

Department of Medical Laboratory Technology

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| Professor: | Ramia, Sami T. |
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| Instructors: | Khatib, Rolla J.; Shamra, Sarah K. |

Faculty members in the Department of Pathology and Laboratory Medicine in the Faculty of Medicine also teach in the program.

The MLT program is designed to prepare students for a career in the profession of medical technology by acquiring theoretical knowledge and practical skills in various disciplines of the specialty. Besides presenting theoretical knowledge, the program is dedicated to training students in the reliable performance of physical, chemical, and biological tests by utilizing routine and automated techniques. In addition, students are trained to develop the ability to interpret generated laboratory results and hence contribute to the diagnosis of disease. Continuing one's education, and updating skills and knowledge, as well as medical professional ethics, are emphasized.

MLTP 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.

MLTP 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.

MLTP 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.

MLTP 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.

MLTP 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.

MLTP 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.

MLTP 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.

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

This program is in coordination with the Department of Pathology and Laboratory Medicine in the Faculty of Medicine. Below are descriptions of the required courses offered by several departments at the Faculty of Medicine: Biochemistry, Microbiology and Immunology, Pathology and Laboratory Medicine, and Physiology.

BIOC 255 Biochemistry for MLTP 45.0; 3 cr.
The course provides an overview of structure, function, and metabolism of basic biological micro/macro molecules; a general review of the genetic makeup; and emphasizes the clinical relevance by correlating disease to basic information. *The course is an introductory biochemistry course, offered to undergraduate students in the Medical Lab Technology Program and related fields. Second semester.*

LABM 201/202 Clinical Chemistry I and II 2.0; 2 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 analyses. 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, liquids and lipoproteins, and liver function.

LABM 210 Cytology and Histological Techniques 32.0; 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 and the Department of Human Morphology.

LABM 220 Clinical Chemistry and Endocrinology 0.128; 4 cr.
Practical experience in clinical chemistry and endocrinology. *Eight weeks.*

LABM 230 Clinical Hematology and Reception 0.128; 4 cr.
Practical experience in clinical hematology special procedures. *Eight weeks.*

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.

LABM 234 Special Topics/Techniques in Laboratory Medicine 2.0; 2 cr.

A course that provides theoretical knowledge in specialized topics including general endocrinology, chromatography, toxicology, tumor markers, therapeutic drug monitoring, flowcytometry, molecular testing, advanced clinical microbiology, antimicrobial agents, blood banking and transfusion medicine, and total quality management.

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.

LABM 240 Clinical Microbiology 0.128; 4 cr.

Practical experience in clinical microbiology (aerobic and anaerobic bacteriology, mycobacteriology, mycology, and susceptibility testing). *Eight weeks.*

LABM 250 Clinical Parasitology and Urinalysis 0.64; 2 cr.

Practical experience in clinical microscopy pertaining to parasitology, urinalysis, and spermogram. *Four weeks.*

LABM 260 Serology 0.64; 2 cr.

Practical experience in clinical immunology and serodiagnostic techniques. *Four weeks.*

LABM 270 Blood Banking 0.64; 2 cr.

Practical experience in blood banking and transfusion medicine. *Four weeks.*

LABM 280 Cytogenetics, Molecular Diagnostics and Histotechniques 0.64; 2 cr.

Practical experience in reception, cytogenetics, and histotechniques. *Four weeks.*

MBIM 223 Parasitology for MLT Students 39.39; 4 cr.

Second semester.

PHYL 246 Physiology for Nursing Degree Students and Undergraduates 48; 4 cr.

A course that outlines fundamental principles of human physiology and the mechanisms governing the function of different body organs. *Prerequisite: BIOC 246; BIOL 201 (or BIOL 210). Annually.*

| Modes of Analysis | Languages (9) | Humanities (12) | Social Sciences (9) | Natural Sciences (14) | Quantitative Thought (3) | Major Courses |
|---------------------------------|---|---------------------------------------|---|--|----------------------------------|---|
| Lecture Course (9+12+9+14+3+33) | 1. Required Arabic Course:(3) 2. Required English Courses: ENGL 203(3), 204(3) | 1. PHIL 205 (3) 2. 3 electives (9) | 1. HMPD 204(3) 2. HBED 203(3) 3. Elective (3) | 1. BIOL 200(4) 2. CHEM 208(3) 3. PHYL 246(4) 4. BIOC 255(3) | 1. EPHD 203(3) 2. HMPD 206(0) | MLTP 201(3), 202(3), 203(3), 204(4), 207(2), 208(2), 259(1) LABM 201(2), 202(2), 210(2), 233(2), 234(2), 235(1) MBIM 223(4) |
| Lab (3+1+5) | | | | 1. BIOL 200(4) 2. CHEM 209(2) | 1. EPHD 203(3) | MLTP 203(3), MLTP 204(4), MBIM 223(4) |
| Seminar (1) | | | | | | MLTP 211(1) |
| Practical Training (20) | | | | | | LABM 220(4), 230(4), 240(4), 250(2), 260(2), 270(2), 280(2) |