Student Name:	**Academic No**:
Faculty: Bachelor of Medical Sciences	**Specialty**: **Biomedical Sciences**

Courses Description

Faculty Reqirements

Course	General Biology	**Course Code**	BMET1211
Prerequisite	None	**Department**	BioMedical Sciences
Course type	Faculty Requirements	**Credit hours**	2 credit hours

Course Description

General Biology course includes the basic principles of life through which biological systems operate. The study of life extends from the microscopic scale of the molecules and cells that make up organisms to the global scale of the entire living planet. The goals set for this course are to: utilize the basic scientific knowledge, research, investigate and draw inferences through the study of biological sciences. The course topics include cell biology, structure, and function, energy production, genetics, physiology, diversity, evolution, and ecology.

Course	**General Biology -Lab**	**Course Code**	BMET1112
Prerequisite	General Biology	**Department**	BioMedical Sciences
Course type	Faculty Requirements	**Credit hours**	1 credit hours

Course Description

General Biology Lab is three practical hours a week. This course complements and consolidates the theoretical knowledge acquired in the General Biology course. This course introduce the students to the various safety requirements in the biology laboratory and focuses on direct applications of the topics presented in the biology course to the Biomedical Sciences. Throughout this course, students will be introduced to the following :

1- Microscope use, slides preparation, staining and investigation of various slides to discriminate the main types of cells, structure of animal and plant cells.

2- Detection of biomolecules such as sugars, starches, proteins, fats and amino acids, and study of histological structure and the study of all types of cell division.

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Course	General Chemistry	Course Code	BMET1213
Prerequisite	None	Department	BioMedical Sciences
Course type	Faculty Requirements	Credit hours	2 credit hours

Course Description

The students in General Chemistry course will be introduced to the basic topics of General Chemistry, including chemical molecular weight and molecular structure, the periodic table and chemicals properties; reactions; chemical equations; bonds and functional groups. The main goal of this course is to provide students with the theoretical knowledge of general chemistr and to encourage students to think and act more independently when analysis of various components and mixtures in solids, liquids and gases states.

Course	Psych-sociology	Course Code	BNUR1213
Prerequisites	None	Department	Nursing
Course Type	Faculty Requirements	Credit Hours	2 credit Hours

Course Description

Psycho-sociology course will provide scientific knowledge of how persons think, behave, and are influenced by others. Students will apply scientific theories in the field to make sense of human behavior. You will learn behavior and attitudes, social beliefs, cultural influences, conformity and obedience, self-knowledge, peer influence, aggression, altruism, prejudice and discrimination, stress and health, and interpersonal and social relationships.

Course	General Chemistry -Lab	Course Code	BMET1114
Prerequisite	General Chemistry	Department	BioMedical Sciences
Course type	Faculty Requirements	Credit hours	1 credit hours

Course Description

General Chemistry Lab complements and consolidates the theoretical knowledge acquired in the General Chemistry theoretical course. The course designed to provide students with the theoretical and experimental knowledge of General Chemistry to encourage students to think and act more independently in analysis of various components and mixtures in solids, liquids and gases states is required. The objective of this course is to provides students with basic skills and laboratory safety rules by which they can be qualified for employment or further study to familiarise them with handling the chemical substances, balances, and types of equipment.

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Course	Medical Terminology	**Course Code**	BNUR1214
Prerequisites	None	**Department**	Nursing
Course Type	Faculty Requirements	**Credit Hours**	2 Credit Hours

Course Description

The course will provide medical terminology and vocabulary used by a variety of professionals in healthcare. You will learn an introduction to medical language, skeletal system, muscular system, cardiovascular system, lymphatic and immune system, respiratory system, system, urinary system, nervous system, and special senses: the eye and ear, skin; the integumentary system, the endocrine system, the reproductive, and the reproductive system.

Course	**Organic Chemistry**	**Course Code**	BMET1221
Prerequisite	General Chemistry	**Department**	BioMedical Sciences
Course type	Faculty Requirements	**Credit hours**	2 credit hours

Course Description

Organic Chemistry course includes the study of the basic principles of the chemistry of aliphatic compounds: aliphatic hydrocarbons and their halogenated derivatives, organometallic compounds, alcohols, ethers, aldehydes and ketones, amines, carboxylic acids and their derivatives. This course covers basic organic chemistry topics which include the following main topics: Introduction to organic chemistry: molecular and structural elemental formula, chemical bonds, functional groups, structural and stereotyped conformation, nature and types of organic reactions, types of reagents, electron displacement in molecules.The main goal of this course is to provide students with knowledge of the basics of organic chemistry, identify the chemical and physical properties of organic compounds.

Course	**Analytical Chemistry**	**Course Code**	BMET1223
Prerequisite	General Chemistry	**Department**	BioMedical Sciences
Course type	Faculty Requirements	**Credit hours**	2 credit hours

Course Description

The course of analytical chemistry is designed for the students in the first semester of the undergraduate program in Biomedical Sciences. Analytical Chemistry course includes the study of the basic principles of analytical chemistery and quantitative techniques, such as biochemicals separation techniques and titration. In addition to analysis of actual samples, chemical experiments, evaluation and interpretation of results and instrumental chemical quantitative analytical methods.

Course	Analytical Chemistry -Lab	Course Code	BMET1123
Prerequisite	General Chemistry -Lab	Department	BioMedical Sciences
Course type	Faculty Requirements	Credit hours	1 credit hours

Course Description

This course is designed thet students can apply the basic methods of chemical analysis, experiments related to the acid and base titration, weight and volume analysis methods, oxidation /reduction titration, complex titration, and precipitation titration.

Course	Biochemistry "1"	Course Code	BMET2311
Prerequisite	Organic Chemistry	Department	BioMedical Sciences
Course type	Faculty Requirements	Credit hours	3 credit hours

Course Description

The course id designed to focus on the basic principles of biochemistry which includes the study of large macromolecules such as carbohydrates, proteins, lipids and nucleic acids; and to study their structure, types, clinical significance, disorders associated with carbohydrates, proteins and lipids metablism.

Course	Biochemistry "2"	Course Code	BMET2321
Prerequisite	Biochemistry "1"	Department	BioMedical Sciences
Course type	Faculty Requirements	Credit hours	3 credit hours

Course Description

Biochemistry (2) course focus on the following: (1) The study of the metabolism of large macromolecules such as carbohydrates, proteins, lipids and nucleic acids metabolism in the body and related diseases (2) Studying the metabolism of carbohydrates such as TCA cycle, glycolysis and pentose pathway (3) Study of starch metabolism, glycogen metabolism, monosaccharides and disaccharides and the pathophysiology of diabetes (4) Studying how to integrate different metabolic pathways towards a normal physiological balance in the human body and the disorders related to defects in the metabolism.

Course	Anatomy and Physiology “1”	**Course Code**	BNUR1324
Prerequisites	Biology	**Department**	Nursing
Course Type	Faculty Requirement	**Credit Hours**	3 Credit Hours

Course Description

Human Anatomy and Physiology 1 aims to build integrated health knowledge for nursing students. You will learn about the structure of the human body and how it functions. You will understand the general introduction to the anatomy of the human body organs: it includes the body's cells, their types, the skin system, skeletal system, muscle system, immune, lymphatic, and nervous system, and explains the sense organs in the human body. You will have adequate knowledge of how diseases affect the body's function and can also identify risks.

Course	Anatomy and physiology “2”	**Course Code**	BNUR2314
Prerequisites	Anatomy and physiology “1”	**Department**	Nursing
Course Type	Faculty Requirements	**Credit Hours**	3 Credit Hours

Course Description

This course is designed to build integrated health knowledge for nursing students. It covers the cardiovascular, respiratory, urinary, digestive, reproductive, endocrine, and digestive and reproductive systems.

Course	Biostatistics	**Course Code**	BNUR3215
Prerequisites	None	**Department**	Nursing
Course Type	Faculty requirements	**Credit Hours**	2 Credit Hours

Course Description

Biostatistics is an introductory course to provide the foundation and application of statistics for health professionals in health care practice and research. Emphasis is on the application of appropriate techniques and the interpretation of results. Examples and problems from health care settings will be included. You will use statistical software to analyze data (Excel and SPSS). Students will apply summarizing data, estimation data, and hypothesis testing techniques, including the t-test, chi-square test, the analysis of variance, correlation analysis, and linear regression.

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Specialty Requirements

Course	**Basic Medical Microbiology**	**Course Code**	BMET1225
Prerequisite	General Biology	**Department**	BioMedical Sciences
Course type	Specialty Requirement	**Credit hours**	2 credit hours

Course Description

The course id designed to focuses on the basic concepts and themes of General Microbiology Science and encouraging students to visualize and synthesize tough topics such as microbial metabolism, immunology, and microbial genetics.This course covers microbial general classifications, taxonomy, types of bacteria, , structures, function, and relationship to the environment, humans and animals. The students study variety of microorganisms such as (bacteria - fungi - viruses - protozoa), the structural shape of each group, properties, the components of the bacterial cell, the biological processes, bacterial growth curve, the study of infectious diseases in terms of their type, and microbial causes. Students will learn microbial control, infection prevention and methods of sterilization and disinfection.

Course	**Basic Medical Microbiology Lab**	**Course Code**	BMET1125
Prerequisite	Basic Medical Microbiology	**Department**	BioMedical Sciences
Course type	Specialty Requirement	**Credit hours**	1 credit hours

Course Description

Basic Medical Microbiology Lab course is three laboratory contact hours; the goal of the course is to expose students to the wide variety of life in the microbial world. Although the microbiology study includes bacteria, viruses, algae and protozoa, this lab will concentrate primarily on the bacteria. The student will be enabled to learn and use microscopes, simple stain, gram stain, acid-fast stain, endospore and capsule stain. Furthermore, bacterial motility, media preparation, sterlization, bacterial colony and morphology and performe various biochemical tests to identify and differentiate the different types of microorganisms.

Course	Diagnostic Microbiology	Course Code	BMET2313
Prerequisite	Basic Microbiology	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	3 credit hours

Course Description

Diagnostic Medical Microbiology course focuses on medical aspects of bacterial pathogens, cultural, biochemical, serological, and other unique characteristics that might aid in identifying these pathogens. The course addresses the basic medical bacterial groups in details (Gram-negative and gram-positive bacilli and the Gram-negative and positive cocci.

Course	Diagnostic Microbiology -Lab	Course Code	BMET2113
Prerequisite	Basic Microbiology Lab	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	1 credit hours

Course Description

The course is designed to complement and consolidate the theoretical knowledge acquired in the theoretical course and focuses on the performance of procedures and identification techniques applied to diagnose pathogenic microorganisms isolated from various clinical specimens; it emphasizes methods of collection and handling of different pathological specimens. Morphological, biological, and biochemical characteristics of bacteria commonly isolated from clinical specimens

This course focuses on studying the medical and diagnostic of bacterial diseases, through which the methods that help to isolate and define these pathogens using the biochemical and serological characteristics. The course also deals with detecting the appropriate antibiotics to eliminate pathogenic bacteria and studying the immunity of bacteria to antibiotics**.**

Course	Clinical Hematology	Course Code	BMET2214
Prerequisite	Anatomy and Physiology (1)	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	2 credit hours

Course Description

Clinical Hematology course intreduce the students to the study of blood cell formation (hemopoiesis), general characteristics of blood cells and their functions. In addition, students will be study the erythrocyte disorders, nonmalignant leukocyte disorders and platelet disorders.

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Course	Clinical Hematology -Lab	**Course Code**	BMET2115
Prerequisite	Anatomy and Physiology (1)	**Department**	BioMedical Sciences
Course type	Specialty Requirement	**Credit hours**	1 credit hours

Course Description

Clinical Hematology Lab is three laboratory contact hours a week. The students will be introduced to various safety requirements in a haematology laboratory and the proper methods for blood samples collection and processing. In addition, students will be taught the standard features of blood cells, blood films preparation, staining, laboratory methods and instrumentation to diagnose blood diseases.

Course	**Medical Mycology**	**Course Code**	BMET2223
Prerequisite	Basic Microbiology	**Department**	BioMedical Sciences
Course type	Specialty Requirement	**Credit hours**	2 credit hours

Course Description

Medical Mycology course deals with the study of fungi and their relationship to humans from a medical point of view. Students explore the basic fungal morphology, structure, and replication, fungal classification, understanding the characteristic features of medically important fungi, Know and understand antifungal agents, Be familiar with laboratory techniques and diagnostic tools in mycology, and Define mycotoxins and mycotoxicosis.

Course	**Body Fluids**	**Course Code**	BMET2224
Prerequisite	General Biology	**Department**	BioMedical Sciences
Course type	Specialty Requirement	**Credit hours**	2 credit hours

Course Description

Body Fluids course includes the study of the basic propereties of various human body fluids ; structur and function , diseases associated with those fluids. Body fluids course include the study of chemical, hematological aspect and body fluids biochemical changes; identifying normal values, analysis and interpretation of test result of medical reports.

Course	Medical Mycology	Course Code	BMET2223
Prerequisite	Basic Microbiology	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	2 credit hours

Course Description

This course consists of a basic introduction to medical mycology and a comprehensive study of the fungi (yeasts and molds) and mycoses (fungal diseases) likely to be encountered in clinical settings by a physician, medical mycologist, or medical technologist. Attention will be distributed as equally as possible between emphasis on the biology of the fungal zoopathogen and on its disease.

Course	Medical Mycology -Lab	Course Code	BMET2124
Prerequisite	Basic Microbiology	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	1 credit hours

Course Description

Medical mycology Lab is three laboratory contact hours; the goal of the course is to provide students with sufficient, detailed practical methods to assist in the laboratory diagnosis and management of mycotic infections and the identification of causal fungi. Since mycotic infections in patients are often difficult to diagnose and treat, this course is necessary for students of the BioMedical Sciences department to help physicians to diagnose diseases and thus speed up the treatment of mycosis patients .Subjects covered include an introduction to fungi; methods for specimen collection and transportation; cultivation of fungi and fungal culture media; diagnosis of fungi, identification of common dermatophytes; yeast identification; antifungal sensitivity tests and non-conventual methods for fungal identification.

Course	Body Fluids -Lab	Course Code	BMET2125
Prerequisite	General Biology Lab	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	1 credit hours

Course Description

Body Fluids Lab is three laboratory contact hours, stdents study methods used to determine the structure and function of human body fluids, abnormal and normal levels and relation with human diseses. Identifying the function of different body fluids such as urine, spinal cord fluid, semen fluid, inter-knee fluid, and others; studing the chemical properties; identifying the normal values of body fluids; performe the methods used for the examinations of body fluids and their

relationship to diseases, and studying how to identify the chemical consistuence of stones are formed in the human body and the way to examine them in the lab.

Course	**Diagnostic Hematology**	**Course Code**	BMET2325
Prerequisite	Clinical Hematology	**Department**	BioMedical Sciences
Course type	Specialty Requirement	**Credit hours**	3 credit hours

Course Description

Diagnostic Hematology course introduce students to study the formation of blood cells, normal morphology, development and factors influencing their generation. The course focus on the study of benign and malignant disorders of blood and the role of clinical haematology laboratory in their diagnosis.

Course	**Diagnostic Hematology -Lab**	**Course Code**	BMET2126
Prerequisite	Practical Clinical Hematology	**Department**	BioMedical Sciences
Course type	Specialty Requirement	**Credit hours**	1 credit hours

Course Description

Diagnostic Hematology course is three hours a week. Thise course includes the study of peripheral blood film preparation, staining of peripheral blood films, blood film examination, red blood cell morphology in health and disease, white blood cell differential count and WBC morphology, haemoglobin electrophoresis, reticulocyte count, laboratory tests for abnormal haemoglobin S, laboratory tests for Glucose-6-Phosphate Dehydrogenase (G6PD) deficiency, blood film report, case study. By the end of the course the students will be able to differentiate benign and malignant disorders of blood cells.

Course	**Clinical Chemistry (1)**	**Course Code**	BMET3311
Prerequisite	Biochemistry (2)	**Department**	BioMedical Sciences
Course type	Specialty Requirement	**Credit hours**	3 credit hours

Course Description

Clinical chemistry (1) course is proposed to offer basic and advanced skills in Clinical Chemistry which frequently used in Biomedical Sciences field. A central function of the clinical chemistry course is to introduce students to biochemical information which can be used appropriately to guide clinical decision-making.

This course will start by simple introduction to Clinical Chemistry, followed by a detailed study of the body fluids biomarkers which are used in clinical laboratory diagnosis. Clinical chemistry (1) links the knowledge of general chemistry, organic chemistry, and biochemistry with an understanding of human physiology, such as protein and amino acids, renal function tests, liver function tests and heart function tests. Additionally, it studies the integration of different metabolic pathways.

Course	**Clinical Chemistry "1" -Lab**	**Course Code**	BMET3112
Prerequisite	Biochemistry "2"	**Department**	BioMedical Sciences
Course type	Specialty Requirement	**Credit hours**	1 credit hours

Course Description

Clinical Chemistry "1" Lab is three laboratory contact hours course; complements and consolidates the theoretical knowledge acquired in the theoretical course. This course focus on procedures and techniques used to measure body fluids as biochemical markers of diseases. Students will be able perform methods used to measur biochemical markers such as Proteins, enzymes, Kidney function trests, Liver function tests using different methods, and make an interpretation of laboratory results. This course deals with the changes in the concentration of different substances in disease states and used as a diagnostic tool of significant diseases affecting organs using various methods, interpreting laboratory results, and performe quality control procedures in clinical chemistry laboratories.

Course	**Clinical Chemistry "2"**	**Course Code**	BMET3324
Prerequisite	Clinical Chemistry "1"	**Department**	BioMedical Sciences
Course type	Specialty Requirement	**Credit hours**	3 credit hours

Course Description

Clinical Chemistry "2"course focus on the theoretical basis of human body chemistry; changes in the concentration of some essential biochemical compounds in the work of the body functions and changes the level and the implications of these substances in cases of the disease, methods of measuring these substances in different body fluids. This course introduces the body's vital enzymes with medicinal connotations to identify the indicators and indications of cancer incidence of some cancers that affect members of the body, such as prostate and breast and some endocrine glands. - Identification of chemical toxins and signs of

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chemical poisoning from some toxic chemicals, to identify the measurement of the level of drugs within the body, such as heart medicines and drugs that give to the organs and some medicines that give treatment for mental illness and other drugs with widespread use in the general health.

Course	**Clinical Chemistry (2)-Lab**	**Course Code**	BMET3124
Prerequisite	Clinical Chemistry (1) Lab	**Department**	BioMedical Sciences
Course type	Specialty Requirement	**Credit hours**	1 credit hours

Course Description

The course is designed to complement and consolidate the theoretical knowledge acquired in the theoretical course & focus on procedures and techniques used to measure body fluids as biochemical markers of diseases. Students will be able perform methods used to measur biochemical markers such as lipids, enzymes, tumor markers using different methods, and make an interpretation of laboratory results. This course deals with the changes in the concentration of different substances in disease states and used as a diagnostic tool of significant diseases affecting organs using various methods, interpreting laboratory results, and performe quality control procedures in clinical chemistry laboratories.

Course	**Hemostasis**	**Course Code**	BMET3213
Prerequisite	Clinical Hematology	**Department**	BioMedical Sciences
Course type	Specialty Requirement	**Credit hours**	2 credit hours

Course Description

Hemostasis course course is proposed to offer basic and advanced skills in Hemostasis and coagulation which frequently used in Biomedical Sciences field. The students in this course will be introduced to blood coagulation, the ultrastructure of platelets, platelet contents, and their adhesion, aggregation, and secretion function. In addition to the study of coagulation factors, the mechanism of clotting, hereditary and acquired bleeding and coagulation disorders, and thrombosis treatment and thrombocytosis.

Course	Hemostasis -Lab	Course Code	BMET3114
Prerequisite	Clinical Hematology Lab	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	1 credit hours

Course Description

The students will explore the ideal blood collection for the tests, as well as the bleeding and coagulation laboratory tests, such as bleeding time, clotting time, prothrombin time, activated partial thromboplastin time, thrombin time, tests to measure fibrin formation, one-stage single-factor assay, partial thromboplastin time mixing studies In addition to the tests of fibrinolysis, such as quantitative D-dimer immunoassay and fibrin degradation product immunoassay.

Course	Immunology and Serology	Course Code	BMET3315
Prerequisite	General Biology	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	3 credit hours

Course Description

This course discusses the basics of immunology and serology in terms of the composition of the immune system and the immune system in the human body and the study of different theories about the mechanism of action of the immune system and ways of working the body's immune systems and antibodies.

Course	Immunology and Serology -Lab	Course Code	BMET3116
Prerequisite	General Biology Lab	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	1 credit hours

Course Description

This course is designed to help the student learn laboratory applications in clinical immunology and serology, assess the efficiency of the patient's immune system and diagnose diseases based on the antibody-antigen reaction.

Course	Molecular Biology	Course Code	BMET3222
Prerequisite	General Biology	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	2 credit hours

Course Description

The course of Molecular biology is designed for the students in the sixth semester of medical laboratory science. It is three hours a week. The students in this course will be introduced to DNA and RNA structure and function, Genome organization, DNA replication, Gene

expression, DNA mutation and DNA repair, Recombinant DNA technology, Applications of molecular genetics, and molecular diagnosis of molecular biology of cancer.

Course	**Molecular Biology -Lab**	**Course Code**	BMET3123
Prerequisite	Molecular Biology	**Department**	BioMedical Sciences
Course type	Specialty Requirement	**Credit hours**	1 credit hours

Course Description

The course Practical Molecular biology is designed for the students in the sixth semester of the undergraduate program in medical laboratory science. It is three hours a week. The students in this course will be introduced to DNA isolation, DNA mutations, and the applications of molecular genetics using PCR technology.

Course	**Parasitology**	**Course Code**	BMET3224
Prerequisite	Basic Microbiology	**Department**	BioMedical Sciences
Course type	Specialty Requirement	**Credit hours**	2 credit hours

Course Description

The Parasitology course aims to give a clear idea about: the concept of parasitology, the division situation of each parasite, the relationship between the parasite and the host, the study of various parasitic models such as protozoa, and helminths forms in terms of the structure and shape, the life cycle of the parasite, the diseases transmitted by the parasite and methods of diagnosis, and parasite resistance with a focus on the types of parasites endemic in the Palestinian environment. Immunity and parasites, molecular parasites. Finally, studying multiple models of arthropods that transmit parasitic diseases to humans with an indication of the medical importance.

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Course	Blood Bank-Lab	Course Code	BMET4112
Prerequisite	Blood Bank	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	1 credit hours

Course Description

The course focuses on blood bank procedures' practical application and technical performance. You will be to do tests before blood donation, blood typing, compatibility tests, and blood transfusion.

Course	Parasitology -Lab	Course Code	BMET2124
Prerequisite	Basic Medical Microbiology Lab	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	1 credit hours

Course Description

This course covers the different methods of diagnosing pathogenic parasites. It includes an optical microscope, wet mounts, serological examinations, and the concentration and sedimentation methods. The student will gain the skill of collecting samples, preserving and controlling them, identifying medicinal insects that transmit infection parasites, estimating the number of eggs, and estimating the number of worms in the intestine.

This course is intended to provide Artifacts, Concentration Techniques, Flotation Techniques, Staining of parasites Detecting of Blood Parasites, Thick and thin Blood smear, Counting of Helminthes Eggs in Feces, Chemical Tests, Fecal PH test, Testing faeces for Occult Blood, Fecal fat test, and Medical Entomology.

Course	Endocrinology	Course Code	BMET3325
Prerequisite	Anatomy and Physiology (2)	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	3 credit hours

Course Description

This course is designed to review the human endocrine system's anatomy, physiology, biochemistry, and molecular biology. It includes endocrine systems and the hormonal synthesis, release, transport, mechanism of action and function, the defects of endocrine systems, the diseases and laboratory tests in endocrinology and interpretation of laboratory results.

Course	Training "1"	Course Code	BMET3100
Prerequisite	Clinical Chemistry "2"	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	1 credit hours

Course Description

The course is designed to train third-year medical laboratory students in UNRWA health centers. The course includes blood collection, haematology, clinical chemistry, microbiology, and urine and stool examinations in local health centers. At the end of the training, each student is evaluated by the health center and the student's supervisor in the university. In addition, an exam is taken to measure the student's skills acquired during training.

Course	Blood Bank	Course Code	BMET4311
Prerequisite	Clinical Hematology	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	3 credit hours

Course Description

The course of blood bank includes blood components, anticoagulants, blood group system and Rh, and blood group systems other than ABO and Rh, pre-transfusion testing, immune-haematology, the complications of blood transfusion, transfusion reactions, as well as hemolytic diseases.

Course	Molecular Diagnosis	Course Code	BMET4313
Prerequisite	Molecular Biology	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	3 credit hours

Course Description

The course will introduce the principles, methods, instruments and applications of clinical molecular diagnosis to diagnose diseases.

Course	Molecular Diagnosis -Lab	Course Code	BMET4114
Prerequisite	Molecular Biology	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	1 credit hours

Course Description

This laboratory course focuses on the practical application of molecular diagnostics in the clinical laboratory. Students will learn to do testing the basic DNA structure, PCR, RT-PCR and electrophoresis. This course will cover molecular diagnostic techniques to identify and diagnose genetic diseases and diseases caused by microorganisms.

Course	Instrumental Analysis	Course Code	BMET4215
Prerequisite	Clinical Chemistry (1)	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	2 credit hours

Course Description

The course includes the basic concepts of lab instruments, the mechanism of action, methods of analysis, their calibration, applications and solving some problems related to the devices we use at the laboratory.

Course	Histology	Course Code	BMET4216
Prerequisite	Anatomy and Physiology (2)	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	2 credit hours

Course Description

This course deals with the normal structure and function of different types of human tissues, their locations, composition, shapes and functions and how to identify and distinguish them.

Course	Histology -Lab	Course Code	BMET4117
Prerequisite	Anatomy and Physiology (2)	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	1 credit hours

Course Description

The course will examine the practice of histology techniques. It includes sample collection, fixation, processing, embedding, sectioning and tissue staining. The students will learn how to prepare slides from different human tissues, tissues' normal structures, and abnormal tissues.

Course	Cancer Biology	Course Code	BMET4218
Prerequisite	Molecular biology	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	2 credit hours

Course Description

The course of the biology of cancer is designed for the students in the seventh semester of the undergraduate program of medical laboratory science. It is two hours a week. The students in this course will be introduced to the nature of cancer, essential modifications to cell physiology that collectively induce malignancy, the role of oncogenes and tumour suppressor genes,

mechanisms of genomic damage by internal, external and hereditary factors, as well as metastasis, treatment of cancer, chemotherapeutic agents and their mechanisms of action.

Course	**Research Seminars**	**Course Code**	BMET4219
Prerequisite	Biostatistics	**Department**	BioMedical Sciences
Course type	Specialty Requirement	**Credit hours**	2 credit hours

Course Description

The course prepares the students to write a thesis proposal for graduation research using scientific research methods, literature review, research questions, research design, sample selection, data collection and analysis, discussion, conclusion, and references.

Course	**Graduation Research**	**Course Code**	BMET4121
Prerequisite	Research methods	**Department**	BioMedical Sciences
Course type	Specialty Requirement	**Credit hours**	1 credit hours

Course Description

The main aim of this course is to build students' abilities to perform a research study. The course covers preparing students to do a literature review, data collection and statistical analysis as a compulsory requirement for the graduation project in medical laboratory science, under the supervision of a faculty member. The student has to make a conclusion and recommendations on a significant research problem that needs planning, design, construction and management of a scientific project under supervision. A committee of the supervisor, Internal and external examiner discuss the students research project which may be submitted by a group of up to four students.

Course	**Food Microbiology**	**Course Code**	BMET4322
Prerequisite	Diagnostic Microbiology	**Department**	BioMedical Sciences
Course type	Specialty Requirement	**Credit hours**	3 credit hours

Course Description

Food products' safety and security are issues of growing importance, especially with the growing number of foodborne illnesses related to raw and ready-to-eat food products. This course deals with basic concepts in food microbiology, factors affecting various types of foods, sources and growth of microbes in food, foodborne microorganisms and their relationship to the food supply and public safety. Factors, that influence microbial proliferation in foods affect

food spoilage, food preservation and disease are provided. Foodborne illnesses outbreak investigation is also discussed. Quality systems used in food industries (HACCP) constitute an integral part of the course.

Course	**Food Microbiology -Lab**	**Course Code**	BMET4123
Prerequisite	Diagnostic Microbiology Lab	**Department**	BioMedical Sciences
Course type	Specialty Requirement	**Credit hours**	1 credit hours

Course Description

This course is intended to provide Medical Laboratory Science students with basic techniques for food microbiology laboratory under standard methods for qualitative and quantitative detection of microorganisms in food and water. The students will do food sampling and preparation of sample homogenate, Media preparation and sterilization, determination of aerobic colony count in food, enumeration of Staphylococcus aureus in food, enumeration of yeasts, and moulds in food, enumeration of total coliform, fecal coliform and E.coli in food. Most Probable Number (MPN), isolation of E.coli O157:H7 from food, isolation of Enterococci from food, and isolation of Salmonella and Shigella from food.

Course	**Virology**	**Course Code**	BMET4224
Prerequisite	Basic Microbiology	**Department**	BioMedical Sciences
Course type	Specialty Requirement	**Credit hours**	2 credit hours

Course Description

The course includes the structure, types, pathogenesis of viruses that infect humans and viral diseases, diagnosis of viral infection, vaccination, and control.

Course	**Tissue Culture**	**Course Code**	BMET4225
Prerequisite	Molecular Biology	**Department**	BioMedical Sciences
Course type	Specialty Requirement	**Credit hours**	2 credit hours

Course Description

The course includes the study of animal tissue growth in vitro, mechanisms of cell growth control, proliferation, differentiation, and survival and death, in addition to studying different normal and cancer cell lines and their applications.

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Course	Tissue Culture -Lab	Course Code	BMET4126
Prerequisite	Molecular Biology	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	1 credit hours

Course Description

The course introduces the process of animal cell culture in the lab, including cryopreservation, media preparations, cell proliferation, culture, subculture of adherent cells and suspended cells, renewal of the media, and tissue culture applications.

Course	Advanced Reproductive Technology	Course Code	BMET4127
Prerequisite	Body fluid	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	1 credit hours

Course Description

The advanced reproductive technology course is a one-semester program covering all aspects of reproductive medicine, including Embryology, Endocrinology, Radiology, Laparoscopy, Andrology, Fetal Medicine, and clinical psychology. This course aims to give students every opportunity to become proficient in clinical workup, diagnosis, and evidence-based infertility management. It also promotes relevant research in this field. After completing the course, the candidate will be expected to work independently in Reproductive Medical labs.

Course	Laboratory management and quality control	Course Code	BMET4222
Prerequisite	Clinical Chemistry (2)	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	2 credit hours

Course Description

The course deals with the components of the laboratory system, levels, members and services, quality control for quantitative laboratory procedures and semi-quantitative procedures, internal and external quality assessment, and documents and records to determine the errors in quality assurance procedures for good laboratory practices.

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Course	Embryology	Course Code	BMET4228
Prerequisite	Molecular biology	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	2 credit hours

Course Description

This course will introduce embryological development as a major topic within medical sciences. Students completing this course will have a broad understanding of human development, gametogenesis, fertilization, implantation, developmental events during prenatal stages, abnormal development, and defects.

Course	Training "2"	Course Code	BMET4100
Prerequisite	Laboratory management and quality control	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	1 credit hours

Course Description

The course Training "2" covers the essential medical laboratory topics, including samples collection, microbiology and food microbiology, clinical chemistry, hematology and blood bank, and histopathology and quality control.