SCHOOL OF BIOTECHNOLOGY

The School of Biotechnology was one of the first six centres established under the aegis of Department of Biotechnology (DBT), Govt. of India for carrying out Postgraduate teaching and research in areas related to Biotechnology. Initially established as a Special Centre for Biotechnology in 1985, it was upgraded to the level of a School in the year 2006.

Over the years the Biotechnology programme at JNU has established itself as a leading academic programme both from the teaching and research point of view. The faculty of the school is internationally recognized for basic and applied aspects of biotechnology research.

The competitive and vibrant Ph.D. programme in basic and applied biotechnology embarks on creating a strong academic research foundation in the following cutting-edge areas of Biotechnology:

- Molecular Biology and Genetic Engineering
- HyPoxic & Tumor Biology
- Molecular Biology of infectious diseases, Vaccine development
- Protein Engineering, Protein Structure, stability and folding
- Biochemical Engineering, Metabolic Engineering and Bioprocess Technology
- Transcription and Human Biology
- Structural Biology and Bioinformatics
- Nanobiotechnology and Biosensors
- Cilia Biology, Ciliopathes and Optogenetics
- Cell Signalling
- Immunology, Mucosal Immunity and HIV/AIDS Biology
- Plant Molecular Biology and Biotechnology
- Computer Programming
- Chemical and Synthetic Biology
- Molecular basis of human viral diseases
- Metagenomics and Environmental Biotechnology
- Biotherapeutics Production
- Molecular Modeling and Cheminformatics
- Functional Genomics of Complex Diseases
- “Rare genetic disorders” alongwith cell signaling
- Inflammation associated Carcinogenesis in core area
- Cellular processes in eukaryotes, Regulated proteolysis and cell cycle
- Host microbiota interaction, Biology of H. pylori infection and inflammation associated infections

Strong emphasis is placed on the interdisciplinary nature of Biotechnology; Thus, students coming from both the Physical and Biological Sciences streams are welcome.

The School of Biotechnology is well endowed with State of the art facilities for cutting edge research in Biotechnology. Some of the major equipments/facilities in the school are as follows:

- Central Instrumentation Facility
- Recombinant Product Development Facility of GLP standard
- Spectroscopic Facility
- Microcalorimetric Facility
- Microscopic Facility
- Protein production and purification Facility
- Biosafety Level 2 Facility
- Biosafety Level 3 Facility
- Plant Tissue Culture Facility

Central Instruments Facility

The School has a Central Instruments Facility (CIF) equipped with all the basic and advanced equipments/ instruments required for modern day research in biotechnology. The facility is open round the clock for both the students and the faculty.

Recombinant Product Development Facility of GLP standards (RPDF-GLP)

Under the FIST support from the Department of Science and Technology (DST), the School has created a Recombinant Product Development Facility of GLP standard. The facility includes all necessary up stream and downstream equipments, and quality control and testing equipments required for the recombinant product development.

Spectroscopic facility:

The spectroscopic facility includes a number of highly sensitive UV-Visible spectrophotometers, Fluorescence spectrometers, Circular Dichroism spectrometer with stopped flow attachment, FT-IR spectrometer and Nano drop Spectrophotometer etc.

Microcalorimetric facility:

This facility includes Microcal differential scanning calorimetric and isothermal titration calorimetric set up for studying bimolecular stability, folding and interactions.

Microscopic facility:

This includes Simple microscopes, Fluorescent microscopes, Laser Scanning Confocal microscope, Phase contrast microscopes.

Protein Production and Purification Facility:

This facility includes refrigerated incubator shakers, Bacterial and Mammalian cell bioreactors with online FTIR analysis, AKTA-Prime, AKTA-Explorer FPLCprotein purification systems, Shimadzu HPLC protein purification system.

Other equipments:

Other specialized analytical facilities that are available in various labs and the Central facility include Real Time PCR, ELISA readers, Elispot Reader and Fluorescence Activated Cell Sorter, Bioreactors, FACS, Elispot, Denaturing Gradient Gel Electrophoresis etc.

In addition to the above, the University has an Advanced Instrumentation Facility. Details about the facility can be looked at: http://www.jnu.ac.in/AIRF

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility	Additional information	Viva/Non Viva	Course outline/guidelines	Paper will be objective/ subjective/ both
1	School of Biotechnology	Biotechnology- SBTH (904)	Only those candidates shall be considered for admission to the Ph.D. Programme who have: (a) Obtained M.Phil. and/or M.Tech. degree or equivalent of a recognized University/Institution; OR (b) At least 2 years research experience in reputed institutions with research publication(s) comparable to M.Phil. standard. In addition, they should have obtained Master's Degree with 55% marks or equivalent FGPA in 10 point scale/comparable standard where the grading is based on system other than 10 point scale.	**For detail please check JNU website**	**Viva - Voce**	**The entrance exam question paper would be prepared as per UGC Regulations 2016** **For detail please check JNU website**	**For detail please check JNU website**