



Al – Hussein Bin Talal University
College of Science
Department of Biological Sciences
Brief course Description

Course name	General Biology 1	Code	0304101
Department	Biological Sciences	Credit hours	3
Pre-requisite(s)	None		

The course is designed to provide and ability to give the student a basic knowledge of the molecular and cellular basis of life. It aims at providing an introduction to biological molecules and cell structure and functions and giving a closer look to major functions in biology such as energy transformation, transport across membranes, protein synthesis, cell division, and inheritance using Campbell Biology as textbook. The topics covered by the course include: structures and functions of large biological molecules, structural and functional components of cell parts, membrane structure and function, basics of metabolism and detailed anabolic reactions of photosynthesis in addition to the catabolic reactions of cellular respiration, cellular reproduction and Mendelian and modern genetics.

Course name	General Biology (2)	Code	0304102
Department	Biological Sciences	Credit hours	3
Pre-requisite(s)	0304101		

This course designed to teach the diversity and features of living organisms. The goals of the course include appreciating the diversity of living organisms, recognizing features of taxonomic groups, acknowledging the inter-relationships of organisms with environment and outlining the theories of life origin. The topics covered in the course include different types of microorganisms, plants and animals, and selected functions of animal body systems. The textbook used for this course is Campbell Biology.



Al – Hussein Bin Talal University
College of Science
Department of Biological Sciences
Brief course Description

Course name	Practical General Biology (1)	Code	0304103
Department	Biological Sciences	Credit hours	1
Pre-requisite(s)	0304101		

This is a laboratory course offers practical information on the handling of light microscope, the features of both plant and animal cells. Furthermore, some experiments will be conducted on the macromolecules and the physical properties of living organisms, cell division, metabolism of the cell, plant and animal tissues and diversity of living organisms.

Course name	Practical General Biology (2)	Code	0304104
Department	Biological Sciences	Credit hours	1
Pre-requisite(s)	0304102		

This a laboratory course offers basic experimental procedures and techniques. It provides the skills necessary to perform preparatory experiments using living samples. The goals of the course are to recognize the morphology and characteristic features of organisms, apply skills for handling and processing of samples and perform basic experiments. The topics covered in this course include: sampling and preparation of samples of bacteria, protozoa, algae, fungi, plants and animals.



Al – Hussein Bin Talal University
College of Science
Department of Biological Sciences
Brief course Description

Course name	Invertebrates	Code	0304210
Department	Biological Sciences	Credit hours	2
Pre-requisite(s)	0304102		

The wide diversity of the invertebrate animal kingdom is surveyed and described. Special attention is given to structure and function and their importance in classification of the major phyla and classes. The underlying theme is evolutionary with consideration given to origin and the relationships among major groups. The ecology of invertebrate animals is frequently included. Groups include: Protozoa, Porifera, Cnidaria, Acoelomates, Pseudocoelomates, Annelida, Mollusca, Arthropoda, Lophophorates, and Echinodermata. Textbook: Integrated principles of Zoology, Hickmann, 17th ed.

Course name	Practical Invertebrates	Code	0304217
Department	Biological Sciences	Credit hours	1
Pre-requisite(s)	0304210		

The wide diversity of the invertebrate animal kingdom is surveyed and described. Special attention is given to structure and function and their importance in classification of the major phyla and classes. The underlying theme is evolutionary with consideration given to origin and the relationships among major groups. The ecology of invertebrate animals is frequently included. Groups include: Protozoa, Porifera, Cnidaria, Acoelomates, Pseudocoelomates, Annelida, Mollusca, Arthropoda, Lophophorates, and Echinodermata.



Al – Hussein Bin Talal University
College of Science
Department of Biological Sciences
Brief course Description

Course name	Comparative Anatomy	Code	0304218
Department	Biological Sciences	Credit hours	2
Pre-requisite(s)	0304102		

This course uses a comparative approach to explore the diversity of vertebrates, the characteristics that define each vertebrate taxa, and how those characteristics relate to each group's evolution. Starting with groups localized between invertebrates and vertebrates and ended with higher vertebrates, to study hemichordate, lower chordate, Cephaloaspidomorpha, Chondrichthys, Osteoichthys, Amphibia, Reptilia, Aves and Mammals including primates. Much of the course will be concerned with conservation biology of vertebrates. Textbook: Integrated principles of Zoology, Hickmann, 17th ed.

Course name	Practical Comparative Anatomy	Code	0304219
Department	Biological Sciences	Credit hours	1
Pre-requisite(s)	0304218		

This lecture course will use a comparative approach to explore the diversity of vertebrates, the characteristics that define each vertebrate taxa, and how those characteristics relate to each group's evolution. Much of the course will be concerned with principles of systematic biology, factors governing vertebrate distribution, methods used by vertebrates to solve environmental problems, inter- and intraspecific interactions, reproduction, life history and the conservation biology of vertebrates.



Al – Hussein Bin Talal University
College of Science
Department of Biological Sciences
Brief course Description

Course name	Plant Anatomy	Code	0304220
Department	Biological Sciences	Credit hours	2
Pre-requisite(s)	0304102		

This course focuses on seed plants and provides comprehensive, updated information about the organization, development, structure and function of plant cells, tissues and organs.

Course name	Practical Plant Anatomy	Code	0304225
Department	Biological Sciences	Credit hours	1
Pre-requisite(s)	0304220		

This lab course offers practical information on the following: (i) structural components of plant cell walls and membranes. (ii) Compare and contrast the characteristics of plastid types (iii) List and describe the anatomy and ecological significance of epidermal and secretory structures (iv) Draw, identify, and describe leaf, root, stem anatomy and their adaptations associated with specific habitats (v) Outline and describe current understanding of the components of shoot, root, and floral development, including gene expression, tissue differentiation, and growth.



Al – Hussein Bin Talal University
College of Science
Department of Biological Sciences
Brief course Description

Course name	Plant Taxonomy	Code	0304229
Department	Biological Sciences	Credit hours	3
Pre-requisite(s)	0304102		

This course deals with systematic classification and identification of vascular plants, with emphasis of flowering plants common to this area. This course provides an introduction to the principles and practice of flowering plant taxonomy.

Course name	Plant Morphology	Code	0304226
Department	Biological Sciences	Credit hours	2
Pre-requisite(s)	0304102		

The purpose of the course is the study of the morphology of higher plants. In detail description of the plant cells, plant tissues or plant organs in order to learn the structure of morphological diversity and environmental adaptations of vascular plants. At the end of the course the students will be able to identify and describe macroscopic and microscopic morphological characters of higher plants.



Al – Hussein Bin Talal University
College of Science
Department of Biological Sciences
Brief course Description

Course name:	Practical Plant Morphology	Code:	0304228
Department	Biological Sciences	Credit hours	1
Pre-requisite(s)	0304226		

This lab course offers practical information on the morphology of flowering plants, including the variety of leaves, stems, flowers, fruits and seeds, emphasizing the diversity of life forms. These are typified by herbaceous plants, grasses, shrubs and trees.

Course name:	Cell Biology	Code:	0304251
Department	Biological Sciences	Credit hours	3
Pre-requisite(s)	0304101		

This course deals with the cell as a unit of structure of all living organisms. It includes: Cell theory, biological membranes: Ultrastructure and function and their role in controlling cellular responses to cell matrix. Intracellular compartments: Endoplasmic reticulum, Golgi complex, lysosomes, peroxisomes, Mitochondria and chloroplasts ultrastructure and function. The course concentrates also on the structure and function of Biological molecules (macromolecules). This course also focuses on the Cell cycle, mechanism of cell division and cell cycle regulation.



Al – Hussein Bin Talal University
College of Science
Department of Biological Sciences
Brief course Description

Course name:	General Environment Science	Code:	0304272
Department	Biological Sciences	Credit hours	3
Pre-requisite(s)	None		

The course deals with the general framework of the environment by clarifying the dimensions of the environment and its basic concepts and the development of the relationship and interaction between human and the surrounding environment. It also includes the basic concepts of the environment in terms of the natural ecosystem, how the energy flows through ecosystems and through chains and networks. It also deals with environmental change, its importance and the biogeochemical cycle, as well as the various natural ecosystems in terms of their types and forms. The course also discusses the abnormal ecosystem and solid waste management. It also deals with the different forms of pollutions, how to prevent and avoid them. Finally, the topic of environmental risks and assessment of their impacts.

Course name:	Biostatistics	Code:	0304281
Department	Biological Sciences	Credit hours	3
Pre-requisite(s)	None		

Introduction to Biostatistics provides an introduction to selected important topics in biostatistical concepts and reasoning. This course represents an introduction to the field and provides a survey of data and data types. Specific topics include tools for describing central tendency and variability in data; methods for performing inference on population means and proportions via sample data; statistical hypothesis testing and its application to group comparisons; issues of power and sample size in study designs; and random sample and other study types. While there are some formulae and computational elements to the course, the emphasis is on interpretation and concepts.



Al – Hussein Bin Talal University
College of Science
Department of Biological Sciences
Brief course Description

Course name:	Parasitology	Code:	0304312
Department	Biological Sciences	Credit hours	3
Pre-requisite(s)	0304210		

This course teaches different parasites that affecting human and animals; their properties, taxonomy, life cycles, symptoms diagnosis, and treatments. The course aims at enhancing students' knowledge to understand the mechanisms of infection with parasites, and to describe morphological differences between parasites.

Course name:	Animal Physiology	Code:	0304316
Department	Biological Sciences	Credit hours	3
Pre-requisite(s)	0304218		

Physiology is the study of the normal functions of living systems. This course will focus on Animal Physiology that seeks to organize students' knowledge of the basic sciences around physiological processes and functions of animal systems using Physiology: An Integrated Approach as a textbook. Emphasis will be placed on understanding the mechanisms used by the organ systems of animal to maintain homeostasis. It also helps students to understand body fluid and cellular physiology including membrane ionic basis of excitability, molecular mechanism and mechanics of contraction. The course provides through classroom lectures theoretical information about many topics related to understanding the structure and function of the animal body.



Al – Hussein Bin Talal University
College of Science
Department of Biological Sciences
Brief course Description

Course name:	Practical Animal Physiology	Code:	0304317
Department	Biological Sciences	Credit hours	1
Pre-requisite(s)	0304216		

The course is built on the foundational knowledge of physiology that is gained in the lecture-based course. It provides the students with the basic skills to examine physiological mechanisms that control and coordinate the function of various systems within the body. The course aims to define the laboratory exercises examining properties of digestive enzymes, characteristics of blood, metabolic rate, kidney function, nerve function and action potentials, synaptic transmission, skeletal muscle function and mechanoreception.

Course name:	Mycology	Code:	0304322
Department	Biological Sciences	Credit hours	3
Pre-requisite(s)	0304102		

The course is designed to give a better understanding of the general characteristic, structure and ultrastructure of fungi. physiology, cellular organization, nutrition, reproduction, and mechanism of fungal dispersal in environment, roles of fungi in ecosystems. This course also explains in detail about the different main taxa of fungi and how they differ in their growth, morphology and reproduction. This course also gives an introduction to antibiotics.



Al – Hussein Bin Talal University
College of Science
Department of Biological Sciences
Brief course Description

Course name:	Plant Physiology	Code:	0304325
Department	Biological Sciences	Credit hours	2
Pre-requisite(s)	0304220		

Plant physiology is an examination of plant function ranging in complexity from individual cells up to the whole plant. As relatively immobile organisms, plants must adapt to the prevailing environment and consequently have unique mechanisms to deal with non-ideal growing conditions. Both normal growth and development as well as how the plant responds and adapts to adverse conditions are major themes in plant physiology research. This course will focus on the major physiological processes occurring in plants grown under ideal conditions as well touch on the physiology of stress-adaptation. We will also look at how molecular biology is applied to analyze physiological processes.

Course name:	Practical Plant Physiology	Code:	0304326
Department	Biological Sciences	Credit hours	1
Pre-requisite(s)	0304325		

This lab course offers practical information on plant structure and its relationship to plant physiology, transport of water, nutrients and carbohydrates throughout the plant, photosynthetic and respiratory pathways in plants, hormonal regulation of plant function, and plant physiological response to environmental stress.



Al – Hussein Bin Talal University
College of Science
Department of Biological Sciences
Brief course Description

Course name:	Economic and Medicinal Plants	Code:	0304324
Department	Biological Sciences	Credit hours	3
Pre-requisite(s)	0304102		

Study of selected economic medicinal plants of Mediterranean region, including morphology, anatomy and distribution of essential medicinal plants. Plant parts and chemical constituents used for traditional medicine and scientific medicine.

Course name:	Microbiology	Code:	0304334
Department	Biological Sciences	Credit hours	3
Pre-requisite(s)	0304251		

This course will provide an introduction to history and scope of microbiology; prokaryotes cell structure and function; metabolism and nutrition, microbial growth, requirements for growth, environmental factors affecting growth, microbial genetics, bacterial reproduction, microbial taxonomy, major groups of bacteria, microorganisms and environment. The course also presents in brief an overview of viruses and fungi.



Al – Hussein Bin Talal University
College of Science
Department of Biological Sciences
Brief course Description

Course name:	Practical Microbiology	Code:	0304335
Department	Biological Sciences	Credit hours	1
Pre-requisite(s)	0304334		

The practical microbiology course is designed to introduce the main essential laboratory techniques used in microbiology laboratories. This course includes a number of practical labs that begin with a preparatory session aims to discuss the main ideas related to safety procedures to be followed in microbiology laboratories. It covers aseptic techniques, isolation of a single colony, stained smears, culturing micro-organisms, preparation of a pure culture, and studying microbial growth control methods and effect of antimicrobial agents on growth.

Course name:	Biochemistry	Code:	0304347
Department	Biological Sciences	Credit hours	3
Pre-requisite(s)	0306211		

This course deals with the building blocks of proteins; amino acids in term of chemical structure and physical properties, act as acids, bases and buffers. Structure and function of protein as the first macromolecules are investigated and the purification and isolation of proteins is stressed. The course deals with the remaining structures and functions of the other macromolecules; lipids, carbohydrates, and nucleic acids as well. Enzymes are studied extensively in terms of substrate specificity and regulation of activity in addition to kinetics, inhibition and other characteristics. The course culminates in an overview of carbohydrates, lipids, and protein metabolism focusing on pathways reactions, enzymes and regulations in addition to integrated cellular metabolism.



Al – Hussein Bin Talal University
College of Science
Department of Biological Sciences
Brief course Description

Course name:	Practical Biochemistry	Code:	0304348
Department	Biological Sciences	Credit hours	1
Pre-requisite(s)	0304347		

In this course, basic calculations include molarity and normality are introduced. Buffer properties and preparation are introduced to fulfill necessary experiments. pH meter is used to measure pH of solution, after calibration using pH 4,7, and 10. Quantitative measurement of chemical using spectrophotometer is carried out after appropriate standardization with suitable blank. Qualitative and quantitative tests of macromolecules including proteins, carbohydrates, and lipids in addition to amino acids are studied to understand major properties of these biological molecules. basic characteristics of enzymes including V_0 , V_{max} and k_m is analyzed in this course as well.

Course name:	Genetics	Code:	0304352
Department	Biological Sciences	Credit hours	2
Pre-requisite(s)	0304251		

This course deals with the study of Mendelian and nonmendelian genetics, the chromosomal basis of inheritance, discovery of the genetic material structure. Additionally, this course concentrates on the study of sex determination, gene interactions and crossing over, gene expression, mutation and repairing system, mutagens, population genetics, genetic engineering, sex-linked traits and sexual, Meiosis and mitosis and DNA structure and replication.



Al – Hussein Bin Talal University
College of Science
Department of Biological Sciences
Brief course Description

Course name:	Practical Genetics	Code:	0304353
Department	Biological Sciences	Credit hours	1
Pre-requisite(s)	03042352		

The practical course will introduce the principles of Mendelian inheritance, crossing and study probabilities and obtaining possible gamete types and offspring for a given crossing with specified parental type and phenotypic conditions, studying multiple allelism and co-dominant expression from blood type tests, studying special chromosomes and mutation using model organism, *Drosophila melanogaster*, exercising karyotype from model chromosome pictures and population genetics for some observable human traits will be emphasis. Also, student will be used methods of DNA isolation and electrophoresis applications, preparing slides with plant cells for microscopic observations to distinguish the different stages of cell division.

Course name:	Histology	Code:	0304360
Department	Biological Sciences	Credit hours	2
Pre-requisite(s)	0304251		

This course is intended to examine cell and tissue structure primarily at the light microscopic level although some electron microscopy of cell structure will be considered. Preparation of tissues specimen for the microscopic examination will be considered. The course is focus on major tissue groups that make up the human body, and examines the contribution of each to the structure and function of organs, organ systems and organism will be linked.



Al – Hussein Bin Talal University
College of Science
Department of Biological Sciences
Brief course Description

Course name:	Practical Histology	Code:	0304364
Department	Biological Sciences	Credit hours	1
Pre-requisite(s)	0304360		

In this lab, microscopic slides represent all tissues found in human body include epithelial tissue, muscular tissue, nervous tissue as well as connective tissue are examined. Location, structure, and function of these tissues in various body organs and organ systems are also investigated. Digestive system, circulatory system, reproductive system, integumentary system, endocrines are well introduced. Tissue strainer and processors are used to prepare fresh specimen for the microscopic examination.

Course name:	Ecology	Code:	0304372
Department	Biological Sciences	Credit hours	3
Pre-requisite(s)	0304102		

This course focuses on basic concepts of ecology (population and community) ecology and field techniques of ecological research will be explored to give the student a working knowledge of the biological basis for ecological management. The course also deals with the study the basic principle of ecology, element cycles in nature, the ecosystems on land and lakes seas, and oceans. This course includes the population dynamic of animal and especially human population. It concentrates on pollution of the environment with emphasis on Jordan environment and its problem. Ecological management.



Al – Hussein Bin Talal University
College of Science
Department of Biological Sciences
Brief course Description

Course name:	Biodiversity	Code:	0304375
Department	Biological Sciences	Credit hours	3
Pre-requisite(s)	0304102		

This course introduces biodiversity concept, explores current ideas on how biodiversity is generated and maintained in natural ecosystems, how biodiversity is measured, ecosystem concept, the structure and functioning of ecological systems, the response of systems to changing environmental conditions, and applies resulting knowledge to preservation and management issues.

Course name:	Haematology	Code:	0304410
Department	Biological Sciences	Credit hours	2
Pre-requisite(s)	0304347		

The course provides the basic knowledge to give the student a broad understanding of the circulatory and lymphatic systems in health and disease. The course is designed to teach students fundamental viewpoints (anatomical and functional) of the blood and primary and secondary lymphoid organs using Haematology and Immunology as textbook. It relates the structure of haematological components of the body with normal functions and abnormalities such as anemias and malignancies. The course aims at distinguishing the major components of the reticuloendothelial system and describe their functions, explaining the concepts of physiological process in the reticuloendothelial system, recognizing the mechanisms of haematological disorders, differentiating the haematological tests and their applications. The topics covered in this course include: nomenclature, hematopoiesis, RBCs and hemoglobin, WBCs, hemostasis and blood transfusion. It also provides basic histology-based diagnostic concepts of hematological abnormalities.



Al – Hussein Bin Talal University
College of Science
Department of Biological Sciences
Brief course Description

Course name:	Practical Haematology	Code:	0304416
Department	Biological Sciences	Credit hours	1
Pre-requisite(s)	0304410		

The course is designed to provide with the basic skills to perform hematological analysis and diagnostic tests in health and disease. The course aims to define the principles of hematological tests and their application, perform haematological tests in healthy and patient individuals, perform haematological tests with high accuracy and precision, analyze the results of different haematological tests and their indications. The topics covered in this course include: nomenclature, blood collection, anticoagulants, hemoglobinometry, RBCs count, and indices, blood film preparation, cell morphology and sedimentation. It also provides basic skills to investigate for hematological abnormalities and malignancies using commercial tests.

Course name:	Virology	Code:	0304431
Department	Biological Sciences	Credit hours	3
Pre-requisite(s)	0304334		

The course is aimed to cover topics related to molecular and cell biology of viral structure, function and evolution. This course also focuses on the pathological mechanisms of various human disorders caused by viruses. Additionally, the course details the applications (genetic engineering and molecular biology) of viruses in medicine.



Al – Hussein Bin Talal University
College of Science
Department of Biological Sciences
Brief course Description

Course name:	Immunology	Code:	0304434
Department	Biological Sciences	Credit hours	2
Pre-requisite(s)	0304347		

The course provides the basic knowledge and ability to give the student a broad understanding of the immune system and its functions. It deals with the fundamental, applied and functional anatomy of the immune system using Basic Immunology as textbook. The goals of this course are to identify the components of the immune system, define different immune responses, outline the concepts of immunological disorders. The course provides through classroom lectures theoretical information about primary and secondary lymphoid organs, innate and adaptive immune responses in health and disease. The topics covered by the course include: history, nomenclature, components of the immune system and their interaction, immune responses and their effector mechanisms, selected immunological disorders and cancer immunology.

Course name:	Practical Immunology	Code:	3040435
Department	Biological Sciences	Credit hours	1
Pre-requisite(s)	0304334		

This is a practically-oriented course designed to teach students basic skills to perform different immunological tests for diagnostic and research purposes. The goals of this course include defining specific biosafety parameters in immunology and serology laboratories, acquiring the knowledge of sampling, handling, storage and processing, define some immunological techniques and their applications. The topics covered in this course include different antigen-antibody tests such as agglutination and ELISA. It also provides basic skills to dissect and extract lymphoid organs and cells from experimental animals.



Al – Hussein Bin Talal University
College of Science
Department of Biological Sciences
Brief course Description

Course name:	Molecular Biology	Code:	0304449
Department	Biological Sciences	Credit hours	2
Pre-requisite(s)	0304352		

The course includes fundamental and new concepts in understanding the structure and function of DNA, RNA, and Protein and eukaryotic gene regulation and the basis for the phrase “Genomics to Proteomics”. DNA replication in prokaryotic and eukaryotic cells; regulation of transcription in prokaryotic cells; transcription in eukaryotic cells; Mutation and DNA repair. Fundamental of Molecular Biology techniques and approaches Includes molecular cloning, genetic engineering, DNA sequencing, protein expression and purification, electrophoresis, blotting, and hybridization of nucleic acids and proteins.

Course name:	Practical Molecular Biology	Code:	0304450
Department	Biological Sciences	Credit hours	1
Pre-requisite(s)	0304449		

The laboratory covers the following topics: Isolation of nucleic acids; quantitative and qualitative measurements of nucleic acids; the use of restriction enzymes; Amplification of nucleic acids; bacterial transformation and gene expression and protein produced isolation; DNA-cloning and southern blot.



Al – Hussein Bin Talal University
College of Science
Department of Biological Sciences
Brief course Description

Course name:	Biotechnology	Code:	0304459
Department	Biological Sciences	Credit hours	2
Pre-requisite(s)	0304352		

The production of biological molecules, bioprocessing, DNA markers, protocols and applications, RFLP, RAPD, SSR, ISSR and AFLP, tissue culture, gene cloning, techniques for gene transformation, genetically modified organisms and their future prospects and current events. Also, it includes both principles and application of recombinant DNA technology to microbes, animals and plants in the hope of using genetically engineered products to clear the environment and improve human health prospects. This would be achieved through tackling the history of biotechnology, basic principles of recombinant DNA technology, and common methods of applications of animals, human and medical biotechnology. Ethical issues of biotechnology and patenting. Current societal issues in biotechnology and bioethics.



Al – Hussein Bin Talal University
College of Science
Department of Biological Sciences
Brief course Description

Course name:	Practical of Biotechnology	Code:	0304460
Department	Biological Sciences	Credit hours	1
Pre-requisite(s)	0304459		

This practical course introduces and encompass: general procedures, like methods of pipetting, solution preparation, buffers and principles of common analytical instruments essential for laboratory biotechnology also includes working with nucleic acid, bacteria, enzymes, proteins; cloning experiment few protocols on plant biotechnology. Emphasis have been given on DNA/RNA isolation from various sources, restriction enzymes, ligation techniques, cloning protocols, screening of transformed cells, various electrophoresis techniques, PCR protocol, etc. The lab will be useful to students belonging to biotechnology, agriculture and allied fields. The idea behind this practical was thus to provide theoretical basis of the study items to be undertaken in the laboratory in a clear manner.

Course name:	Evolution	Code:	0304456
Department	Biological Sciences	Credit hours	3
Pre-requisite(s)	0304352		

This course focuses on the process of evolutionary change, macroevolution (evolution of species and population) microevolution (evolution of genes and proteins), speciation, phylogeny. This course also focuses on population genetics, the genetic structure of populations and how it changes through time. The course also outlines different theories of evolution (Lamarckian and Darwinian), natural selection. This course also explains in detail about mechanisms of evolution, and evidences of evolution.



Al – Hussein Bin Talal University
College of Science
Department of Biological Sciences
Brief course Description

Course name:	Microbial Genetics	Code:	0304457
Department	Biological Sciences	Credit hours	3
Pre-requisite(s)	0304449		

This course concentrates on the essentials of the genetics of haploid organisms, genetic notation, conventions and terminology: - mutants and, mutations genetic analysis of mutants. Students will study different topic of bacterial, bacteriophages and fungal genetics, dealing with screening, selection, complementation, types of mating (conjugation transduction, fertility Factor-F- factor, gene transfer, regulation of expression, linkage, constructs, gene isolation and transformation concerning phages the study will deal with the general properties of phages, their structures, stage in life cycle, counting phages and properties of phage infected cultures. Also the course will focus on the molecular aspects of gene expression and regulation, Lactose system and the Operon model, the Tryptophan Operon.

Course name:	Environmental Genetics	Code:	0304358
Department	Biological Sciences	Credit hours	3
Pre-requisite(s)	0304352		

This course aims at understanding the role of interactions between genetic susceptibility and environmental exposures in human disease development. The molecular basis of human genetics and genetic variations are described. Biological responses to environmental exposures are also discussed, as well as biomarkers for detecting environmental exposures, biological effects, and genetic susceptibility. Human cancer and asthma are used as two examples to illustrate genetic approaches to environmental disease. Finally, the role of gene environment interaction in human disease is addressed in the context of human evolutionary history.



Al – Hussein Bin Talal University
College of Science
Department of Biological Sciences
Brief course Description

Course name:	Seminar	Code:	0304491
Department	Biological Sciences	Credit hours	1
Pre-requisite(s)	Successful completion of 100 credit hours		

Prerequisite: Department approval Library use, reference collection, reference organization, presentation of term paper and a short talk using the collected references

This is a one credit hour course. It provides students with fundamental knowledge to understand scientific research for completion of Bachelor degree in Biological Sciences. Upon enrollment, the student is assigned to a supervisor that provides theoretical, technical and practical support, starting from selecting a scientific paper to the oral presentation and discussion in public. The course directs a special focus on scientific communication. During the course, the students learn and effectively practice different means to communicate scientific information in both written and oral forms, focusing on contemporary research in the field. In addition, the course focuses on proper practice of scientific research ethics.