

**DEPARTMENT OF BOTANY
DDU GORAKHPUR UNIVERSITY
GORAKHPUR-273009
PH.D. ADMISSION (RET)-2023
Part A**

MICROBIOLOGY

SYLLABUS- RESEARCH METHODOLOGY

- Historical development of microbiology and its scope.
- Overview of bacterial cell structure and staining techniques.
- Microbial growth and life cycle of bacteria.
- Sterilization, disinfection, antiseptic and antimicrobial agents, methods of sterilization.
- Biofertilizers, biopesticides and biopolymers.
- Plant and animal viruses, Baltimore system of classification, pathogenicity and diagnosis.
- General biochemistry and metabolism of microbes.
- Immunology and cell signaling, host-pathogen interaction.
- Bioremediation, fermentation and DNA sequencing techniques.
- Intellectual property rights, bio-safety and bioethics.

Syllabus PhD Entrance Examination 2024-25

(Microbiology)

Part B

1. Distribution, habitat and scope of microbiology.
2. Classification and Nomenclature of microorganisms
3. Virus Classification : Plant and Animal
4. Microbial adaptation to Extreme environment
5. Techniques used in Microbiology.
6. Food Microbiology
7. Role of microorganisms in Industry.
2. Role of microorganisms in Agriculture.
9. Basics of Immunology.