Characterization course of Biology

First stage

B101

This course deals with animal and plant organism, it gives information about animal and plant tissues. The course impotent of form and function of cells such as cell membrane, cytoplasm, neuclus, Golgi bodies, lysosomes, mitochondria, cytoskeleton. Some systems such as nervous, digestive, skeletal, circulatory systems studied. As well as nutrition and gas exchange. The mechanism of water and molecules movement across plasma membrane, Internal structure of the plant organs and plant tissues as well as studies. Plant diversity of algae, of fungi, bryophytes, pteridophytes, Gymnosperms and angiodperms.

B105

Theoretical objectives of the course Principles of ecology B105 , concerned with the living and non-living components of an ecosystem , ecosystem functions, biogeochemical cycles, and energy flows in an ecosystem, limiting factors and tolerance levels. However ,practical objectives include the methods for measuring main physical and chemical variables affecting an ecosystem

B102

Getting to know the microscope, its components and types, studying the taxonomy, dividing living organisms and their scientific name, and knowing each part of these organisms, their nutrition, reproduction, their benefits, and the diseases they cause, as well as studying and knowing the body's organs and their functions.Study the microscope, how to use it, its types and composition, photographing and seeing the types of living organisms, their features and composition, and the diseases that cause them

Second stage

B212 / Entomology :This course deals with the insects , give a details knowledge for the students on morphology of insects include three parts of insects as well as give the anatomy of insect with physiology study .taxonomy of insect including orders and families .chemical , physical , biological control also study

B204/Fundamental of Bacteriology: The course include teaching the students the information about the bacteria starting from the historical development of the bacteriological sciences, the internal and external structure of bacteria, the dynamic of bacterial growth, the physical and chemical effecting factors, culture media, how to control on bacterial growth and some important families of bacteria to human.

B206/Histology / Basic tissues :The branch of biology deals with microscopically studies of different structures, functions of the tissue systems , in addition study the microscopic anatomy of cells and tissues .it is commonly performed through examining the tissue sections by light microscopy .

B208/invertebrate course : include a description of the general characteristics of each of the major groups of invertebrates, the basis for their classification, the evolutionary relationships between groups of invertebrates, and their importance in terms of benefits and harms.

B205/ Plant anatomy : Understand the internal structure of plant tissues. The relationship between the different plant organs. The function of every organ and tissue plants. The origin of every organ and tissue in plant. Know the relationship between the plant and environment and what are the modification in the plant to resist the powerful environment.

B202/ Microbiology Environment : The course deals with important vocabulary in various biological fields of microbiology of bacteria, fungi and viruses, their role in the environment in which they inhabit, and the effects that these microorganisms show in the environment, and their use as biological treatment methods using modern and environmentally friendly techniques, depending on the capabilities of microorganisms. Diverse and effective, which contributes to building experienced students.

Com 260/ computer applications : we will introduce the student to the MATLAB program that specializes in solving complex mathematical equations and calculus, in addition to some scientific applications in many fields. We will focus on introducing the student to some of the basic functions in mathematics, vectors, matrices, and many other important functions that deal with data in the form of matrices. Educating the student on some important functions in the process of representing data in the form of graphs.

B210/ Plant Taxonomy : Study of the taxonomic terms of vegetative and reproductive organs and systems of classification as well as study plant nomenclature for most species and study the diagnostic characters of dicot and monocot families.

Third stage

Fungi B 311: This course deals with fungi, where information is given about the phenotypic study of fungi that deals with their reproductive structures. In addition to studying the classification of fungi and identifying the orders and families to which they belong and are studied adequately, the different genera, species and their characteristics. Finally, the practical aspect of fungi is studied, including methods of isolation, identification and sterilization, in addition to the life cycles of fungi, their importance, methods of combating them, or their benefits.

Genetics B301: That branch of biology that studies hereditary traits and their transmission from parents to offspring and investigates the explanation of the reasons for the similarities and differences between individuals who are related by kinship and the knowledge of the systems of transmission of these traits from one generation to another. Among the benefits of studying genetics and its practical applications. Producing strong breeds of domestic animals. Medically providing us

with information about genetic diseases and how to prevent them. Studying congenital malformations and providing genetic counseling. Producing disease-resistant plants with high yield. The practical side of the: 1-Acquiring genetic and chromosomal examination skills,2-the ability to diagnose genetic diseases, 3-the ability to treat and deal with genetic diseases, and 4- preparing a cadre capable of developing agricultural production.

Animal physiology B(321): The study of function of each system and organ and the relationship between different system in human body and the disorder related with each system. In practical side Performing laboratory analysis of human blood such as red blood cell , white blood cell , platelets count, measurement of blood percentage , blood pressure and determination of blood group.

Algae /B-316: Course Objectives:

1- A statement of the open fields for the student studying this course or researcher in the field of algae science and the prospects available to him in the field of algae uses as a science that contributes to human renaissance.

2- Encouraging the student of the course on how to benefit from algae in several fields, including the areas of purifying polluted water or using it as food for animals and fish, and it can be employed in the fields of health, agriculture, and industry.

The practical algae course aims to:

1- Training students to use some of the available devices such as a microscope.

2- Taking students to some sites to learn about the environment of algae and compare it with other environments.

3- Assigning students to bring water or mud samples to the laboratory and diagnose the algal species there.

Pollution B376: This course aims to provide students with basic information about pollution in general and environmental pollution in particular, and to identify the types of pollution present in our environment and the degrees of pollution. The different and different sources of pollution and focus on air pollution, water pollution, soil pollution and radiation pollution in addition to other types of pollution such as audio and visual pollution, as well as addressing the most important methods of treatment for different types of these pollutants and the most important damage and diseases they cause to the environment and living organisms. Also, giving advice and directions for the individual's contribution The student and the community in reducing pollution and preserving the environment. The practical course aims to teach the student the methods of preparing chemical solutions and standard solutions that are used to measure the various pollutants of the environment. Training the student to solve equations for environmental pollution.Measurement of water pollutants such as methods of measuring organic pollutants and inorganic pollutants. Methods of measuring air pollutants and devices used for this purpose. Measuring soil pollutants, devices used, and equations to solve environmental issues. Conducting field experiments to teach students the methods of collecting environmental samples and various pollutants in the environment.

Genetics of Microbiology B322: Theory side deals with the components of DNA, mRNA, rRNA and tRNA with their structures, also the single strand DNA and the Double. Furthermore, the DNA replication and gene expression including transcription and translation. Replication in viruses. All the mutations, mutation agents and mutation repairs Moreover, the genetics tests to identified and classified microbiology including 16S rRNA , amplification, sequencing, phylogenetic trees. Practical side Laboratory Experiments for DNA extraction, Gene amplification by PCR, DNA electrophoresis, gene electrophoresis, operon of lactose, mutation by UV, spontaneous mutation. Furthermore, using the modern methods like the website for sequencing the DNA nucleotides, drawing the phylogenetic tree, and identification and classification the microorganisms directly.

Immunology B366: The course aims to define immunology ,what the immune system and immune cells and their role in immune response . define the antigen and antibody and types of antibodies . in addition antigen presentation and role of major histocompatibility in induction of immune response . also defining of hypersensitivity , immunodeficiency and transplantation immunology. The practical part aims to define the mechanisms of innate immunity and types of cells and tissues of immune system . types and methods of

immunization . what the antigen and antibody and antigen preparation . also the way and types of primary and secondary reactions.

Parasites B306: Know the different types and diseases they cause. Knowing their life cycles to reach how to control them and reduce their harm. Recognize the types of relationships between living things. Finding methods or drugs to reduce of parasitic diseases. Identifying methods of diagnosis and detection of various infections and ways of transmission.

B350 Microbiological contamination is studies the accidental introduction of microbes such as bacteria, yeast, mould, fungi, virus, prions, protozoa or their toxins and by-products .They contaminated food ,soil ,water and study laboratory safety .

Fourth stage

Enzymes course B 487 Clarifying the effectiveness and functions of enzymes and influencing factors and their effects during disease, providing students with the necessary knowledge of practical applications of enzymes in the laboratory. Providing students with the necessary knowledge of practical applications of enzymes clinically. Cognitive objectives enable students to obtain knowledge and understanding of the basics of enzymes, applications of the enzyme process, applications of enzymes in the applied professional field, applications of enzymes through modern software applications.

B 416 This course deals with the graduation course in which guide information for the student < or had choose the title of research , also pore or principles scientific research and how each scdualke written.

Genetic engineering syllabus B452 : This subject aims to illustrate the principle of genetic engineering science with a brief historical introduction of the development of Genetic engineering, advantage and disadvantage of this science. Then, this science has based on the manipulation of genetic material. It focuses on the replication of genetic material in the eukaryotic and prokaryotic cells. Gene structure, gene expression and function are discussed in both eukaryotic and prokaryotic cells. Restriction enzymes and vectors are essential to achieve genetic engineering techniques. Finally, cloning is one of the widespread techniques to produce mutant strains with desirable traits illustrated.

Plant pathology b 413 : this course of the plant pathology course, it begins by taking an overview of the beginning of the emergence of this science, its development and the importance of its study. Infection from the arrival of the inoculum material and penetration of the host and the occurrence of the disease and the emergence of pathological symptoms after that explains the signs of the disease and symptoms of the disease and then the statement of the reaction of the plant towards the pathogen in terms of structural and chemical and finding ways to control plant diseases

B 414 virology Theoretical Defining what viruses are, their appearance and symmetry, showing the classification of the virus and how the host deals with viral infections, as well as defining the pathogenicity of viruses and how diseases are caused by viruses. Practical How to deal with viral infections with how to collect viral samples and how to isolate and separate viruses with acquiring the skills of diagnosing viral infections

The course aims to define serology and types of serologic reactions also the methods of antisera preparation . in addition types of antigen and antibody reactions. And detection of pathogenic infections by serologic reactions and cellular clinical immunology . also define blood banking tests .

B486 studying of fungal cell components and the importance of each cell part in the life of fungi , type of nutrition and obtaining nutrients Knowledge of growth methods, growth and growth measurement of fungi . Study of Metabolic processes of fungi Categorize them by their effects on the environment Study fungal spore and sporulation periods with knowledge of the reproduction mechanism required program outputs and teaching, learning and evaluation methods a Cognitive objectives Study fungal cell structures for importance of each structure Study fungal nutrition and their multiple nutrient needs Study fungal growth and its sequestrations with knowledge of growth measuring methods

Study fungal metabolism productivity and classify them by their effects on other organisms Study fungal spore and reproduction

B424 This course aims to provide students with basic information about a group of vertebrates and a comparative anatomical study of the different systems of these groups, such as the skeletal system, digestive system, respiratory system, reproductive system, excretory system, body cavity, skin, nervous system and sense organs.In order for the student to become familiar with the basic differences between animal groups in terms of similarity and anatomical differences between them and link them to the science of embryonic development and genetics and the developments that occurred on these groups in different periods of time, starting from primitive animals to the highest in the evolution ladder. It is one of the important sciences for students of life sciences.

B452 is defined as the study of how microbial cell structures, growth, biosynthesis ,photosynthesis, nutrition and metabolism function in living organisms . It covers the study of , bacteria and other organisms .Microbial physiology is important in the field of other science.

B 466|Plant tissue cultivation This course studies the technique of growing tissues for different types of economic, medical and pharmaceutical plants and the production and increase of effective compounds in the medical plant, which are difficult to increase in traditional ways and what stages of textile agriculture and identify the most important components of the food medium and plant hormones and how to deal with them and various methods of sterilization including (thermal

sterilization, chemical) and how to agriculture in solid and liquid communities and the difference between them in addition to the sweep B skills for the establishment of a textile agriculture laboratory designed for the process of multiplication.

B 443 The course is characterized by dealing with an important applied curriculum in various industrial, environmental and health fields to consolidate the concepts of problems that occur in industry and the environment and ways to treat them biologically with modern and environmentally friendly techniques based on the capabilities of diverse and effective microorganisms, which contributes to building experienced students.

B484\Food microbiology:-The course aims at knowing the beneficial microorganisms that are involved in the manufacture of many foodstuffs, as well as identifying the harmful microorganisms that cause food spoilage and spoilage,methods of combating them and the prevention of harmful microorganisms,including microorganisms in fish ,egg,meat,chicken,fruits and others.

Planktology (B 434 The academic objectives of the course "Planktology B434 " deal with the major phytoplankton and zooplankton groups from both the theoretical and practical perspectives. Including appearance, classification, distribution and the

importance of each group in terms of benefits and harms . In addition to plankton ecology and productivity.