

Course Description**MLS4506 | Clinical Immunology | 3.00 credits**

Clinical Immunology will provide an overview of immunology concepts and the theory of some immunologic procedures. The immunologic manifestation of infectious disease and immune disorders will also be covered.

Course Competencies:

Competency 1: The student will demonstrate knowledge of immunology theories and principles by:

1. Explaining the types of immunity and the cells and cellular activities of the immune system
2. Explaining the characteristics and functions of antigens and antibodies
3. Differentiating the types and functions of lymphocytes and their subsets
4. Differentiating the role of granulocytes and mononuclear cells
5. Evaluating soluble mediators of the immune system

Competency 2: The student will analyze the theory of immunologic and serologic procedures by:

1. Evaluating Quality Assurance and Quality Control in the laboratory
2. Explaining Point-of-Care Testing (POC) and other basic Serological laboratory techniques
3. Comparing Electrophoresis techniques such as capillary Electrophoresis and microchip capillary Electrophoresis and the applications; Comparing immune-electrophoresis and immune-fixation including clinical applications
4. Explain the Polymerase Chain Reaction (PCR) technique
5. Explaining other Nucleic Acid Testing (NAT) methods

Competency 3: The student will evaluate labeling techniques in immunology by:

1. Explaining the general principles of heterogeneous and homogenous immunoassay
2. Comparing direct immunofluorescence to indirect immunofluorescence
3. Evaluating the types of immunoassays such as chemiluminescence, electrochemiluminescence, enzyme immunoassay and Fluoro immunoassay
4. Analyzing emerging labeling technologies

Competency 4: The student will describe immunologic manifestations of infectious diseases by:

1. Explaining the acquisition of an infectious disease, i.e. the factors that can influence the exposure to and the development of an infectious disease
2. Explaining how the body develops immunity to bacterial, parasitic, fungal, and viral diseases
3. Differentiating the laboratory methods for viral rickettsia and mycoplasmic diseases
4. Evaluating the laboratory detection of the
5. immunologic response to syphilis, viral hepatitis and acquired immunodeficiency syndrome

Competency 5: The student will analyze disorders related to the immune system by:

1. Distinguishing the four types of hypersensitivity relations and giving examples of each type I, II, III and IV as well as the laboratory identification methods of each
2. Reviewing the laboratory identification and diagnostic tools immune-proliferative disorders such as multiple myeloma
3. Explaining the difference between organ specific and organ nonspecific autoimmune disorders with emphasis on some of the commonly encountered diseases
4. Analyzing organ transplantation and the laboratory
5. procedure used to screen potential donor and potential recipient
6. Analyzing the types graft vs host diseases

Learning Outcomes:

- Communicate effectively using listening, speaking, reading, and writing skills
- Solve problems using critical and creative thinking and scientific reasoning