



**DEPARTMENT OF  
BIOTECHNOLOGY,  
PANJAB  
UNIVERSITY,  
CHANDIGARH**

**PLACEMENT  
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# Chairperson's Message

**Dear Recruiters,**

**Greetings from the Department of Biotechnology,  
Panjab University, Chandigarh!**

The Department of Biotechnology at Panjab University came into existence as Centre for Biotechnology in 1989 and in 1994 it was upgraded to full-fledged Department. It started its academic programs with the support from DBT, Govt. of India and in 2001, the B.Sc. (Hons. School) degree in Biotechnology course of five years integrated B.Sc. and M.Sc. started. The Department has been liberally supported by DST (FIST & PURSE) and UGC (SAP) grants and has research collaborations with IMTECH Chandigarh, CSIO Chandigarh, PGIMER Chandigarh, NABI, CIAB Mohali for collaborative research and teaching. Most of the faculty members have been trained abroad and have received prestigious national and international awards.

The students trained from the department are occupying prestigious positions not only in India but internationally in leading academic institutes, research centers and industry. The current batches of the students are trained in a holistic retinue which imbibes them with theoretical knowledge as well as hands on practical experience. A six month research project is undertaken by each and every student and this gives them the necessary skills to handle challenging problems in research and industry.

I am sure the organizations hiring our well trained students will find them an asset and my best wishes to the students in their endeavours.

**Prof. Desh Deepak Singh**



# Placement Coordinators' Message

**Dear Recruiters,**

**Greetings from the Department of Biotechnology,  
Panjab University, Chandigarh!**

It gives me immense pleasure to invite and welcome all the prospective recruiters to the Department of Biotechnology, Panjab University, Chandigarh. The placement cell endeavours to provide a platform to the students to interact and learn about different career avenues and make the right choice. Since 1989, the experienced faculty of the Department has been striving for holistic development of students in the very dynamic field of Biotechnology. Five year integrated programme in Biotechnology enables the students to strengthen their basic and advanced subject knowledge. In addition, good practical skill is the strength of our students. Independent project work for a semester sharpens their critical thinking as well as their scientific writing and oral communication skills. Active participation of our students in organising academic events like conferences, symposia, workshops and extra - curricular activities including sports day, educational trips, festival celebrations, makes them good team players and inculcates leadership qualities.

I envisage a strong relationship with the recruiters that will be built on merit and quality that can be found in our students and the growth prospects provided by the recruiting organization. I hope the interactions will be very fruitful, both for our valued recruiters and the students of Biotechnology Department.

**Prof. Neena Capalash**

# About

## Panjab University, Chandigarh

Panjab University, initiated at Lahore in 1882, has a long tradition of pursuing excellence in teaching and research in science and technology, humanities, social sciences, performing arts and sports. In independent India, Panjab University with its Campus at Chandigarh and nearly two hundred colleges in Punjab state and Chandigarh U.T., has served various societal needs with distinction. Panjab University moved here during 1958–1960. Till the re-organisation of Punjab in 1966, the University had its regional centres at Rohtak, Shimla and Jalandhar and its affiliated colleges were located in the States of Punjab, Haryana and Himachal Pradesh and the Union Territory of Chandigarh. Panjab University Campus at Chandigarh accommodates seventy three teaching and research departments/institutes/centres besides four independent Chairs for research. Furthermore, the university has 189 affiliated/constituent colleges spread over Punjab and Chandigarh besides Regional Centres at Muktsar, Ludhiana, Hoshiarpur and Kauni. In addition, there is the Vishveshvaranand Vishwa Bandhu Institute of Sanskrit and Indological Studies at Hoshiarpur.

### **The Campus**

Panjab University is located in Sector 14 and Sector 25 of Chandigarh, spreading across an area of almost 550 acres. Chandigarh city is well connected to surrounding areas via air, railway and road transportations. The layout of two campuses of the University has been conceived to meet the academic, administrative, sports/recreational, residential and other requirements of a growing Panjab University. To make it self-contained, infrastructural facilities like its own Shopping Centre, Health Centre, Bank, Post office, Swimming Pool, Gymnasium, Sports Grounds, Botanical Gardens, well maintained parks, Open Air Theatre, Guest Houses, Faculty House, Seminar Complexes, Alumni House, Community Centre and a school, have been provided. Besides these facilities, the University Campus has 8 hostels for boys, 9 hostels for girls, a Working Women Hostel and 2 sports hostels. A cluster of prominent buildings like the Gandhi Bhawan, the Fine Arts Museum, the University Library and the Student Centre form the hub of social interaction.

### **Teaching Departments/Centres**

The academic institutes on the campus and four Regional Centres are grouped under the Faculties of Arts, Science, Languages, Law, Education and Fine Arts, Business Management and Commerce, Engineering and Technology, Medical Sciences, Pharmaceutical Sciences and Dairying, Animal Husbandry and Agriculture. Most of the departments have their own specialized libraries, and the working period runs for at least 180 days in a year.

The University School of Open Learning, a multi-disciplinary department, caters to more than 25000 distance learners and offers over 20 traditional and job oriented courses.





## About the Department of Biotechnology

The Department of Biotechnology by starting PG Diploma in Biotechnology at Panjab University (North Campus) came into existence as centre in 1989. First batch of M.Sc. Biotechnology was started from the academic session 1991-92. In 1993 after obtaining financial aid from UGC and DBT, Govt. of India, it was upgraded to the level of full-fledged Department.

The Department is rated as one of the best in India for imparting state of art technology to the students in the field of biotechnology. It was the first Department in North India to start B.Sc. (Hons. School) course in Biotechnology. Most of the faculty members have been trained abroad and are recipient of prestigious National and International awards. The faculty has been awarded several research projects by DBT, DST, UGC, CSIR & ICMR and has produced several Ph.Ds. The Department has several MoU/Research Interactions with IMTECH (Chandigarh), CSIO (Chandigarh), PGIMER (Chandigarh), NABI (Mohali), CIAB (Mohali), ICGEB (Delhi), IHBT (Palampur), RRL (Jammu), NDRI (Karnal), NBGAR (Karnal) and pharmaceutical industry. The faculty of the department publishes research papers in National and International journals on regular basis. Most of the students qualify UGC and CSIR entrance test and are admitted to Ph.D. programmes in prestigious research institutions in India. Some students of the department also go abroad to pursue higher studies.

The Department is preferred by foreign students to pursue PhD through cultural exchange program. Every year, the department organizes workshop/symposium/seminar dealing with state of art technologies. Scientists of international repute are invited to deliver lectures. The department also acts as a nodal agency to popularize Biotechnology through an annual seminar on "Recent Techniques in Biotechnology" for B.Sc. and M.Sc. students of Colleges and Universities. On August 11th, 2014, the Department shifted from North Campus (Sector-14) to new building in South Campus (Sector-25) of Panjab University, Chandigarh.



## Grants and Ongoing Projects

Name of Project	Funding Agency	Principal Investigator
Rapid visual identification of <i>Acinetobacter baumannii</i> and its carbapenem resistance determinants using gold nanoparticle-based biosensors	ICMR	Dr Neena Capalash
Targeted editing of potato genome for production of true potato seeds (TPS)	NASF-ICAR	Dr Kashmir Singh
Functional characterization of TaMSL5-D	SERB	Dr Kashmir Singh
To study the crosstalk between long non-coding RNAs and MYB transcription factors for enhancement of drought tolerance in <i>Brassica</i> sp.	SERB	Dr Kashmir Singh
Genome Editing Mediated Nutritional Improvement of Potato ( <i>Solanum tuberosum</i> L.)	DBT	Dr Kashmir Singh

# Incomparable Mentors

## PROFESSORS

**Dr. Desh Deepak Singh**

**Structural Biology and Bioinformatics**

**Dr. Jagdeep Kaur**

**Cell Biology and Protein Biochemistry**

**Dr. Neena Capalash**

**Microbial Biotechnology and Cancer Epigenetics**

**Dr. Kashmir Singh**

**Plant Molecular Biology**

**Dr. Jagtar Singh**

**Molecular Epidemiology and Biochemical Engineering**



# Course Structure and Curriculum

## Courses offered-

Integrated BSc-MSc (Hons.)  
(5 years)

Bachelor of Science (Hons)  
Biotechnology (3 years)

Master of Science (Hons)  
Biotechnology (2 years)

Doctor of Philosophy

DEPARTMENT OF MICROBIOLOGY  
(2<sup>nd</sup> & 3<sup>rd</sup> FLOOR)  
DEPARTMENT OF BIOTECHNOLOGY  
(GROUND & 1<sup>st</sup> FLOOR)





## Bachelor of Science (Hons) Biotechnology

### First Semester

General Microbiology  
Molecular Biology  
English

### Second Semester

Biomolecules  
Cell biology  
Environmental Science

### Third Semester

Chemistry  
Enzymology  
Plant physiology  
Molecular Diagnostics  
Basics of Forensic

### Fourth Semester

Biochemistry and Metabolism  
Bio Analytical Tools  
Bioprocess Technology  
Biostatistics  
IPR, Bioethics and Biosafety

### Fifth Semester

Animal Biotechnology  
Recombinant DNA Technology  
Developmental Biology  
Environmental Biotechnology  
Microbial Physiology  
Genetics

### Sixth Semester

Immunology  
Plant Biotechnology  
Ecology and Environment  
Management  
Bioinformatics  
Medical Microbiology  
Food Biotechnology



## Master of Science (Hons) Biotechnology

### First Semester

Animal Cell Culture Technology  
Advanced Immunology  
Advanced Recombinant DNA  
Technology Advanced  
Molecular Biology

### Third Semester

Animal Biotechnology  
Plant Biotechnology  
Emerging Technologies  
Molecular Medicine  
Food Microbiology and Food  
Safety  
Trends in Biotechnology

### Second Semester

Bioinformatics  
Microbial Biotechnology  
Entrepreneurship  
Development  
Scientific Writing & Project  
Management

### Fourth Semester

Research Project  
Thesis  
Presentation & Viva

# Infrastructure

## Dedicated Classrooms

Department of Biotechnology has fully air-conditioned, well-furnished classrooms and offers top-notch facilities that are essential for the growth of students. Apart from this, all the classrooms are well equipped with multimedia systems to facilitate learning.



## Seminar hall

A well-furnished and spacious seminar hall is also available which is also equipped with multimedia systems. Time to time, various academic and co-curricular activities take place in this hall to help students learn outside their classrooms.



## **In-House Library**

The department has one dedicated library having books, journals, dissertations and Ph.D thesis related to biotechnology. It offers free book reading facility to promote healthy readership at all levels, to collect and preserve documents having research values.



## **IT Infrastructure**

The department is equipped with a state-of-the-art computer laboratory with 15 terminals connected to high-speed internet connectivity. The campus is Wi-Fi enabled, which provides internet access to the students.



## **Research Laboratories and Equipment**

The department has UG / PG and research labs. In addition to this, there are 2 Central Instrumentation rooms which are common for UG/PG/PhD students. The department has research facilities like Plant cell culture, Animal cell culture, Biosafety level-II, fermentation and cold room.



Major equipments available in the department include CD-spectrophotometer, HPLC, refrigerated centrifuge, High speed centrifuges, UV-visible / nanodrop spectrophotometer, PCRs, RT-PCRs, Gel doc systems, Chemi doc, Multimode ELISA, lyophilizers, Ultra low temperature freezers (-80 C), Thermo cycler, CO2 incubator, Millipore water purification system, Fluorescence microscope, Inverted microscope, Sonicator, Electroporator.

# Research Laboratories and Equipment



# Learning Outside Classroom



## Co-curricular activities

Educational visits and workshops are frequently organised in collaboration with research institutes like CRI-Kasauli, IMTECH, FRI-Dehradun and industries to give students an insight into how work is done in practical world.



## Interaction with Foreign students

A delegation of students from California State University, Channel Islands University, Drive Camarillo visits the department annually and interact with the students and exchange their ideas.



## Extra-curricular activities

Extra-curricular activities like Sports Day with indoor and outdoor games, festivals like Diwali, Lohri, occasions such as International Women's Day are celebrated in the department.



## Career Guidance and Counselling

Alumni of our department working in prominent research institutes and industries around the world stay in touch and frequently interact with students and share their experiences to help students choose the right path.

& Many more.....

# Leadership Talks

We at Department of Biotechnology always believe in overall development and skills enhancement of our students & henceforth were successful in organizing workshops to enhance the prowess of students in their respective domains

**Distinguished Lecture:** Biotechnology: From 1986 to the Present day

**Date :** 25th April, 2022.

**Speaker :** Dr. Manju Sharma (*Former secretary, Department of Biotechnology, Government of India*)

**Webinar :** Innovative Make in India Medical Devices

**Date :** 5th September, 2022.

**Speaker :** Dr. V. P. Kamboj (*FNASc, FNA, Former Director, CDRI-Lucknow*)

**Webinar :** Fulbright Fellowship Opportunities

**Date :** 20th May, 2022.

**Speaker :** Dean International Students, Panjab University, Chandigarh

**Webinar :** Biotechnology Led Enterprises: Prospects and Opportunities

**Date :** 28th February, 2022.

**Speaker :** Dr. Vibha Ahuja

**Seminar:** Diversity in Natural Products Research

**Date :** 17th August, 2022.

**Speaker :** Prof. Inderpal Singh (*NIPER*)

**Seminar:** National seminar on Intellectual Property Rights

**Date :** 29th August, 2022.

**Speaker :** NIPAM

**Distinguished Lecture:** Novel Treatment Strategies to attenuate Plaque Vulnerability in Atherosclerosis

**Date :** 16th February, 2023.

**Speaker :** Dr. Devendra K. Agrawal (*Professor and Director, Department of Translational Research, Western University of Health Sciences, California*)



# Workshops

**Workshop:** Fulbright Fellowship Opportunities

**Date :** 20th May, 2022.

**Speaker :** Dean International Students, Panjab University, Chandigarh

**Workshop:** Biorisk Management

**Collaborator:** Sandia National Laboratories

**Coordinator:** Dr. Neena Capalash

**Workshop:** Integrated Analysis of Multi-Omics Data

**Date:** March 21-22, 2023

**Speaker:** Prof. Ehesan Ali, INST

**Workshop:** CRISPR Genome Engineering (Hands-on Training)

**Date:** July 22-29, 2022

## Career counselling

**Title:** RNA Granules- Tiny dots with big impact.

**Date :** 4th November, 2022.

**Speaker :** Dr. Purusharth I. Rajyaguru (Associate Professor, Department of Biochemistry, IISc Bangalore)

**Title:** Interaction related to industries

**Date :** 26th November, 2022.

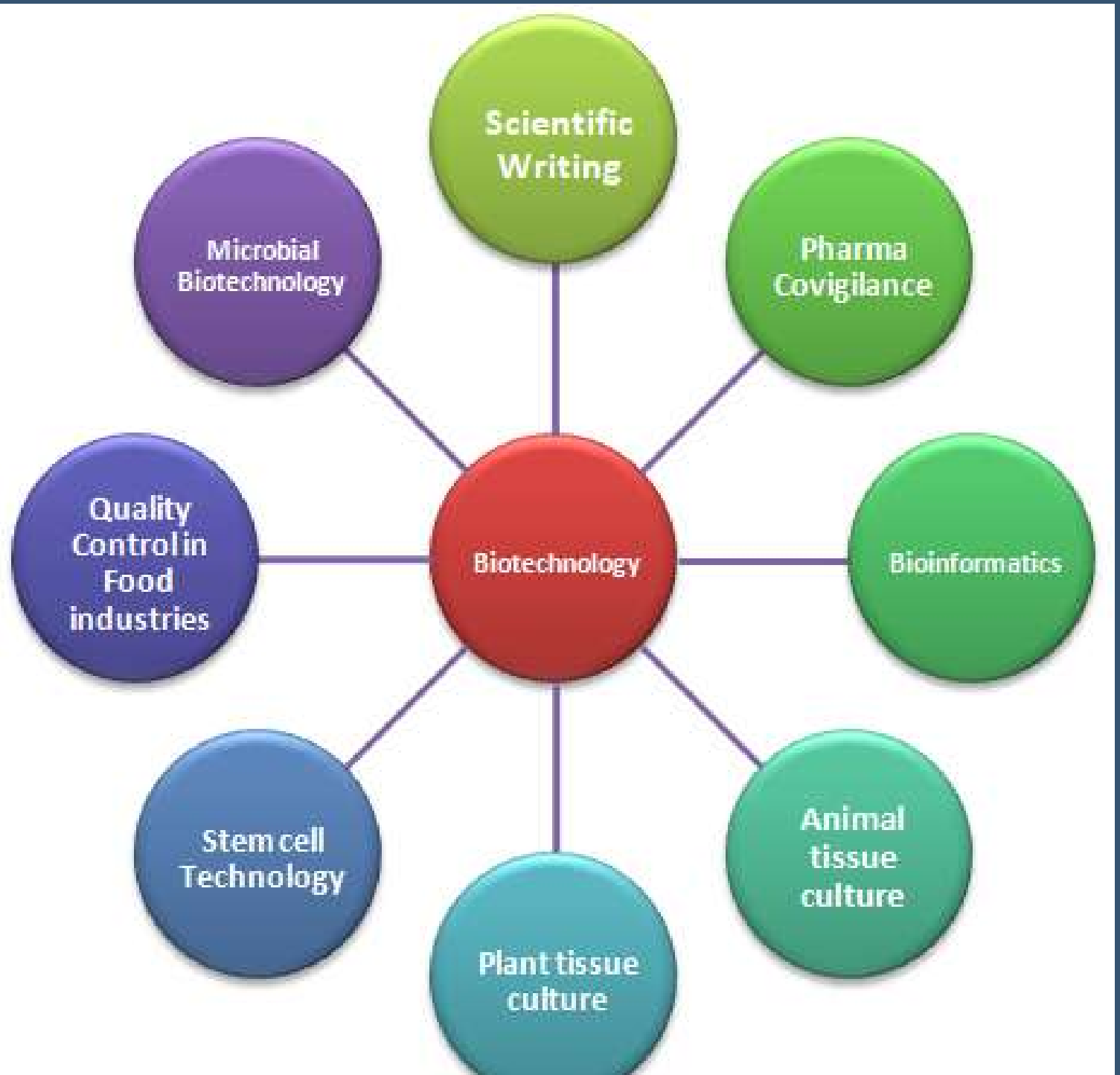
**Speaker :** Dr. Khamar (Executive Director, Cadila Pharmaceuticals)

# Why Recruit from

# Department of Biotechnology?

The students of our department are proficient in technical skills in microbiology, molecular biology, animal and plant cell culture, biochemistry, forensic sciences, immunological studies. Along with this, the students have the ability to multitask in busy environment, data processing, applying a scientific approach to problems, design, conduct and interpret a scientific research and communicate findings using models, charts and graphs.

The students become suitable for employment in various domains. Some of these are listed below :



# Recent Post doctoral fellows from the department

**Dr. Naina Garewal**

Virginia Tech, USA

**Dr. Lalit K Gautam**

University of Iowa, USA

**Dr. Harsimran Sidhu**

Université de Sherbrooke, Canada

**Dr. Garima Bhatia**

University of Pennsylvania, USA

# Prominent Recruiters

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Reliance  
Life Sciences



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CSIR-IHBT  
1983



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IN PURSUIT OF KNOWLEDGE



IISER



THIRUVANANTHAPURAM



Dept. of Animal Husbandry Punjab

  
Roots Analysis  
BUSINESS RESEARCH & CONSULTING



Vedantu