

DEPARTMENT OF ZOOLOGY

<http://zoology.du.ac.in/>



Microbes To Human



MUSEUM



Vision

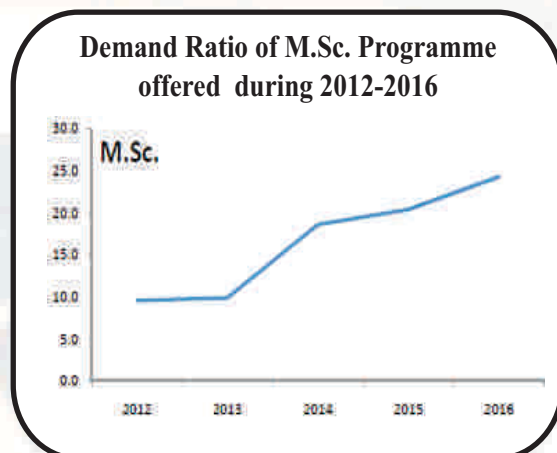
To develop a world class center of excellence in education, training & research in the field of Zoology where teaching and research encrust detailed understanding from microbes to human.

Mission

1. To impart holistic understanding of Zoology by “redefining Zoology” to students of every age so that they develop interest in Science.
2. To develop teaching and research programmes that has relevance in the lives of society today and tomorrow.
3. To impart a global scientific view point and skills among students to revamp their employment perspective.
4. To continuously evaluate our performance against National and International benchmarks and to develop dynamic programmes according to the need of the society leading to global tie-ups to meet stakeholder student's requirements.

Department of Zoology offers total 28 courses in M.Sc. Zoology Program

Type	Number	Semester	To be selected
Core	10	I, II, III	All
Electives	6	III	2
Electives (in stream)	12 (4 streams)	IV	3 (1 stream)
Dissertation		IV	yes



PART I: Semester – 1

ZOOL 101	Genetics and Cytogenetics
ZOOL 102	Principles of Gene Manipulation
ZOOL 103	Comparative Animal Physiology
ZOOL 104	Metabolism: Concepts and Regulation

PART I: Semester – 2

ZOOL 201	Developmental Biology
ZOOL 202	Systematics, Biodiversity and Evolution
ZOOL 203	Immunology
ZOOL 204	Molecular Cell Biology

PART II: Semester – 3

Two papers ZOOL 301 and ZOOL 302 (inter-disciplinary) are compulsory.

Two optional papers are to be selected by each student:

- One paper from ZOOL 303, ZOOL 304 or ZOOL 305
- One paper from ZOOL 306, ZOOL 307 or ZOOL 308

Bioinformatics

ZOOL 303	Biology of Parasitism
ZOOL 304	Chronobiology
ZOOL 305	Protein Structure, Function and Evolution
ZOOL 306	Structure and Function of Genes
ZOOL 307	Animal Behavior
ZOOL 308	Comparative Endocrin Physiology

PART II: Semester – 4

Student will select any one of the four streams each stream consisting of three papers. Besides this, each student will complete a Dissertation, which would be theoretical and not involve any laboratory components.

Stream 1 Entomology

ZOOL 4101	Insect Diversity, Society and Evolution
ZOOL 4102	Insect Physiology, Toxicology and Vector Biology
ZOOL 4103	Insect Ecology and Agricultural Entomology

Stream 2 Fish Biology

ZOOL 4201	Evolution and Functional Anatomy of Fish
ZOOL 4202	Aquatic Resources and Their Conservation
ZOOL 4203	Aquaculture

Stream 3 Genomics, Metagenomics and Epigenetics

ZOOL 4301	Genomics
ZOOL 4302	Metagenomics
ZOOL 4303	Epigenetics and Chromatin Biology

Stream 4 Molecular Endocrinology and Reproduction

ZOOL 4401	Neuroendocrinology
ZOOL 4402	Molecular Endocrinology
ZOOL 4403	Biology of Reproduction
ZOOL 4004	Dissertation

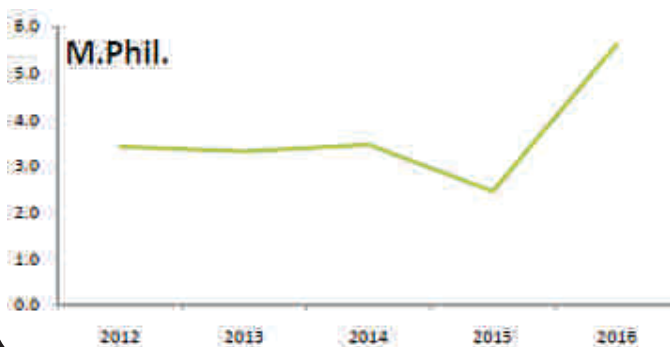
Mandatory Course work for M.Phil. and Ph.D. as per the guidelines in the Ordinance VI B :

Paper I - Basic Research Methodology

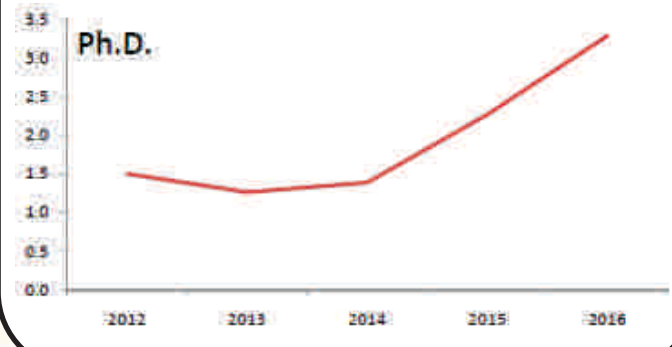
Paper II - Advanced Research tools and Techniques

Paper III - Presentation on 'Recent Trends in Zoology'

Demand Ratio of M.Phil. Programme offered during 2012-2016



Demand Ratio of Ph.D. Programme offered during 2012-2016



Department of Zoology
University of Delhi, India

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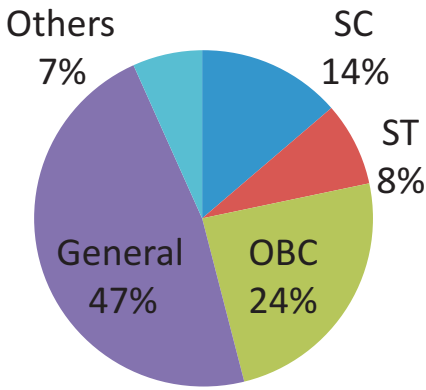


Welcome To Department of Zoology

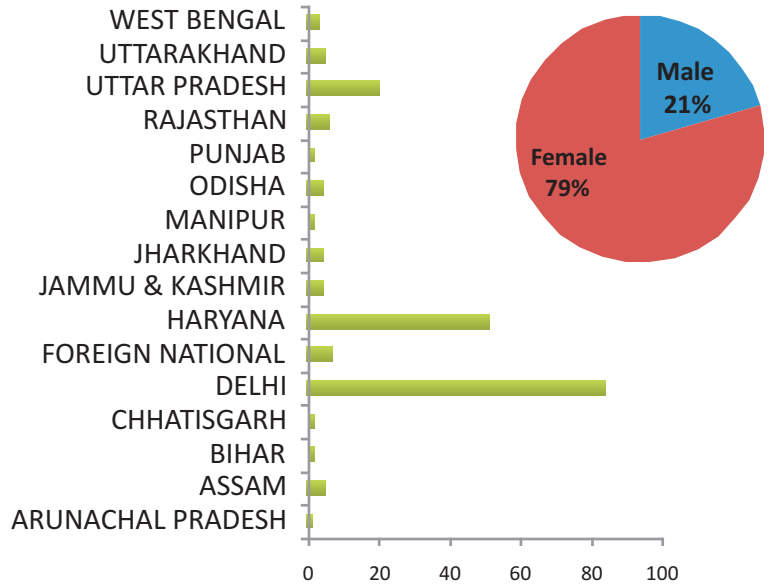
[News And Events](#)

For course details visit <http://zoology.du.ac.in>

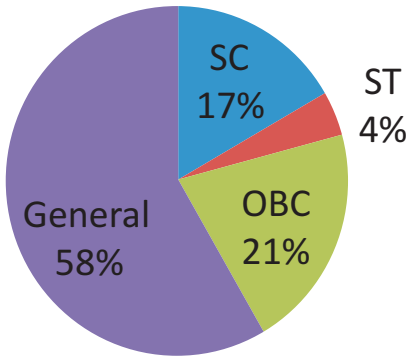
Student's Diversity



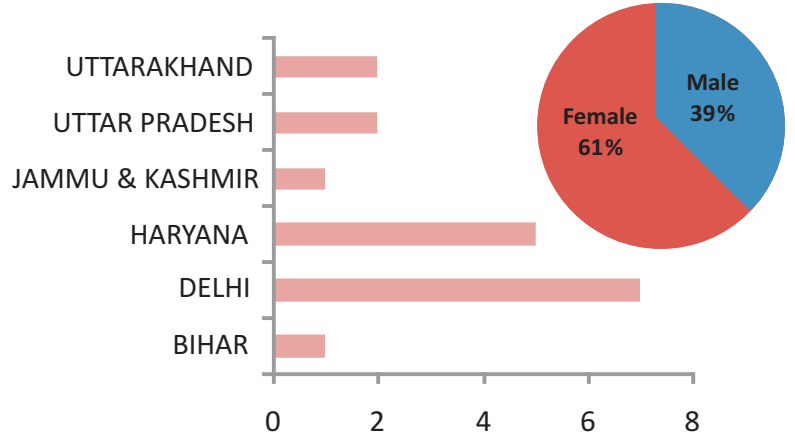
M.Sc.



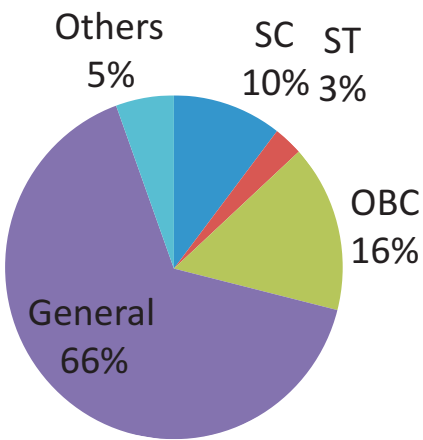
M.Sc. (July 2017)
198 Students



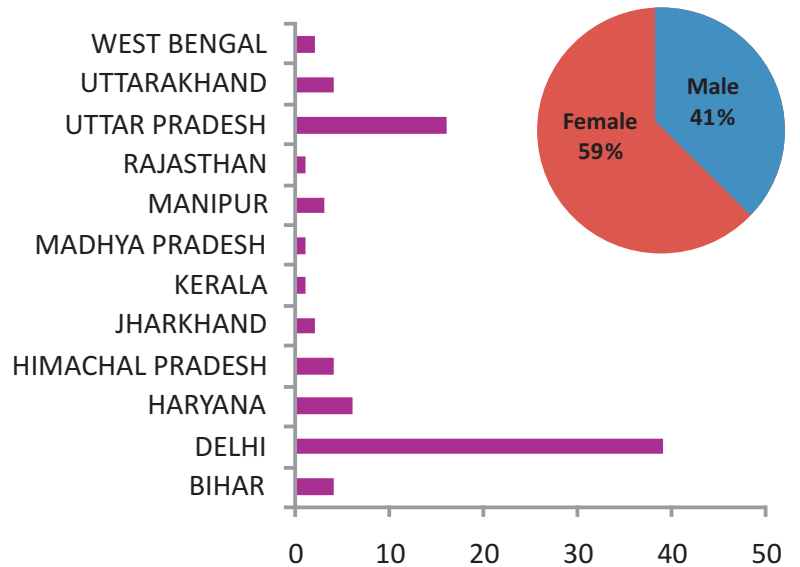
M.Phil.



M.Phil. (Dec. 2017)
18 Students



Ph.D.

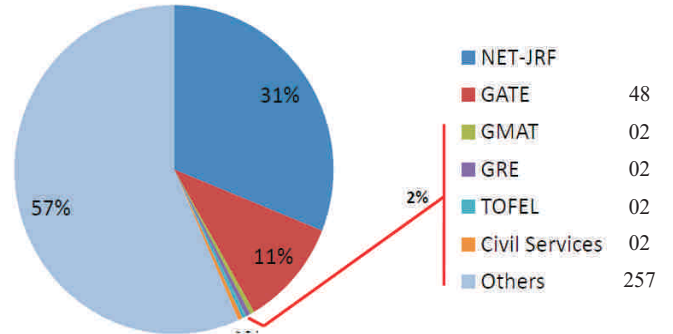


Ph.D. (Dec. 2017)
104 Students

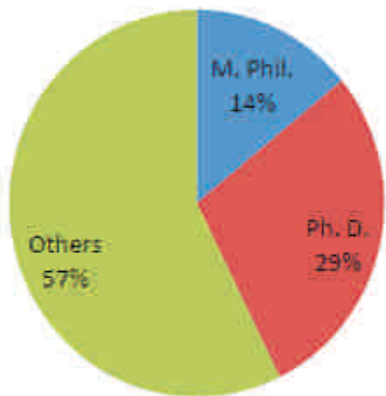
Student's Progression



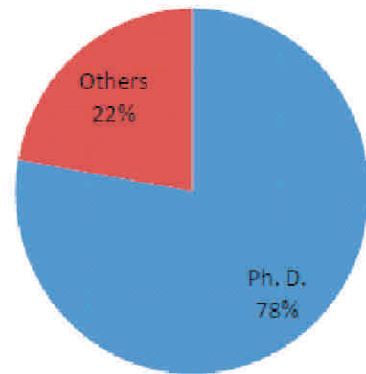
Exam Qualified by Students of M. Sc.



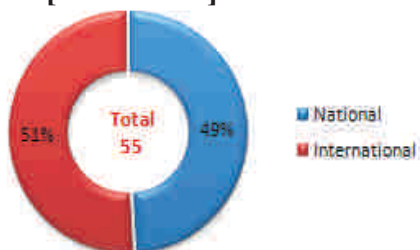
After M.Sc.



After M.Phil.

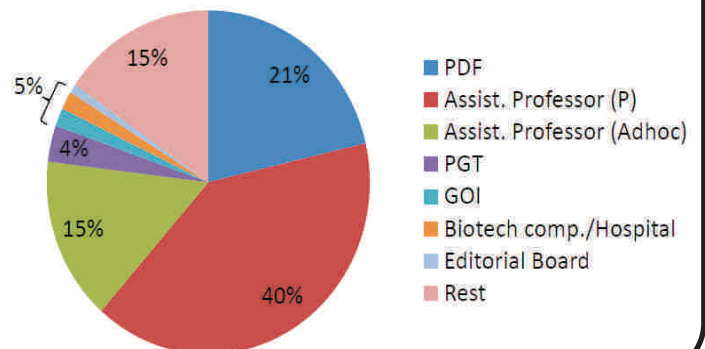


Research student participation in conferences [2015-2017]



Student awards for poster and oral presentations
National: 9
International: 4

Placement of students after Ph.D.



1

ICT-enabled Classroom (3)

2

Laboratory (Teaching - 7 and Research - 18)

3

Central Instrumentation Facility

4

Library (10293) Books

5

Animal house

6

Museum

7

Auditorium

8

Committee room

Classrooms

- All classrooms are well maintained and have the capacity to accommodate around 100 Students.
- Students centric learning through extensive use of ICT tools.
- Latest technology like digital board, mike and speakers are installed in each classroom to enhance the teaching.
- All classrooms are Wi-Fi enabled for richer learning experience.



Laboratory

- All the M.Sc. laboratories have instruments necessary for practicals as per the syllabus and hands on experience in various techniques.
- Technically well adept staffs are appointed in each laboratory to assist students and look after the maintenance of instruments.
- Laboratories are as per GPL standard.

Some of the major instruments in the laboratories are:

- ★ Spectrophotometer
- ★ Refrigerated shaker
- ★ Data Acquisition system
- ★ Centrifuges
- ★ Electrophoresis units
- ★ Thermocycler
- ★ Laminar Flow
- ★ Microscopes



Central Instrumentation Facility

- A common 'central instrumentation facility' (CIF) is available for research scholars.
- CIF is equipped with instruments required to meet the growing demand of various research laboratories and scientific communities.
- All the instruments are maintained regularly by a CIF maintenance committee.
- Instruments includes FPLC, Cryostat, GC, Sonicator, FACS, Ultracentrifuge, Nanodrop etc.



Auditorium

- Department has a very well-maintained auditorium to conduct various academic activities and functions.
- It can accommodate 150 audience.
- Advance audio visual system is installed in the auditorium along with Wi-Fi facility.



Museum

- Department of Zoology has a pride to maintain first 'Natural History Museum' in India.
- Museum is very helpful to educate students about the taxidermic specimens of various species.



Library

- In the library 10,000 books covering almost entire discipline of Zoology and archive books are present.
- Library is equipped with computers and Wi-Fi facilities to access online journals and recent scientific updates.
- Library has a serene atmosphere for deeper and concentrator study of insatiable thirst of voracious readers.



Animal House

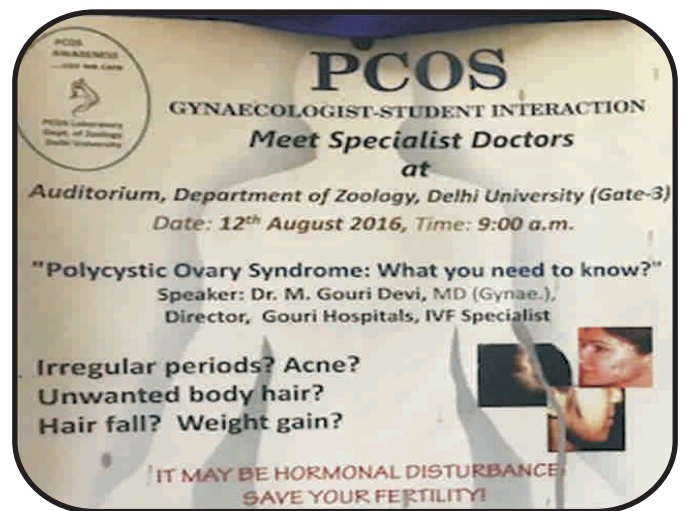
- Department is well equipped with Animal House Facility.
- Animal house strictly follows guidelines approved by Committee for the Purpose of Control and Supervision of Experiments on Animals (CPCSEA) and its registration is valid up till 21st March, 2019.
- All the protocols for animal research has been approved by IAEC.
- Animal house has a disposal facility which works according to the guidelines provided by the committee to disposal biologic waste.
- A veterinary doctor is available in the animal house to look after the in house animals and also to guide the students.



Outreach Activities

Our outreach programme follows a motto “Lab to the Society”.

- The aim of our outreach activities is to spread knowledge and increase awareness about current issues in the society related to health, environment, agriculture and fish farming.
- Many of the faculty members disseminate their research to the public by visiting to village schools and Colleges Students and Teachers from various schools and Colleges also visit to the department for science wifi awareness etc.
- This large degree of interaction is facilitated by the fact that research conducted in the department attracts much interest from children and can be linked to national curricula.



- **Good governance :**

- Democratic and participatory academic and administrative functions through committees
- Transparency

- **Creation of research culture among students and social bonding through community service :**

- High amount of Extramural Research grants
- Publications in high impact peer reviewed journals
- High h-index
- Technology/skill development-leading to better employment

Prof. Rup Lal



Area of Interest: Bioremediation of HCH contaminated agricultural sites by ‘bioaugmentation’ and ‘biostimulation’. His group explored the potential of ‘enzymatic bioremediation’ by deploying enzymes involved in degradation of HCH for clean-up of such sites, and have completed the genome of a bacterium that produces rifamycin.

Email-Id: ruplal@gmail.com

Prof. M.M. Chaturvedi



Area of Interest: Chromatin Remodeling & Regulation of Gene Expression, Mechanism of Cytokine Action & Signal Transduction, Inflammation & Cancer and Epigenetic Regulation during Liver Regeneration. His group has found a novel H3-specific protease that specifically cleaves N-terminal portion of histone H3, thereby removes epigenetic marks on it.

Email-Id: mchaturvedi@zoology.du.ac.in

Prof. Umesh Rai



Area of Interest: Comparative Immuno-endocrinology & Reproductive Physiology using both in-vivo and in-vitro approaches. His group has investigated cell-cell interactions in the testis, Leydig cell activities by Sertoli cells, mast cells and testicular macrophages. In ectotherm vertebrates, they are working on endocrine and paracrine regulation of testicular immune responses

Email-Id: rai_u@rediffmail.com

Prof. Rina Chakrabarti



Area of Interest: Fish Nutrition and Aquaculture. Her group developed aquaculture techniques for fish and fish feed, e.g. zooplankton, and the role of zooplankton in larviculture. They have designed an eco-friendly recirculating system using a combination of biological filter and hydroponic system.

Email-Id: aquaresearchlab@yahoo.co.in

Prof. Neeta Sehgal



Area of Interest: Fish reproductive physiology and allied areas. Her group established the role of estrogens in regulating the synthesis of vitellogenin and choriogenin in the liver. Their current focus is on the mechanism of egg hardening, that is essential for successful embryogenesis.

Email-Id: neetasehgal.du@gmail.com

Prof. Vinod Kumar



Area of Interest: Physiology (Chronobiology/Physiology of seasonal reproduction and migration/Behavioural Neuroscience), Endocrinology (Comparative Endocrinology/Neuroendocrinology), Avian Behaviour and Life history studies.

Email-Id: drvkumar11@gmail.com

Prof. R. K. Seth



Area of Interest: Applied Entomology & Radiation Biology. His group is involved in developing an environmentally safe biorational pest management strategy using nuclear techniques.

Email-Id: rkseth57@gmail.com

Prof. Dileep K. Singh



Area of Interest: Environmental Toxicology; Pesticide Toxicology & Bioremediation, Soil microbiology and Food & Feed traceability.

Email-Id: dileepksingh@gmail.com

Prof. Rita Singh



Area of Interest: Cell regulatory mechanisms, Molecular defects in human PCOS & infertility and Proteomics based diagnostic tools.

Email-Id: ritas@zoology.du.ac.in

Prof. Shibnath Mazumder



Area of Interest: Immunobiology of host pathogen interactions and Immunotoxicology using both fish and mouse model. His group identified the role of virulence plasmid in pathogenesis induced by *Aeromonas hydrophila* and suggested mechanisms by which the bacterium induces host cell apoptosis.

Email-Id: shibnath1@yahoo.co.in

Prof. Anju Shrivastava



Area of Interest: Tumor Immunomodulation, Regulation of signaling mechanism in Macrophages, Neutrophils & Tumor Cells and Phyto-chemical mediated changes in epigenetic regulation of various parameters in cancer progression and immunomodulation.

Email-Id: ashrivastava@zoology.du.ac.in

Prof. S. Basu-Modak



Area of Interest: Molecular Genetics. Her group is studying the role of the oxidative stress inducible gene Heme oxygenase 1 (*Hmox1*) in development. They are analysing the expression of this gene during normal mouse development and studying the consequences of its mutation in the gene-targeted mouse.

Email-Id: sbasumodak@zoology.du.ac.in

Prof. Rajagopal Raman



Area of Interest: Gut Microbiology, Vector Biology, Xenobiotic degradation. His group is studying the role of gut microbes in growth and development of *Helicoverpa armigera* and *Bemisia tabaci*.

Email-Id: zoorajagopal@gmail.com

Prof. Mallikajurn Shakarad



Area of Interest: Evolutionary Genetics, Population Genetics, Behavioural Genetics, Behavioral Ecology & Sociobiology, and Biodiversity.

Email-Id: beelab.ms@gmail.com

Prof. Namita Agarwal



Area of Interest: Neurodegenerative diseases such as Huntington Disease, Parkinson Disease, Amyotrophic Lateral Sclerosis (ALS) and Alzheimer Disease. Their group has humanized flies (*Drosophila*) by inserting mutant human disease genes such as the Huntington's gene into flies.

Email-Id: nagrawaluci@gmail.com

Prof. Y. Singh



Area of Interest: Bacterial pathogenesis, Bacterial protein toxins and Signal transduction in Bacteria.

Email-Id: ysingh@zoology.du.ac.in

Prof. Alok C. Bharti



Area of Interest: - Molecular Oncology & Biochemistry, Transcriptional Regulation, Cancer Stem Cell Biology, Host-Virus Interactions, Tumor Immunology and Molecular Diagnostics

Email-Id: alokchandrab@yahoo.com

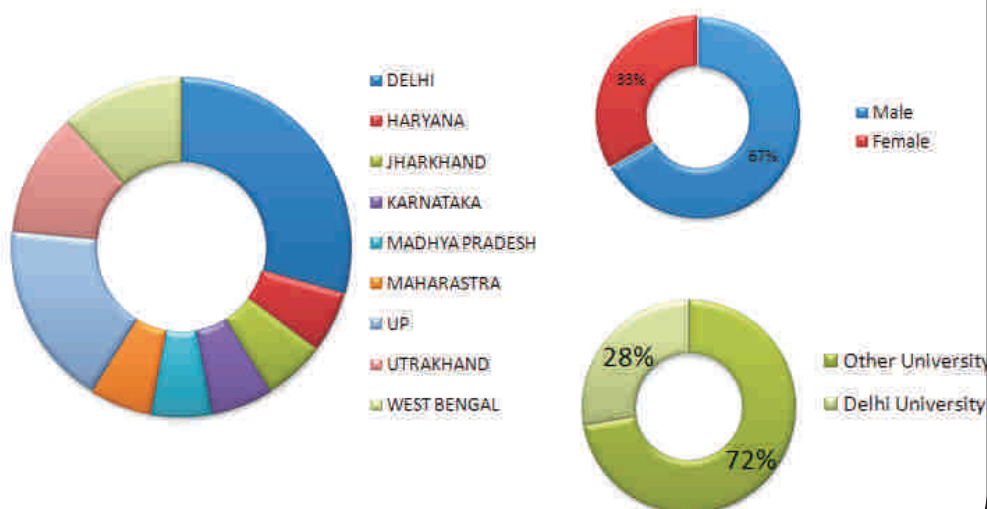
Dr. R.K. Negi



Area of Interest: Fish and Fisheries/ Aquatic Biodiversity/ Fish Genomics/ Metagenomics.

Email-Id: negigurukul@gmail.com

Faculty Distribution

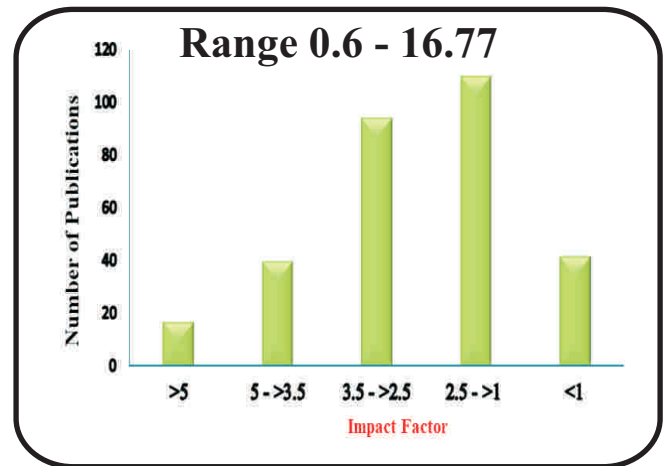
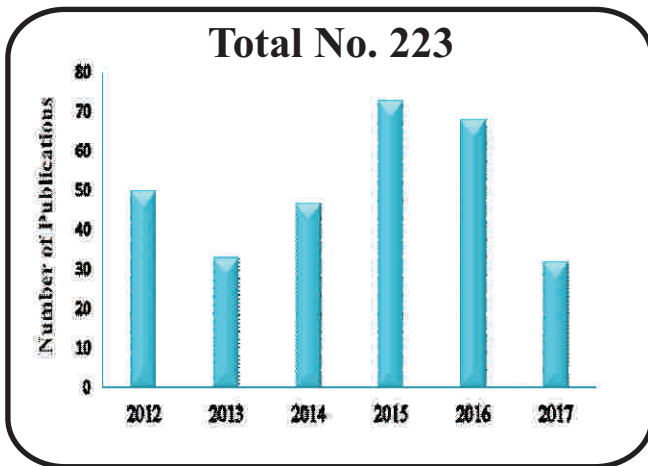


Awards and Recognition (Faculty)

Elected Fellow	Total	Current (2012-17)
Indian National Science Academy (INSA)	9	2
Indian Academy of Science(IAS)		2
National Academy of Science (NAS)	6	4
National Academy of Agricultural Science (NAAS)	2	2
J C Bose Fellow	2	1
Association of Microbiology of India (FAMI)		2
Royal Entomological Society -FRES(UK)		1
Nuclear and Agricultural society -FNAS		1
Entomological Society of India- FESI		1
American society for Microbiology (ASM)		2
International Society for Microbial Ecology, The Netherlands		1

Award	Faculty	Year
• DBT Crest Award, Visiting scientist, Department of Cancer Research at Perelman School of medicine , University of Pennsylvania, USA	Rita Singh	2012 - 2013
• INSA Best Teacher Award	Sibnath Majumdar	2012
• Prof. B. N. Johari Awards for Microbial Diversity by AMI	Rup Lal	2016
• Prof.Appaji Rao Best Mentor Award of IISc AA	Yogendra Singh	2017

Publications and Grants

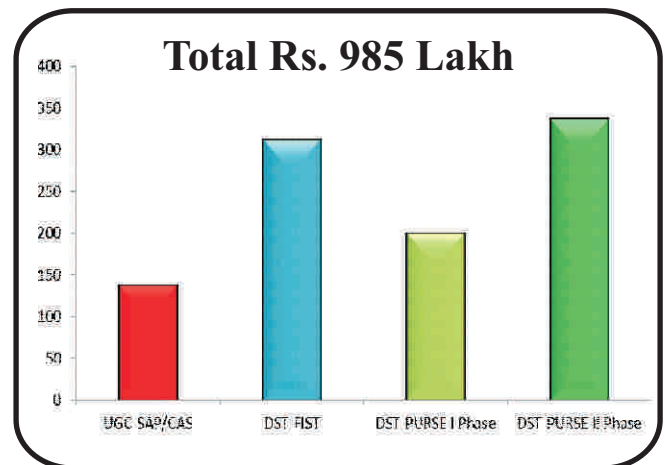
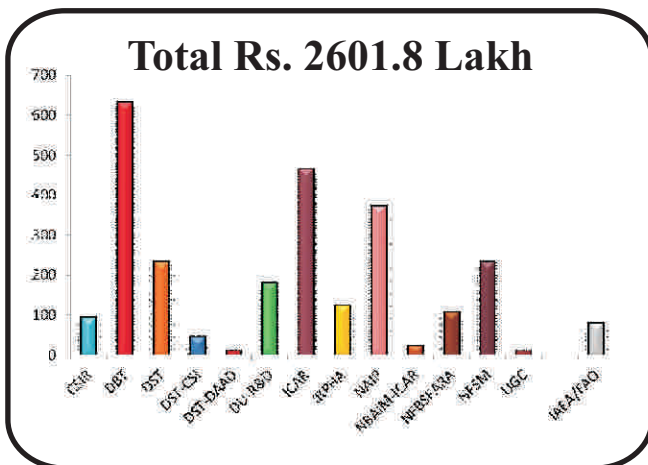


h-index of Faculty ranges from 10-44

Citation Index-2306

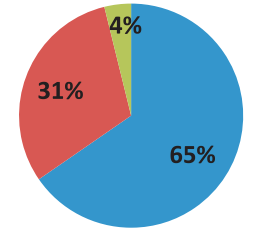
**Books edited- 4
Chapters in Books- 16**

Grants



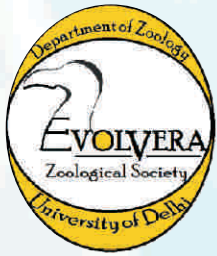
Support Staff

Designation	Number
Section Officer	1
PA	1
Sr. Assistant	1
Assistant	1
Junior Assistant	2
Project assistant/Consultant	1
To	1
STA	6
TA	9
Lab Assistant	6
Lab attendant	15
Veterinarian	1
Animal Attendant	3
Office Attendant	2
Safai Karamchari	2



■ Permanent
■ Contractual
■ DST-Purse Project





Evolvera Zoological Society

**OUR MOTO : “An innovation for today,
an invention for tomorrow”.**

“आज की नवीनता, कल का आविष्कार”

EVENTS ORGANISED

- Invited Lectures by eminent scientists • Journal Club • Annual Festival
- Lohri Celebration • Fun for-Togetherness • NGO donation Drive

Glimpses



President : Dinesh Raj Pant
Treasurer : Monica
Joint Secretary : Sachin
Cultural Secretary : Sheetal Tushir

Vice-President : Mohit Jadli
General Secretary : Yashankita
Academic Secretary: Sulochana Bagri

ZOOM



DEPARTMENT OF ZOOLOGY

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