

# 100-1 Preliminary Syllabus, Da-Yeh Univ

Information			
Title	微生物學	Serial No. / ID	2042 / MHI2021
Dept.	藥用植物與保健學系	School System / Class	大學日間部2年1班
Lecturer	謝昌衛	Full or Part-time	專任
Required / Credit	Required / 3	Graduate Class	No
Time / Place	(四)234 / J120	Language	Chinese

## Introduction

- 1.Introduction The Microbial world and you, Chemical Principles, Observing Microorganisms through a microscope
- 2.Functional Anatomy of Prokaryotic and Eukaryotic Cells The Prokaryotic Cell, The Eukaryotic Cell
- 3.Microbial Metabolism Catabolic and Anabolic Reactions, Enzymes, Energy Production, Biochemical Tests and Bacterial Identification, Photosynthesis
- 4.Microbial Growth The Requirements for Growth, Culture Media, Obtaining Pure Cultures, Preserving Bacterial Cultures, The Growth of Bacterial Cultures
- 5.The Control of Microbial Growth The Rate of Microbial Death, Actions of Microbial Control Agents, Physical and Chemical Methods of Microbial Agents, Microbial Characteristics and Microbial Control
- 6.Microbial Genetics Structure and Functional of the Genetic Material, The Regulation of Bacterial Gene Expression, Mutation, Genetic Transfer and Recombination, Genes and Evolution
- 7.Biotechnology and Recombinant DNA Tools of Biotechnology, Techniques of Genetic Engineering, Applications of Genetic Engineering, Safety Issues and the Ethics of Genetic Engineering
- 8.Classification of Microorganisms Methods of Classifying and Identification Microorganisms, The Prokaryotes: Domains Bacteria and Archaea, The Eukaryotes: Fungi, Algae, Protozoa, and Helminths
- 9.Viruses, Viroids, and Prions General Characteristics of Viruses, Taxonomy of Viruses, Isolation, Cultivation, and Identification of Viruses, Viruses and Cancer, Prions, Plant Viruses and Viroids
- 10.Principles of Disease and Epidemiology Pathology, Infection, and Disease, Normal Microbiota, Classifying Infectious Diseases, Patterns of Disease, The Spread of Infection, Epidemiology
- 11.Microbial Mechanisms of Pathogenicity How Microorganisms Enter a Host, How Bacterial Pathogens Penetrate Host Defenses, How Bacterial Pathogens Damage Host Cell, Pathogenic Properties of Viruses
- 12.Nonspecific and Specific Defenses of the Host Phagocytosis, Inflammation, Fever, Antimicrobial substances, Immunity, Antigens and Antibodies, B Cells, T

## Cells

13. Disorders Associated with the Immune System Vaccines, Diagnostic Immunology, Hypersensitivity, Autoimmune Diseases, The Immune System and Cancer
14. Antimicrobial Drugs The History of Chemotherapy, The Action of Antimicrobial Drugs, A Survey of Commonly Used Antimicrobial Drugs, The Effectiveness of Chemotherapeutic Agents
15. Microorganisms and Human Disease Microbial Disease of the Skin and Eyes, Nervous System, Cardiovascular and Lymphatic Systems, Respiratory System, Digestive System and Urinary and Reproductive Systems.
16. Environmental and Applied Microbiology Metabolic Diversity, Soil Microbiology, Aquatic Microbiology, Food Microbiology, Industrial Microbiology

## Outline

1. Introduction: The Microbial World
2. Functional Anatomy Of Prokaryotic And Eukaryotic Cells
3. Microbial Metabolism
4. Microbial Growth And Its Control
5. Microbial Genetics
6. Classification Of Microorganisms
7. The Prokaryotes: Domains Bacteria And Archaea
8. The Eukaryotes: Fungi, Algae, Protozoa
9. Virus, Viroids, And Prions
10. Interaction Between Microbe And Host
11. Environmental Microbiology; Applied And Industrial Microbiology

## Prerequisite

NO