Course Descriptions

For additional information regarding courses at the Our Lady of Fatima Hospital School of Medical Technology, please contact the Program Director at **401-456-3416,** via email at **theresa.castellone@chartercare.org**, or refer to the **school catalog**.

Microbiology (50 hours)

This course covers topics in routine bacteriology, parasitology, mycology, virology, and mycobacteria. Discussions include the mechanisms of pathogenicity, anaerobes, mechanisms of antimicrobial susceptibility, definition and composition of viruses, the differences between micro-organisms and viruses, methods by which viruses replicate, the major human viruses, the means by which viruses spread, properties used to characterize and classify viruses, methods by which laboratories isolate and identify viruses, classification schema of fungi, definitions of the commonly used terminology in mycology, methodology used by the laboratory in identifying fungi, the fungi most implicated in human disease, the pathology of diseases produced by fungi, basic physiology and life cycles of parasites, geographic distribution and environmental effect on parasite, vector, host relationship,; diagnostic criteria for identification of clinically significant parasites, pathogenicity and transmission of parasites, and symptomatology and disease states associated with discussed parasites.

Hematology (60 hours)

This course covers topics in Hematology, Urinalysis, and Coagulation. Hematology discusses the maturation process and role of the erythrocyte, myeloid, and lymphoid cells. Disease states associated with each cell line, laboratory identification, testing, symptoms, etc. are discussed. Urinalysis covers the normal physiology and function of the kidney, several biochemical tests routinely performed on urine specimens, microscopic examination of urine sediments, observation and identification of crystals, cells and casts and the possible indication of abnormality or underlying disease in the patient. Coagulation (hemostasis) discusses normal and abnormal hemostasis, the theories of coagulation, the role of factors within that system, and the manifestation of disease related to abnormalities within the system, including platelet and vascular abnormalities.

Immunohematology (30 hours)

This course covers topics in the development and chemical structure of blood group antigens, the correlation of physical properties of the antigens and antibodies with testing procedures, the role of complement in the blood bank, compatibility testing, antibody identification procedures, the inheritance patterns of blood groups, hemolytic disease of the newborn, transfusion reaction, the preparation and use of components, HLA theory and testing, and donor requirements and testing.

Professional Topics (30 hours)

This course will present contemporary theories and practices used in the management of the clinical laboratory in a hospital setting. Topics include: Human Resource Management, Quality Assurance, Proficiency Testing, Laboratory Information Systems (LIS), Laboratory Accreditation, Financial Resource Management, and Safety. Professional topics include: certification, personnel licensure, professional societies, government regulations, a Capstone project, educational methodologies, medical ethics, and communication in the workplace.

Chemistry (38 hours)

This course covers topics in instrumentation; water and mineral metabolism; buffer systems and acid-base balance; carbohydrates; lipids; proteins, including nitrogen and purine metabolism, enzymes, and liver function tests; toxicology; drug monitoring; vitamins; and hormones. At the appropriate times, pathophysiology lectures describing the changes that occur with altered chemistry are presented.

Immunology (12 hours)

This course covers topics centered on the reaction of antigen with its antibody and the role of the laboratory in the detection of antigens and antibodies. Additional discussions include defining disease states associated with abnormal functioning of the immune system: allergy, hypersensitivity, cancer, autoimmune etc.

Molecular Pathology (14 hours)

This course covers topics on DNA structure, properties, and function in the cell with a focus on molecular techniques such as PCR (polymerase chain reaction). How these methods are used in the laboratory as a diagnostic tool in detecting DNA of infectious agents (viruses, bacteria, fungi, etc.), genetic mutations in coagulation and hematologic disorders, and neoplastic mutations in a variety of cancers. This course also covers topics which introduce the general concepts in pathology. These concepts are the basis for further discussions on the pathophysiology of specific organs or systems and for the demonstration of clinical correlation with disease states.