **Teachers**- after completing Masters in Zoology followed by Bachelor Degree in Education (B. Ed).
- vi. **Scientists**- various funding agencies especially UGC, DST and DBT offers a number of Women's Scientist positions, particularly aimed at motivating more women to take up research positions.
- vii. **Indian Administrative and Indian Forest services**-a graduate student may seek their career in Indian Administration Services as a Civil Servant and Forest Officer after qualifying civil service examination with Zoology as main subject.
- viii. **Jobs/Services**: A Zoologist is also in demand in agriculture, fisheries and other industries related to animal husbandry. They can also opt for areas like veterinary sciences, pharmaceuticals, technical and/or research assistance in laboratories, museums, scientific organizations and scientific journalism. They also have other non-science options open to them like pursuing management, marketing and sales etc.

3. Detail of the Faculty members

| S. No. | Name | Designation | Qualification | Area of Specialization |
|--------|---------------------------------------|---------------------|-------------------|----------------------------|
| 1. | Dr. Prem Prakash Saini | Assistant Professor | Ph.D. | Radiation Biology |
| 2. | Dr. Manisha Arora Pandit | Assistant Professor | Ph.D. | Neuro-Endocrinology |
| 3. | Dr. Tarkeshwar (on lien) | Assistant Professor | M.Phil., Ph.D. | Applied Entomology |
| 4. | Dr. Kanchan Batra (Teacher In-Charge) | Assistant Professor | Ph.D. | Ecology |
| 5. | Dr. Shanuja Beri | Assistant Professor | Ph.D., PDF | Neuro-Biochemistry |
| 6. | Dr. Varsha Singh | Assistant Professor | Ph.D., PDF | Reproductive Endocrinology |
| 7. | Dr. K. Vandana Rani | Assistant Professor | M.Phil., Ph.D. | Fish Endocrinology |

4. Detail of Laboratory Staff

| S.No | Name | Designation |
|------|-----------------|----------------------|
| 1 | Ms. Sushma | Laboratory Attendant |
| 2 | Mr. Sunil Kumar | Laboratory Attendant |

5. Medium of Instruction: English**6. Course Detail:****For Honours Course****1st Year**

| Semester | Core | Generic Elective | AECC |
|----------|--|---|--|
| I | <ul style="list-style-type: none"> ● Non-chordates I: Protista to Pseudocoelomates ● Principles of Ecology | <ul style="list-style-type: none"> ● Animal Diversity ● Insect Vectors and diseases | <ul style="list-style-type: none"> ● Environmental Sciences |

| | | | |
|-----------|--|---|---|
| II | <ul style="list-style-type: none"> • Non-chordates II: Coelomates • Cell Biology | <ul style="list-style-type: none"> • Human Physiology • Exploring the Brain: Structure and Function | <ul style="list-style-type: none"> • English Communication |
|-----------|--|---|---|

2nd Year

| Semester | Core | Generic Elective* | SEC |
|-----------------|--|---|--|
| III | <ul style="list-style-type: none"> • Diversity of Chordates GE-3 • Physiology: Controlling and Coordinating Systems • Fundamentals of Biochemistry | <ul style="list-style-type: none"> • Food, Nutrition and Health • Environment and Public Health | <ul style="list-style-type: none"> • Apiculture • Medical Diagnostics |
| IV | <ul style="list-style-type: none"> • Comparative Anatomy of Vertebrates • Physiology: Life Sustaining Systems • Biochemistry of Metabolic Processes | <ul style="list-style-type: none"> • Animal Cell Biotechnology • Aquatic Biology | <ul style="list-style-type: none"> • Research methodology • Sericulture • Aquarium Fish Keeping |

3rd Year

| Semester | Core | DSE-I/DSE-II |
|-----------------|---|---|
| V | <ul style="list-style-type: none"> • Molecular Biology • Principles of Genetics | <ul style="list-style-type: none"> • Animal Behaviour and chronobiology • Biology of Insecta • Computational Biology • Endocrinology • Immunology |
| VI | <ul style="list-style-type: none"> • Developmental Biology • Evolutionary Biology | <ul style="list-style-type: none"> • Animal Biotechnology • Basics of Neuroscience • Fish and Fisheries • Parasitology • Reproductive Biology • Wild Life conservation and management |

For Programme Courses: (B.Sc. Life Sciences)**1st Year**

| Semester | Core | AECC |
|----------|--|--------------------------|
| I | • Animal Diversity | • Environmental Sciences |
| II | • Comparative Anatomy and Developmental Biology of Vertebrates | • English Communication |

2nd Year

| Semester | Core | SEC |
|----------|-------------------------------------|---|
| III | • Physiology and Biochemistry | • Apiculture • Medical Diagnostics |
| IV | • Genetics and Evolutionary Biology | • Sericulture • Aquarium Fish Keeping • Public Health & Hygiene |

3rd Year

| Semester | DSE* | SEC |
|----------|---|---|
| V | • Applied Zoology • Animal Biotechnology • Reproductive Biology | • Apiculture • Medical Diagnostics |
| VI | • Aquatic Biology • Immunology • Insect, Vector and diseases | • Sericulture • Aquarium Fish Keeping • Public Health & Hygiene |

7. Infrastructure:

To cater to the need for grooming students towards science, the Zoology Department has a well-equipped laboratory for conducting practical classes which are managed by experienced and capable

staff. In addition to laboratory the Department has a well-maintained Museum and a good collection of books in Departmental Library. The details of these facilities are given below.

I. Laboratory: The Department has a spacious well-furnished laboratory with the following facilities:

- **LCD projectors:** 2 Portable + 1 Overhead LCD projectors are available for use in both theory and practical classes wherein a teacher can teach using Power Point Presentations and various other modes of ICT.
- **Preparatory Room:** Attached with lab, this room is fabricated to arrange and stock the entire chemicals and glassware necessary for conducting practical classes.
- **Instruments and apparatus:** The department is equipped with all the necessary instruments/apparatus that are used to conduct practical classes of B. Sc. Honours and B. Sc. Programme courses.

The Laboratory has been upgraded and equipped with the requisite infrastructure and facilities needed to carry out practical classes at Honours level. The lab is well enabled with histology diagrams, models and charts as well as various simulation programs related to the various practical etc. These methods will help us to make a visual impact on the students in generating a deeper interest and enthusiasm for the subject.

II. Museum: The Department prides itself on having a substantial museum which is well-stocked with a diverse range of specimens. It has a vast and outstanding collection of diverse organisms representing the animal kingdom. Most of the specimens are well-preserved in fixatives or conserved as dried and stuffed animals also. Further, there is a good collection of a number of skeletons, hides and articles made from horns, bones, shells etc. There is a spectacular display of models that not only makes their study simple but also very interesting. Also, museum has the facility for interactive and informative classes *viz* video simulation programmes, PowerPoint presentation with sufficient seating arrangement for the students.

III. Library: The Department has its own library with a good collection of books on relevant topics of Zoology, practical notes and projects available for students. These books and practical notes are readily available for both students and faculty members. The books available in the library are also being temporarily issued to students for a limited period.

IV. Staff room: The Department has 02 well established staff rooms for the faculty members. The staff rooms are provided with individual table and chair and almirah in each room.

V. Store room: The Department is also provided with a separate store room that is used for the storage of various chemicals and glassware as well as instruments/apparatus that has to be kept

safely while not in use. This room is also being used to keep additional accessories and equipment.

VI. Aquaticmicrocosm (Freshwater Pond): This pond was taken as a project funded by college to establish a Freshwater Pond in the college premises which provides a habitat to both aquatic flora and faunas well as microorganisms. Students get opportunities to learn about following aspects:

- A freshwater system offers a unique opportunity to study the relationship between physical, chemical, geological and biological aspects of environment under subjects like Ecology, Environmental Sciences etc.
- Also, a plethora of organisms which occupy different niches in the freshwater system provide a platform for students to learn about their natural habitat.

VII. Butterfly conservatory: The Department takes steps to devote more of their resources to research, education and conservation than the conventional approach of academics. In the view of conservation, the Department of Zoology has conceptualized and established “Butterfly Conservatory” in the College premises.

This was undertaken as an Innovation Project to conserve the threatened species of butterflies as the presence of diverse butterfly composition acts as indicator of healthy environmental condition and thereby assists in biological research and biodiversity conservation. In this setup we have:

- A small freshwater pond for puddling behaviour of butterflies.
- A number of beautiful flowering plants as attractant at the periphery and host plant in the middle.

VIII. Future plans to enhance the Zoology Department infrastructure: Department is getting one more laboratory very soon with latest furniture.

8. Award and Achievements: Students

| Sr. No. | Name of the Student | Name of the activity | Nature of Award | Level of Award |
|---------|---|--------------------------------------|-----------------------|----------------|
| 1 | Kajal Rani B.Sc.(H) 2 nd year | 1. Treasure Hunt, <i>Zoonomia</i> | 1 st Prize | College |
| 2 | Prerna, | 1. Open Mic competition | 3 rd prize | College |

| | | | | |
|----|---|---|---|-------------------------------|
| | B.Sc.(H), 2 nd year | organized by NSS, Kalindi College | | |
| 3 | Anchal Tyagi, B.Sc.(H), 2 nd year | 1. Pot Painting Competition, <i>Zoonomia</i> 2. Poster Making Competition, <i>Zoonomia</i> | 1 st Prize 1 st Prize | College College |
| 4 | Nuhi, B.Sc.(H), 2 nd year | 1. Poster Making Competition 2. Treasure Hunt, <i>Zoonomia</i> 3. Treasure Hunt, <i>Dialectica</i> | 2 nd Prize 1 st Prize 1 st Prize | College College College |
| 5 | Anjalipriya, B.Sc.(H), 2 nd year | 1. Treasure Hunt Competition, <i>Zoonomia</i> | 1 st Prize | College |
| 6 | Menka, B.Sc.(H), 2 nd year | 1. Pot Painting Competition, <i>Zoonomia</i> | 2 nd Prize | College |
| 7 | Nusrat, B. Sc. (H), 3 rd year | 1. Photography Competition, <i>Zoonomia</i> | 2 nd prize | College |
| 8 | Ruchira Aggarwal, B. Sc. (H), 3 rd year | 1. Rangoli Making Competition, <i>Zoonomia</i> | 1 st Prize | College |
| 9 | Shalini Sharma, B. Sc. (H), 3 rd year | 1. Rangoli Making Competition, <i>Zoonomia</i> | 1 st Prize | College |
| 10 | Saumya B. Sc. (H), 3 rd year | 1. Story Writing Competition, <i>Aster</i> 1. Participated in Innovation Competition "NOVO 2020" held at Kalindi College | 2 nd Prize 2 nd Prize | College College |
| 11 | Sherin Babu, B. Sc. (H), 3 rd year | 1. Participated in Innovation Competition "NOVO 2020" held at Kalindi College 2. Participated in e-presentation competition, <i>Aster</i> 3. Treasure Hunt Competition, <i>Zoonomia</i> | 2 nd Prize Consolation | College College College |

| | | | | |
|----|---|---|--|----------|
| | | 1.Power Point Competition, <i>Aster</i> | 2 nd Prize 1 st Prize | College |
| 12 | Kanika Sahni, B.Sc.(H), 3 rd year | 2.Participated and Presented poster titled “Melia azedarach: An alternative to synthetic insecticide and a potent insect growth regulator” in National Conference on “Insect-Plant Biology in 21 st Century” held at Deshbandhu College on 4-5 th November, 2019. | 1 st Prize | National |

9. Research in Department:

Faculty members in the Department have been awarded various Major and Minor Projects, and under these projects a large number of students are also actively involved with the faculty members. A list of projects is mentioned below:

Ongoing projects:

Major project:

I. DST-SERB ECR (2017-2020)

Project Investigator: Dr. Varsha Singh

Title of the Project: Functional interaction between vasotocin and corticosteroids in catfish *Heteropneustes fossilis*

Total fund of the project: Rs. 23,07201/-

Minor Projects (Inhouse projects)

I. In-House Project 27/2018

Project Investigator (s): Dr. Varsha Singh and Dr. Mamta Tripathy

Title of the Project: Linking urban green spaces with potential carbon stock

Number of Undergraduate students Involved in the project: 05

Total fund of the project: Rs. 7,500/-

II. Inhouse Project Code: 28/2018

Title of the Project: “Reinventing the Butterfly Conservatory”.

Name Investigator: Dr. Varsha Singh and Dr. M. Rojina Devi

Number of Undergraduate students Involved in the project: 15

Total fund of the project: Rs. 7,500/-

III. Inhouse Project Code: 44/2018

Title of the Project: “Ayurveda: The Alternative System of Time-Tested Medicine”

Name Investigator: Dr.Tarkeshwar, Dr. Amit Kumar, Dr.Divya Verma

Number of Undergraduate students Involved in the project: 15

Total fund of the project: Rs. 10,000/-

IV. Inhouse Project Code: 45/2018

Title of the Project: “Student Wellness: Strategy for Student Success through Medical Diagnostics”

Name Investigator: Dr.Tarkeshwar, Dr.Punita Verma

Number of Undergraduate students Involved in the project: 15

Total fund of the project: Rs. 15,000/-

10. Highlights of Department Activity:

Zoological Society: ZOONOMIA

Convener: Dr. Kanchan Batra

Co- Convener: Dr. Varsha Singh

Zoonomia, the Zoological Society, came into existence in the previous session 2018-19 after the introduction of the B.Sc. (Hons.) Zoology course in 2017-18 in our college and thereafter emerged as one of the active and enthusiastic societies of college.

Society Inaugural

The Society initialized various activities under the theme “Convergence” as follows:

- Inaugural lecture on “The impact of the use of plastics on reproductive health” by Prof. Rita Singh, Department of Zoology, University of Delhi.

- Inter-college competitions such as quiz, pot-making, poster making, rangoli, pot painting, treasure hunt etc. were also conducted. Department of Zoology, University of Delhi.
- 2nd lecture on “The scope and the avenues in the field of biological sciences” by M. Abdul Karim, Department of Biochemistry, IGNOU.

Student training “Entrepreneurship Awareness Camp for Science Students”

The Society organized a Three-Day Workshop-cum-Training entitled as “Entrepreneurship Awareness Camp for Science Students” in association with IQAC Kalindi College and National Institute for Entrepreneurship and Small Business Development (NIESBUD), Ministry of Skill Development, Govt. of India, including two-day interactive session followed by one day Industrial visit to an incubation centre KRAFTIVITY.

Campus Bird Count (The Bird Count India 2019)

The Department joined the campaign of Campus Bird Count India in 2019. In 2020 also, this campaign was organized on 12th February 2020 under the guidance of Mr. Pankaj Gupta, where we recorded **32** different bird species in our campus at different location.

Field Visit/Educational Trips

- One day Environmental Sciences Educational Trips to Yamuna Biodiversity Park and Indian Agricultural Research Institute (IARI), Delhi was organized during the month of October, 2019 as part of the curriculum.
- Zoology Department also organized an “Educational Excursion” to Manali from 18th -23rd October 2019.
- A field trip and demonstration and a hands-on experience with Apiculture & its Entrepreneurial aspects for B.Sc.(H) Zoology 2nd Year students to the Apiculture Unit at Indian Agricultural Research Institute (IARI), Delhi was also conducted.

National & International Conference/Workshop

Apart from this, Department of Zoology also organized National and International Conferences from time to time. A one-day DBT Sponsored Workshop under the convenor ship of Dr. K. Vandana Rani entitled “**The Foldscope**” was organized by Zoology Department, Kalindi College, University of Delhi on 24th September, 2019.

11. Scholarships and Prizes

| Name | Criteria for Award |
|--|---|
| Canara Bank Prize | First Rank in Sem-I and Sem-II with Highest SGPA & CGPA & A+ Grade in Zoology Papers |
| Canara Bank Prize | First Rank in Sem-V and Sem-VII with Highest SGPA & CGPA & A+ Grade in Zoology Papers |
| Zoology Teacher's Prize | First Rank in Sem-III and Sem-IV with Highest SGPA & CGPA & A+ Grade in Zoology Papers |
| Zoology Teacher's Prize | Second Rank in Sem-III and Sem-IV with Highest SGPA & CGPA & A+ Grade in Zoology Papers |
| Dr. Indira Krishna Memorial Scholarship | Highest Marks/Grade/SGPA/CGPA in Life Sciences Part-II |
| | Highest Grade /SGPA/CGPA in Life Sciences Part-I |
| | Highest Grade /SGPA/CGPA in B.Sc. (H) Zoology Part-II |
| | Highest Grade /SGPA/CGPA in B.Sc. (H) Zoology Part-I |

12. Distinguished Alumni

| S. No. | Name of the Alumina | Current Status/Prize |
|--------|---------------------|---|
| 1. | Ms. Aksha Dhawan | <ul style="list-style-type: none"> ▪ M.Sc., Indian Institute of Technology Bombay (2016-2018). ▪ Junior Research Fellow, All India Institute of Medical Sciences, New Delhi (Aug'2018-Present) |
| 2. | Ms. Poorna Khanna | <ul style="list-style-type: none"> ▪ M.Sc. Environment Management (2017-19) ▪ Assistant Consultant in EIA study Company: Nippon Koei Pvt. Ltd. Project- JICA assisted Madhya Pradesh Rural water supply and sanitation project. |
| 3. | Gargi Vats | <ul style="list-style-type: none"> ▪ M.Sc., Biodiversity and Conservation, IP University (2016-18) |

| | | |
|-----|-------------------|--|
| | | <ul style="list-style-type: none"> ▪ QualifiedUGC-NET and ASRB-NET |
| 4. | Ankita Ghosh | <ul style="list-style-type: none"> ▪ M.Sc.Environmental science, Gautam Buddha University ▪ Qualified UGC NET and ICAR NET |
| 5. | Ms. Akshita | M.Sc. Biotechnology and Bioinformatics, La Trobe University, Australia |
| 6. | Urja Biswas | M. Sc. Biotechnology, Rajasthan University |
| 7. | Shilpa Anand | Sales Manager, Reliance General Insurance |
| 8. | Sonakshi Mehrotra | M. Sc. Biodiversity and Conservation, Guru Gobind Singh Indraprastha University |
| 9. | Manmeet Kaur | Teacher, Happy School Daryaganj |
| 10. | Aditi | M. Sc. Genomics, Madurai Kamaraj University (Cleared GATE) |
| 11. | Meenu Kushwaha | M. Sc. Forensic Science, Department of Anthropology, University of Delhi (2016-18) |

12. Some Glimpses







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