Program of Medical Laboratory Sciences

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This program is run in coordination with the Department of Pathology and Laboratory Medicine in the Faculty of Medicine.

The Medical Laboratory Sciences (MLS) Program graduates committed healthcare professionals to serve and improve the health needs of individuals and communities. Our graduates are highly skilled professionals who perform analytical tests on blood, tissue and body fluids to provide laboratory information for the detection, diagnosis and treatment of diseases. Moreover, our degree guarantees immediate career opportunities and constitutes the foundation for advanced graduate studies in medicine, basic sciences and public health.

Course Description

MLSP 201 Clinical Hematology I 3.0; 3 cr.
A course that introduces students to fundamental concepts in hematology, including the development of blood cell elements, normal physiology of blood cells, and their disorders. This course focuses on anemia, with a special emphasis on diagnosis. *First term.*

MLSP 202 Clinical Hematology II 3.0; 3 cr.
A course that consists of lectures and demonstrations in hematology with emphasis on coagulation and hemostatic disorders, white blood cell anomalies, and leukemia. *Second term.*

MLSP 203 General Microbiology 2.2; 3 cr.
A course that covers structure and morphology of micro-organisms, nutritional requirements and growth, sterilization and disinfection, introduction to microbial genetics, collection and handling of clinical specimens, culture techniques for clinical specimens and expected pathogens, antibiotic sensitivity testing, and assay. *First term.*

MLSP 204 Systematic Bacteriology 2.4; 4 cr.
A course that covers the characteristics of bacteria of medical importance with concentration on the diseases they cause, pathogenesis, mode of transmission, control and methods for isolation, identification, and interpretation of results. *Second term.*

MLSP 207 Immunology and Blood Banking 2.0; 2 cr.
A course that consists of lectures in basic immunology, including types of immune responses, cells of the immune response, antigens, antibodies, and complement system, as well as basic principles in blood banking and transfusion medicine. *First term.*

MLSP 208 General and Diagnostic Virology 2.0; 2 cr.
An introduction to virology covering the general characteristics of viruses, their classification, mode of transmission, pathogenesis, and the diseases they cause in man, is the focus of the first part of this course. The second part emphasizes viral diseases of public health importance, including their epidemiology, control, and possible prevention. *First term*.

MLSP 211 Seminar 1.0; 1 cr.
A seminar in which students are trained to read recently published scientific papers in medical journals, summarize, and present the information. This process also involves discussion and critiques of the presented manuscripts. *Second term*.

MLSP 259 Diagnostic Serology 1.0; 1 cr.
An introduction to the principles of serologic reactions and laboratory techniques in the diagnosis of infectious diseases. *Second term*.

Below are descriptions of the required courses offered by several departments at the Faculty of Medicine: Microbiology and Immunology, and Pathology and Laboratory Medicine.

LABM 201/202 Clinical Chemistry I and II 2.0/3.0; 2/3 cr.
A pair of courses in which the main objective is to acquaint students with fundamentals of clinical chemistry, including various analytical procedures, instrumentation, and methods used for determination of clinical analytes. Correlation of laboratory results with clinical manifestation is also an integral part of these courses. These two courses cover all aspects of routine clinical chemistry testing, such as carbohydrates, electrolytes, acid-base balance, blood gases, nitrogen metabolites, proteins, enzymes, lipids and lipoproteins, calcium metabolism, liver function tests as well as some advanced topics (hormones, therapeutic drug monitoring, toxicology) and specialized techniques like chromatography (HPLC and GC/Ms). *First and second term, respectively.*

LABM 210 Cytology and Histological Techniques 2.0; 2 cr.
A course that includes a series of lectures and demonstrations on cell biology, a review of normal histology of various human organs, a description of examples of pathological changes, lectures on techniques of tissue handling, and preparation and staining of sections and smears for cytological material. Members of the department of Human Morphology. *Second term*.

LABM 220 Clinical Chemistry and Endocrinology 0.20; 4 cr.
Practical experience in clinical chemistry and endocrinology. *Six weeks Prerequisites: LABM 201 and LABM 202*.

LABM 230 Clinical Hematology and Reception 4.20; 4 cr.
Practical experience in clinical hematology special procedures and reception area. *Prerequisites: MLSP 201 and MLSP 202*.

LABM 231 Clinical Laboratory Quality Systems 1.0; 1 cr.
This course is intended to give MLS students a thorough understanding of the quality systems as implemented in clinical laboratories with practical examples in order to relate theory to practice. The course includes all the basic elements and tools required to implement the quality system essentials across all phases of the laboratory workflow: pre-analytical, analytical, post-analytical. *Second term*.

LABM 233 Genetics and Molecular Biology 2.0; 2 cr.
A course that includes an introduction to human genetics, comprising the structure and function of DNA and the classification of genetic disorders. Diagnostic techniques in human genetics (cytogenetics, biochemical, and molecular) will be covered, as well as molecular techniques applied in pathology and microbiology. *First term.*

LABM 235 Medical Mycology 1.0; 1 cr.
A course that covers the different kinds and types of fungi (yeast and mold). This course discusses their disease spectrum mode of infection, gross requirements, and cultural and non-cultural methods of identifications as well as antifungal drugs and susceptibility testing of fungi. *First term.*

LABM 240 Clinical Microbiology 3.2; 4 cr.
Practical experience in clinical microbiology (aerobic and anaerobic bacteriology, mycobacteriology, mycology, and susceptibility testing). Six weeks. *Prerequisites: MLSP 203 and MLSP 204.*

LABM 250 Clinical Parasitology and Urinalysis 1.5.20; 2 cr.
Practical experience in clinical microscopy pertaining to parasitology, urinalysis, and spermogram. *Three weeks. Prerequisite: MBIM 223.*

LABM 260 Serology 1.5.20; 2 cr.
Practical experience in clinical immunology and serodiagnostic techniques. *Three weeks. Prerequisite: MLSP 259.*

LABM 270 Blood Banking 1.5.20; 2 cr.
Practical experience in blood banking and transfusion medicine. *Three weeks. Prerequisite: MLSP 207.*

LABM 280 Cytogenetics, Molecular Diagnostics and Histotechniques 0.20; 2 cr.
Practical experience in reception, cytogenetics, and histotechniques. *Three weeks. Prerequisite: LABM 210.*

MBIM 223 Parasitology for MLS Students 2.2; 4 cr.
A diagnostic parasitology four credit course offered to MLSP junior students in spring term of each academic year. The purpose of the course is to provide the basic principles and concepts of parasitic diseases and their laboratory diagnosis. Emphasis is placed on life cycles, pathogenesis, preventive measures and in-depth laboratory identification of the parasites. *Second term.*

Modes of Analysis	Languages (9)	Humanities (12)	Social Sciences (9)	Natural Sciences (14)	Quantitative Thought (3)	Major Courses (34+20)
Lecture Course (9+12 +9+11 +3+33+3)	• Required Arabic Course: (3) • Required English Courses: ENGL203 (3), 204 (3)	• PHIL 205 (3) • 3 electives (9)	• HMPD 204(3) • HPCH 203(3) • Elective(3)	• BIOL 201(4) • CHEM 208(3) • PHYL 246(4) • BIOC 255(3)	• EPHD 203(3)	• MLSP 201(3), 202(3), 203(3), 204(4), 207(2), 208(2), 259(1) • LABM 201(2), 202(3), 210(2), 231(1), 233(2), 235(1) • MBIM 223(4)
Lab (3+1+5)				• BIOL 201(4) • CHEM 209(2)	• EPHD 203(3)	• MLSP 203(3), MLSP 204(4), MBIM 223(4)
Seminar (1)						• MLSP 211(1)
Practical Training (20)						• LABM 220(4), 230(4), 240(4), 250(2), 260(2), 270(2), 280(2)