

DEPARTMENT OF MICROBIOLOGY

TEACHING FACULTY

Professor

Bhupinder Singh Chadha, Ph.D. (PAU, Ludhiana) **(Head)**
Daljit Singh Arora, Ph.D.(GNDU, Amritsar)
Harvinder Singh Saini, Ph.D. (PAU, Ludhiana)

Assistant Professor

Amarjeet Kaur, Ph.D.(GNDU, Amritsar)
Sukhraj Kaur, Ph.D.(NIPER, Mohali)

Associate Professor

Rajesh Kumari Manhas, Ph.D. (GNDU, Amritsar)
Sajid Husain, Ph.D.(AMU, Aligarh)

Courses offered

- [M.Sc. \(Microbiology\)](#)
- Ph.D.

Course Detail : M.Sc. Microbiology

Distribution of seats

Course Name	Duration (Years)	System	Total Seats	Reserved Categories			
				SC/ST	BC	RA	Others
M.Sc. Microbiology	2	Semester	50	12	3	4	6

Eligibility

- Bachelor of Science (10+2+3) degree in Biological/Life Sciences (Zoology/Botany/Biochemistry/Microbiology/Biotechnology/Industrial Microbiology/Agricultural Microbiology) with at least 50%marks(45% for SC/ST) in aggregate.
- Any other examination recognized equivalent thereto.

Mode of Admission

Admission will be based on merit of the candidate in the Entrance Test to be conducted by the Department.

Dates

a)	Fee deposit date in State Bank of India (Any Branch)	05.06.2017 to 27.06.2017
b)	Last Date for Online application Form submission	07.06.2017 to 30.06.2017
c)	Entrance Test	11.07.2017 at 02.00 p.m. - 03.00 p.m.

d)	Admission Counseling	14.07.2017
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Venue: Lecture Theatre Complex, GNDU, Amritsar.

Contact No.

Coordinator/Head 0183-2258802-09, 2450601-614 Ext. 3336

Fee(Approximate) Rs. 24060/-(1st.Sem.) Rs.8500/-(2nd Sem.)

Special Features

The courses taught during the M.Sc. program are comprehensively designed and regularly updated to train the students in different fields of microbiology. The students are given a project work assignment in the fourth semester so as to have 'hands on' training in different ongoing research projects in the department. The Department is equipped with basic and advanced facilities, including internet facility/connectivity, for microbiology related teaching and research. The Department has received special assistance grants under DST-FIST and UGC-SAP schemes for improvement of infrastructure. The faculty members of the department have received research grants from leading funding agencies like NAIP (World Bank), DST, DBT, UGC, CSIR, ICAR, AMAAS etc. The Department has active collaboration with International and National research institutes as well as reputed fermentation industries. The students of the Department are occupying good positions in industry, teaching and research institutes in India and abroad including USA, Canada, Europe and Australia.

Syllabus of entrance test for admission to M.Sc. Microbiology

Important Note : The test will be based on multiple choice questions and carry 100 marks.

- Unit I. Origin of Life, nomenclature and systems of classification: artificial and natural. Concept of cell, cell organelles, cell cycle, mitosis and meiosis.
- Unit II. Scope and History of Microbiology, spontaneous generation theory, Koch's postulates, Pasteur's contributions to microbiology. Sources of microorganisms, pure culture techniques. and preservation, bright field microscopy, Gram's staining.
- Unit III. Structure of Bacteria, bacterial cell wall, cell membrane, capsule, pili and spore. Classification of viruses, basic structure of a bacteriophage. Life cycle of bacteriophage (lytic and lysogenic).

- Unit IV. Morphology and structure of fungi & bacteria, Mode of reproduction and nutrition in bacteria and fungi.
- Unit V. Microbial nutrition: Growth medium (selective, differential, enrichment, complete, synthetic and minimal medium), factors affecting the growth of microorganisms.
- Unit VI. Microbial interactions: Commensalism, Amensalism, Symbiosis, Parasitism and Predation. Plant pathology, classification of plant pathogens, control measures.
- Unit VII. Biochemical pathways for metabolism of carbohydrates, lipids, proteins, Nitrogen fixation, Biogeochemical cycling and control of air, water and soil pollution.
- Unit VIII. Mutation, spontaneous & induced, chemical nature of genetic material, replication of DNA, Genetic code, Bacterial recombination, transformation, conjugation and transduction. DNA recombinant technology & its applications.
- Unit IX. Role of microorganisms in industries such as bakery, alcoholic beverages, penicillin, biofertilizers, biopesticides, mushroom cultivation: methods and future perspectives.
- Unit. X. Immune response: antigens, antibodies, cell mediated immunity, immune system T and B lymphocytes, generation of antibody diversity, monoclonal antibodies.