

Student Name:	Academic No:
Faculty: Bachelor of Medical Sciences	Specialty: BioMedical Sciences

Courses Description

Faculty Requirements

Course	Medical Terminology	Course Code	FMSC1201
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, 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	Ethics of Health Professions	Course Code	FMSC1102
Prerequisites	None	Department	Clinical psychology
Course Type	Faculty Requirement	Credit Hours	1 Credit Hour

Course Description

The course will provide students with knowledge and skills in responsible professional behavior that will enable them to competently reflect upon, address, and resolve the ethical and socio-cultural issues that students will confront during their training and professional practice. It involves teaching rudimentary knowledge and skills in ethical theory and reasoning, professional ethics, interprofessional approach to health care decision-making, health care goals, illness experience, and other topics of concern.

Course	General Biology	Course Code	FMSC1203
Prerequisites	None	Department	Nursing
Course Type	Faculty Requirements	Credit Hours	2 credit Hours

Course Description

The General Biology course will provide nursing students with the basic principles of life through which biological systems operate. You will learn about the molecules and cells that make up organisms on 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 science labs. The course topics include cell biology, structure, function, energy production, genetics, physiology, diversity, evolution, and ecology.

Course	Social Psychology	Course Code	FMSC1204
Prerequisites	Introduction in Psychology	Department	Clinical psychology
Course type	Faculty Requirement	Credit Hours	2 Credit Hours

Course Description

The Social Psychology course is designed to provide a scientific study of how individuals think, behave, and are influenced by others. Current theories in the field will be applied to real-life situations to make sense of human behavior. You will learn behavior and attitudes, social beliefs, cultural influences, conformity and obedience, self-knowledge and self-esteem, persuasion, group influence, aggression, altruism, prejudice and discrimination, stress and health, and interpersonal and social relationships.

Course	Anatomy and Physiology “1”	Course Code	FMSC1305
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	FMSC2306
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	FMSC3207
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.

Course	Epidemiology	Course Code	FMSC3208
Prerequisites	Biostatistics	Department	Nursing
Course Type	Faculty requirements	Credit Hours	2 Credit Hours

Course Description

The introductory course covers the main principles of epidemiology—studying the distribution and determinants of health and disease in human populations. The concepts and terminology of this field help you explore epidemiology developments and the difference between descriptive and analytical epidemiology, the significant study designs, some basic associated statistical techniques, and the concept of causality. Emphasis will apply epidemiological concepts in public health and health care administration practice.

Specialty Requirements

Course	General Biology Lab	Course Code	MSCB1101
Prerequisite	General Biology	Department	BioMedical Sciences
Course type	Faculty Requirements	Credit hours	1 credit hour

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.

Course	General Chemistry	Course Code	MSCB1202
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	General Chemistry Lab	Course Code	MSCB1103
Prerequisite	General Chemistry	Department	BioMedical Sciences
Course type	Faculty Requirements	Credit hours	1 credit hour

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.

Course	Organic Chemistry	Course Code	MSCB1204
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	MSCB1205
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 chemistry 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	MSCB1106
Prerequisite	General Chemistry Lab	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	1 credit hour

Course Description

This course is the practical application of the Analytical Chemistry course. The students 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	Basic Medical Microbiology	Course Code	MSCB1207
Prerequisite	General Biology	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	2 credit hours

Course Description

Basic Medical Microbiology course focuses on the basic concepts and themes in 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	MSCB1108
Prerequisite	Basic Medical Microbiology	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	1 credit hour

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, sterilization, bacterial colony and morphology and perform various biochemical tests to identify and differentiate the different types of microorganisms.

Course	Biochemistry “1”	Course Code	MSCB2309
Prerequisite	Organic Chemistry	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	3 credit hours

Course Description

Biochemistry (1) course 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 metabolism.

Course	Diagnostic Microbiology	Course Code	MSCB 2310
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	MSCB2111
Prerequisite	Basic Microbiology Lab	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	1 credit hour

Course Description

The course 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 includes 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	MSCB2212
Prerequisite	Anatomy and Physiology (1)	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	2 credit hours

Course Description

Clinical Hematology course introduce 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.

Course	Clinical Hematology Lab	Course Code	MSCB2113
Prerequisite	Anatomy and Physiology (1)	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	1 credit hour

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	Virology	Course Code	MSCB2214
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	Biochemistry “2”	Course Code	Mscb2315
Prerequisite	Biochemistry (1)	Department	BioMedical Sciences
Course type	Specialty Requirement	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	Medical Mycology	Course Code	MSCB2216
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	Medical Mycology -lab	Course Code	MSCB2117
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-conventional methods for fungal identification.

Course	Body Fluids	Course Code	MSCB2218
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 properties 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	Body Fluids -Lab	Course Code	MSCB2119
Prerequisite	General Biology Lab	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	1 credit hour

Course Description

The course is designed to study methods used to determine the structure and function of human body fluids, abnormal and expected levels, and their relation with human diseases. Identifying the function of different body fluids such as urine, spinal cord fluid, semen fluid, inter-knee fluid, and others; studying the chemical properties; identifying the average values of body fluids; performing the methods used for the examinations of body fluids and their relationship to diseases, and studying how to identify the chemical consistency of stones are formed in the human body and the way to examine them in the lab.

Course	Diagnostic Hematology	Course Code	MSCB2320
Prerequisite	Clinical Hematology	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	3 credit hours

Course Description

The course is designed 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	MSCB2121
Prerequisite	Practical Clinical Hematology	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	1 credit hour

Course Description

The course is designed to 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	MSCB3322
Prerequisite	Biochemistry (2)	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	3 credit hours

Course Description

This course designed to discuss 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.

Course	Clinical Chemistry "1" Lab	Course Code	MSCB3123
Prerequisite	Biochemistry "2"	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	1 credit hour

Course Description

The course is designed to complement the acquired theoretical knowledge. Students will be able perform methods used to measure biochemical markers such as Proteins, enzymes, Kidney function tests, 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, and interpreting laboratory results.

Course	Hemostasis	Course Code	MSCB3224
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	MSCB3125
Prerequisite	Clinical Hematology Lab	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	1 credit hour

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	MSCB3326
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	MSCB3127
Prerequisite	General Biology Lab	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	1 credit hour

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	Clinical Chemistry "2"	Course Code	MSCB3328
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 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	MSCB3129
Prerequisite	Clinical Chemistry “1” Lab	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	1 credit hour

Course Description

The course is designed to complement the acquired theoretical knowledge. This course focuses on procedures and techniques used to measure body fluids as biochemical markers of diseases. Students will be able perform methods used to measure 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 performing quality control procedures in clinical chemistry laboratories.

Course	Molecular Biology	Course Code	MSCB3230
Prerequisite	General Biology	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	2 credit hours

Course Description

The course is designed for the students to introduce 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	MSCB3131
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	MSCB3232
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.

Course	Parasitology -Lab	Course Code	MSCB3133
Prerequisite	Basic Medical Microbiology Lab	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	1 credit hour

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	MSCB3334
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	MSCB3135
Prerequisite	Clinical Chemistry "2"	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	1 credit hour

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	MSCB4336
Prerequisite	Clinical Hematology	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	3 credit hours

Course Description

The course 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	Blood Bank -Lab	Course Code	MSCB4137
Prerequisite	Blood Bank	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	1 credit hour

Course Description

The course focuses on blood bank procedures' practical application and technical performance. Students will make tests before blood donation, blood typing, compatibility tests, and blood transfusion.

Course	Molecular Diagnosis	Course Code	MSCB4338
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	MSCB4139
Prerequisite	Molecular Biology	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	1 credit hour

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	MSCB4240
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.

Course	Histology	Course Code	MSCB4241
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	MSCB4142
Prerequisite	Anatomy and Physiology (2)	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	1 credit hour

Course Description

The course designed to help students to learn and practice histology techniques: sample collection, fixation, processing, embedding, sectioning and tissue staining, & learn how to prepare slides from different human tissues, tissues' normal structures, and abnormal tissues.

Course	Cancer Biology	Course Code	MSCB4243
Prerequisite	Molecular biology	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	2 credit hours

Course Description

The course is designed to study 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 & Seminar	Course Code	MSCB4244
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 Project	Course Code	MSCB4145
Prerequisite	Research and Seminar	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	1 credit hour

Course Description

The course is designed to build students' abilities to perform a research study. It prepare students to do a literature review, data collection 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	Mscb4346
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	Mscb4147
Prerequisite	Diagnostic Microbiology Lab	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	1 credit hour

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	Tissue Culture	Course Code	Mscb4248
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.

Course	Tissue Culture -Lab	Course Code	MSCB4149
Prerequisite	Molecular Biology	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	1 credit hour

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 -Lab	Course Code	MSCB4150
Prerequisite	Body fluid	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	1 credit hour

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	MSCB4251
Prerequisite	Clinical Chemistry (2)	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	1 credit hour

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.

Course	Embryology	Course Code	MSCB4252
Prerequisite	Molecular biology	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	1 credit hour

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	MSCB4153
Prerequisite	MSCB4251	Department	BioMedical Sciences
Course type	Specialty Requirement	Credit hours	1 credit hour

Course Description

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.