COURSES DESCRIPTION FOR M.Sc. PROGRAM OF MICROBIOLOGY

Plan hours 26

FIRST LEVEL 10 UNITS

511MBio: Advanced Virology. 2(1+1)

Introduction, General properties of viruses, Methods in virology, RNA viruses, Viruses using reverse transcriptase, DNA viruses, Virus like infectious agents, Transformation by DNA and RNA viruses, Immunization against viruses, Interferon's, Viruses as tools in medicine and biotechnology.

521MBio: Advanced bacteriology. 2(1+1)

Taxonomic and physiological studies of bacteria,Definition of bacterial cell, its external shape and internal structure,Nutritional requirements of bacteria, bacterial growth and methods of estimation and factors affecting it and methods of reproduction, metabolism of bacteria.

531MBio: Advanced Mycology 2(1+1)

Modern Classification of Fungi,The general form of filamentous fungi and unicellular fungi, nutritional requirements and feeding method in fungi, growth method, and the most important factors affecting their growth, reproduction methods.

561MBio: Advanced Microbial physiology 2(1+1)

Methods of transfer of materials to and from the microbial cell - Bioenergy production - Primary and secondary metabolites - Carbohydrate metabolism - Fats - Proteins - Nitrogen - Purines and pyromidines - Nucleic acid synthesis and protein synthesis - Regulation of metabolic pathways - Morphological changes - Static microbial forms.

571MBio: Advanced studies in microalgae 2(1+1)

Introduction, the main characteristics of algae, modern methods of algae culture, the economic importance of algae, algal toxins, the most important natural phenomena associated with food enrichment in the aquatic environment.

SECOND   LEVEL 10 UNITS

522MBio : Bacterial infection mechanisms 2(1+1)

External and internal barriers against bacterial infection,Role of iron in bacterial infection ,Antibiotic Resistance,Bacterial toxins,biofilm,Toxin antitoxin system, Microbiome,Food borne pathogens,Infections caused by Anaerobic Bacteria.

532MBio :. Mycotoxins . 2(1+1)

Definition of fungal toxins,Main fungal toxin,Mycotoxins and human health,Mechanic effect of fungal toxins and their relationship to humans Causes of mycotoxins,Methods of detection of fungal toxins,Fungal toxins in meat and meat products,Prevent and reduce fungal toxins,Chemistry and control of fungal toxins,International legislation for mycotoxins,Analytical methods for contamination of fungal toxins in seeds (peanut, corn)

566MBio : Microbiological Biotechnology 2(1+1)

Elements and tools of microbial biotechnology, efficiency of microbial strains used, traditional and modern microbial biotechnology products, ethics of genetic engineering.

572MBio : Biology of cyanophyta 2(1+1)

Blue-green algae,Development and modern designation,Forms and composition , Photosynthesis , Nutrition method , Reproduction , Takaful relations , Food chain.

591MBio : Special topics 2(2+0)

Advanced topics in microbiology keep pace with the scientific and technological revolution (viruses - bacteria - fungi algae) correspond to the specialization of the student and guide the supervisor of the thesis .

THIRD   LEVEL 5 UNITS

555MBio : Molecular Microbiology 3(2+1)

Molecular basis of bacterial physiology and genetics with emphasis on molecular mechanisms; topics include nucleic acid-protein interactions, transcription, translation, replication, recombination, regulation of gene expression. The range of molecular mechanism utilized to control gene expression in bacteria.

596MBio : Thesis Proposal Preparation1(1+0)

These are the initial steps that the researcher sets out to follow in writing his scientific research fully, thus obtaining the desired results according to the internationally defined criteria.

592MBio : Seminar 1(1+0)

Guides the student to scientific sites including the introduction of scientific innovations in the field of specialization to gain more knowledge and build a research work plan.

FOURTH   LEVEL 1 UNIT

600 MBio Thesis 1(1+0)

Providing students with skills Research that enables them to address the research problem in a scientific manner.