



“बेटी बचाओ, बेटी पढ़ाओ”

# JAYOTI VIDYAPEETH WOMEN'S UNIVERSITY, JAIPUR

Government of Rajasthan established  
Through ACT No. 17 of 2008 as per UGC ACT 1956  
NAAC Accredited University

## Department of Yoga & Naturopathy

### (Faculty of Ayurveda Science)

**Faculty Name-** JV'n Anushka Tyagi (Assistant Professor)

**Program-** BNYS-IIInd Year

**Course Name** – Microbiology

**Session No. & Name** – 1.2 (Introduction of Microbiology)

#### Program Outcome-

- Students should be able to recognize the health needs of the community, and carry out professional obligations ethically and keeping with the objectives of the national health policies.
- Students should be skilled in most of the competencies, and trainings required to deliver the Yoga and Naturopathy health care system.
- Students should be aware and updated with the contemporary advances and developments in the system of Yoga and Naturopathy.

#### Course Outcome-

1. Apply the knowledge to understand the microbial physiology and to identify the microorganisms.
2. Understand the regulation of biochemical pathway and possible process modifications for improved control over microorganisms for microbial product synthesis.

#### Academic Day starts with –

- Greeting with saying '**Namaste**' by joining Hands together following by 2-3 Minutes Happy session, Celebrating birthday of any student of respective class and **National Anthem**.
- Topic to be discussed today- Today We will discuss about the **Introduction of Microbiology**.

## Introduction & Brief Discussion About The Topic

# Microbiology

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## INTRODUCTION

### ▶ Microorganisms-

Living things which individually are too small to be seen with the naked eyes.

All of the following may be considered microorganisms-

- Bacteria
- Fungi
- Protozoa
- Viruses
- Various parasitic worms



- Microbiology
  - Study of microorganisms
  - The word MICROBIOLOGY describes exactly what the discipline is: **the study of small living things**. MICRO = small, BIO = living, and LOGY = to study.
  - Foundation of modern Biotechnology\

- Among the many specialized fields of microbiology-
- Virology, Mycology, Bacteriology, Immunology, Microbial ecology, Biotechnology, Microbiology, Environment biotechnology, Food microbiology, Forensic microbiology, Molecular biology
- Definition-

Greek-makros- small, bios-life.

-The branch of biology that studies microorganisms and their effects on humans.

-The study of organisms that are usually too small to be seen with the naked eye-required a microscope.

-Include bacteria, algae, protozoa, fungi, parasitic worms, viruses.

-Microorganisms-Microbes.

- **Themes**

Two main themes are involved in Microbiology-

1.Basic-Cellular process

2.Applied-Concerning agriculture, industry and health.

- **Branches of Microbiology**

- Microbiologists study microbes at an array of levels, including molecular level (gene and proteins), cellular level (cell and physiology), and community level (ecology, epidemiology, and public health).<sup>[1]</sup>
- For the easy study of microbes —*that might be present in infinite numbers*— and due to the importance of microbiology, the subject is divided into several branches like mycology, parasitology, virology, bacteriology, and microbial genetics
- **Mycology:** It is concerned with studying fungi, ranging from their taxonomy, molecular studies, genetic studies to biochemical properties. It also addresses their applications in human life as a source for tinder, food, entheogens, and traditional medicine, as well as their potential hazards such as toxicity and infection.<sup>[2]</sup>
- **Parasitology:** It is the study of parasites, parasitic diseases, their biology, including their distribution, physiology, biochemistry, ecology, evolution, molecular biology, and clinical aspects, as well as their responses to their hosts
- ▶ **Virology:** It's the study of viruses and virus-like agents. It includes the findings on their taxonomy, evolution, disease-producing properties, cultivation, genetics, and their application in research and therapy.

- ▶ **Bacteriology:** It's a branch of microbiology that deals with the study of bacteria. It specifically includes the study of bacterial morphology, ecology, genetics, and biochemistry.<sup>[5]</sup>
- ▶ **Microbial genetics:** In the study of microbial genetics, we explore the mechanisms involved with the transmission of heritable information in microorganisms such as bacteria, archaea, viruses and protozoa, and fungi.

- University Library Reference-

- Textbook of Microbiology-CP Baveja
- Textbook of Microbiology-Anantnarayan

- OnlineReference-

<https://www.researchgate.net/publication/299487470> **Introduction to Microbiology**

- Suggestions to secure good marks to answer in exam-
  - Explain answer with key point answers
  - Explain answer with well labelled diagram.
- Questions to check understanding level of students-
  1. What is Microbiology?
  2. What are the Microbes , Give some examples?

❖ **Exercise for students –**  
**Prepare an assignment of Microorganisms.**

- Academic Day ends with-  
**National song' Vande Mataram'**