

## Courses Description

**College:** Applied Medical Sciences

**Department:** Medical Laboratory Sciences

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**Couse ID:** 501701      **Description:** Biostatistics

**Full Course Description:** A broad overview of the biostatistical methods and concepts used in the public health sciences. Fundamental statistical concepts related to the practice of public health include: descriptive statistics; probability; sampling; statistical distributions; estimation; hypothesis testing; chi-square tests; simple and multiple linear regressions; one-way ANOVA. In addition, the use of the computer in statistical analysis is also emphasized.

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**Couse ID:** 501711      **Description:** Advanced Endocrinology

**Full Course Description:** Study the function and organization of the major endocrine glands, physiological and molecular details on the synthesis, release, transport and mechanism of hormones action, and the effect of those hormones on target cells with regard to normal growth, development and homeostasis. The cooperative relationship between the endocrine, nervous and immune systems will also be discussed.

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**Couse ID:** 501712      **Description:** Advanced Histology

**Full Course Description:** A complete in depth study of the microscopic structure of the cells, tissues, and organs of the different human body systems. Students in this course will be exposed to the different histological techniques and various stains that are used in order to distinguish the closed related cellular and histological structures under the microscope. The different types of microscopy and their uses in collaboration with the different histological techniques will be explained. In this course, the correlation of microscopical structures and function will be emphasized as well.

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**Couse ID:** 501721      **Description:** Advanced Clinical Chemistry

**Full Course Description:** Topics include pathophysiology and correlation to clinical chemistry data, mechanisms of pathology and analytical techniques (automated and manual) related to chemical analysis of blood, urine, CSF, and other body fluids. Nutrition and wellness, reproductive and pregnancy monitoring, neonates, pediatrics and geriatric clinical chemistry will be presented.

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**Couse ID:** 501722      **Description:** Analytical and Forensic Toxicology

**Full Course Description:** The use of toxicology along with a few other disciples like analytical, pharmacology and clinical chemistry in medico-legal investigations of death, poisoning and drug use will be discussed. Student will be involved in a range of activities such as identification and measurement of xenobiotics in biological specimens collected during an autopsy

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**Couse ID:** 501731      **Description:** Advanced Clinical Hematology

**Full Course Description:** Principles for quality control and sources of errors in all routine and specialized hematology procedures including automated methods. Students expected to experience laboratory methods used for differential diagnosis of blood diseases. Special emphasize will be on applications of flow-cytometry, molecular and genetic methods for disease diagnosis, classification, prognosis and monitoring after treatment.

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**Couse ID:** 501732      **Description:** Advanced Immunology and Diagnostic Serology

**Full Course Description:** This course will intend to update student's knowledge of immunological and serological methods/approaches commonly used in laboratory medicine. Theory, application and techniques used in clinical immunology: immunochemistry, serology, immunohematology and immunopathology will be covered. Moreover, students will present the latest research and diagnostic methods in the field of immunology and serology.

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**Couse ID:** 501741      **Description:** Advanced Diagnostic Microbiology

**Full Course Description:** Study infectious diseases and agents of infectious diseases including source, clinical manifestations, pathogenesis, epidemiology, treatment, and prevention and control, and the correlation of these subjects with laboratory diagnostic methods.

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**Couse ID:** 501742      **Description:** Advanced Parasitology

**Full Course Description:** It will cover the understanding and the evolution of parasites, the influence of parasitic diseases upon human history, as well as ecological, physiological and immunological interactions between parasites and their hosts.

## Courses Description

**College:** Applied Medical Sciences

**Department:** Medical Laboratory Sciences

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**Couse ID:** 501751      **Description:** Molecular Genetics and Gene Therapy Applications

**Full Course Description:** Advanced topics of genetic basis/components in prevalent diseases, genetically engineered organisms, food, gene transfer, and gene therapy. Genetic diseases and acquired diseases such as cancer and AIDS in addition to the health, safety, and ethical issues will be covered. Biochemical genetics based on the diagnostic tools, the prognosis, and the progression of selected biochemical disorders, as well as the treatments used with this group of conditions. Each topic includes a case presentation, clinical presentation, underlying biochemical defect, biochemical findings, pathogenesis of clinical findings based on understanding of the enzymatic defect, genetics, treatment, and prevention.

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**Couse ID:** 501752      **Description:** Applied Assisted Reproduction

**Full Course Description:** Recent concepts and events of human embryogenesis, understanding fundamental molecular and cellular mechanisms those underlie differentiation and morphogenesis of human embryo. Present the latest developments in methods of assisted human reproduction.

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**Couse ID:** 501791      **Description:** Research Methods and Data Analysis

**Full Course Description:** The basic concepts of research methods and data analysis used in the study of medical laboratory sciences. Its goals are to help students to think critically in approaching problems, to give them hands-on experience with a variety of methodological techniques, to train them analyze and interpret the results of a research study and able to communicate research findings to medical laboratory scientists audience.

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**Couse ID:** 501797      **Description:** Research Project

**Full Course Description:** The student is required to prepare and submit a mini thesis not less than (10000) words and must be discussed with teacher.

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**Couse ID:** 501799      **Description:** Thesis

**Full Course Description:** a

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**Couse ID:** 2501798      **Description:** Comprehensive Exam

**Full Course Description:** a

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**Couse ID:** 3501799      **Description:** Thesis

**Full Course Description:** a

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**Couse ID:** 6501799      **Description:** Thesis

**Full Course Description:** a

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**Couse ID:** 9501799      **Description:** Thesis

**Full Course Description:** ah

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**Couse ID:** 140501701      **Description:** Advanced Biostatistics

**Full Course Description:** <sup>11</sup>A broad overview of the biostatistical methods and concepts used in the public health sciences. Fundamental statistical concepts related to the practice of public health include: descriptive statistics; probability; sampling; statistical distributions; estimation; hypothesis testing; chi-square tests; simple and multiple linear regressions; one-way ANOVA. In addition, the use of the computer in statistical analysis is also emphasized.

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**Couse ID:** 140501712      **Description:** Advanced Pathophysiology

**Full Course Description:** Provides pathophysiological principles and concepts essential for performing advanced clinical assessments, differential diagnoses, and therapeutic decision-making. Describes disordered physiology and clinical consequences of common disease processes. Analyses of the biophysical rationale are used during seminar, problem-solving exercises and case studies to recognize the pathophysiologic bases of clinical findings.

## Courses Description

**College:** Applied Medical Sciences

**Department:** Medical Laboratory Sciences

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**Couse ID:** 140501714      **Description:** Advanced Endocrinology

**Full Course Description:** Study the function and organization of the major endocrine glands, physiological and molecular details on the synthesis, release, transport and mechanism of hormones action, and the effect of those hormones on target cells with regard to normal growth, development and homeostasis. The cooperative relationship between the endocrine, nervous and immune systems will also be discussed.

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**Couse ID:** 140501715      **Description:** Advanced Micro-techniques and Histopathology

**Full Course Description:** A complete in depth study of the microscopic structure of the cells, tissues, and organs of the different human body systems. Students in this course will be exposed to the different histological techniques and various stains that are used in order to distinguish the closed related cellular and histological structures under the microscope. The different types of microscopy and their uses in collaboration with the different histological techniques will be explained. In this course, the correlation of microscopical structures and function will be emphasized as well.

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**Couse ID:** 140501722      **Description:** Advanced Clinical Chemistry

**Full Course Description:** Topics include pathophysiology and correlation to clinical chemistry data, mechanisms of pathology and analytical techniques (automated and manual) related to chemical analysis of blood, urine, CSF, and other body fluids. Nutrition and wellness, reproductive and pregnancy monitoring, neonates, pediatrics and geriatric clinical chemistry will be presented.

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**Couse ID:** 140501727      **Description:** Advanced Proteomics

**Full Course Description:** This course covers the structure, folding, and various functions of proteins in great detail. The kinetics and mechanisms of action of the different types of proteins and enzymes are discussed to determine the functions and concentrations of these enzymes.

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**Couse ID:** 140501731      **Description:** Advanced Diagnostics Hematology

**Full Course Description:** Principles for quality control and sources of errors in all routine and specialized hematology procedures including automated methods. Students expected to experience laboratory methods used for differential diagnosis of blood diseases. Special emphasize will be on applications of flow-cytometry, molecular and genetic methods for disease diagnosis, classification, prognosis and monitoring after treatment. □

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**Couse ID:** 140501732      **Description:** Advanced Diagnostic Immunology and Serology

**Full Course Description:** This course aims to provide a detailed mechanisms of the immune system, describing some fundamental discoveries in cellular and molecular immunology in addition to an up to date knowledge of immunological and serological methods/approaches commonly used in laboratory medicine. Topics include MHC and antigen presentation, NK cells, innate sensing, inflammation, lymphocyte development and tolerance, theory and application and techniques used in clinical immunology. Students will be exposed to the different diagnostic techniques used for the assessment of immune cell functions. Moreover, students will present the latest research and diagnostic methods in the field of immunology and serology.

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**Couse ID:** 140501733      **Description:** Advanced Blood Banking and Blood Transfusion

**Full Course Description:** A comprehensive unit covering several advanced subjects in blood banking and transfusion medicine, including blood groups, antibody identification, transfusion practice and products, and adverse reactions to blood transfusion. Discussions on advanced immunohematologic procedures in the examination of blood group systems, antibody identification and other procedures used in blood banking and in the separation and isolation of different blood constitutes will be made.

## Courses Description

**College:** Applied Medical Sciences

**Department:** Medical Laboratory Sciences

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**Couse ID:** 140501741      **Description:** Adnanced Diagnostic Microbiology

**Full Course Description:** Study infectious diseases and agents of infectious diseases including source, clinical manifestations, pathogenesis, epidemiology, treatment, and prevention and control, and the correlation of these subjects with laboratory diagnostic methods.

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**Couse ID:** 140501743      **Description:** Advanced Diagnostic Parasitology

**Full Course Description:** It will cover the understanding and the evolution of parasites, the influence of parasitic diseases upon human history, as well as ecological, physiological and immunological interactions between parasites and their hosts.

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**Couse ID:** 140501744      **Description:** Advanced Infectious Disease Epidemiology

**Full Course Description:** This course aims to provide students with in-depth knowledge in the area of Infectious Disease epidemiology. The course will discuss risk and occurrence of important groups of infectious diseases such as sexual transmitted diseases, respiratory diseases, vector- borne diseases, blood-borne diseases- zoonoses and neglected tropical diseases and the effects of public health interventions designed to prevent or control them.

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**Couse ID:** 140501751      **Description:** Molecular Genetics and Gene Therapy Application

**Full Course Description:** Advanced topics of genetic basis/components in prevalent diseases, genetically engineered organisms, food, gene transfer, and gene therapy. Genetic diseases and acquired diseases such as cancer and AIDS in addition to the health, safety, and ethical issues will be covered. Biochemical genetics based on the diagnostic tools, the prognosis, and the progression of selected biochemical disorders, as well as the treatments used with this group of conditions. Each topic includes a case presentation, clinical presentation, underlying biochemical defect, biochemical findings, pathogenesis of clinical findings based on understanding of the enzymatic defect, genetics, treatment, and prevention.

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**Couse ID:** 140501791      **Description:** Advanced Research Methods and Data Analysis

**Full Course Description:** The basic concepts of research methods and data analysis used in the study of medical laboratory sciences. Its goals are to help students to think critically in approaching problems to give them hands-on experience with a variety of methodological techniques, to train them analyze and interpret the results of a research study and able to communicate research findings to medical laboratory scientists' audience.

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**Couse ID:** 140501792      **Description:** Advanced Research Project

**Full Course Description:** The student is required to prepare and submit a mini thesis not less than (10000) words and must be discussed with teacher.

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**Couse ID:** 140501798      **Description:** Comprehensive Exam

**Full Course Description:** "

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**Couse ID:** 140501799      **Description:** Thesis

**Full Course Description:** "