Course Title	Clinicall Immunology and Hematology				
Course Code	BMS322				
Course Type	Compulsory				
Level	Bachelor (1st Cycle)				
Year / Semester	3rd Year / 6th Semester				
Teacher's Name	TBA				
ECTS	7	Lectures / week	2 Hours	Laboratories / week	2 Hours
Course Purpose and Objectives	The objective of this course is to provide the ground knowledge of the immune system and its functions as well as the role of cells found in the blood. Comparison will be made between healthy state and states where either the immune system is being compromised (immune deficiencies, autoimmunity, hypersensitivity disease, transplantation) or hematological malfunctions occur.				
Learning Outcomes	On completion of the course, students should be able to: • define the basic components of the immune system • identify its function in health and disease (immune deficiencies, autoimmunity, hypersensitivity disease, transplantation) • describe the various tests and techniques used to examine its function and their use in clinical diagnostics • outline the principles of vaccinations and the mechanism of protection from infection • distinguish the developmental stages of blood cells • demonstrate and understanding of the components of human blood and characteristics, functions, and abnormalities of each • describe the coagulation mechanism including abnormalities • identify hematological changes in different diseases				
Prerequisites	None	Co-requisites	None		
Course Content	• Topics that will be covered with regard to clinical immunology include: a) The innate immune system including humoral mechanisms: cytokines & complement; b) the activation and regulation of innate and adaptive immunity including cellular mechanisms & receptors c) an overview of the adaptive immune system including antigen processing & presentation; d) the description of cells and organs of the immune system; e) Cell co-operation and effector mechanisms including immune				

	evasion and principles governing vaccination; f) antibody structure and interaction with antigens; g) the molecular basis of antigen specificity h) self/non-self discrimination and disorders of the immune system; i) Immunisation principles and defense against infectious diseases; j) tumor immunology; k) transplantation immunology; l) Inflammation, Allergies &autoimmunity m) Immune deficiences; and n) the use of immunological techniques for testing for the diagnosis and laboratory monitoring of disease in the clinical laboratory. • Topics that will be covered with regard to hematology include: a) Hematopoiesis, b) synthesis of hemoglobin, c) normal hematology, c)leukemia, d)various types of anemia (Fanconi, thalassemia, sickle-cell), e) thrombopoiesis, f) hemostasis **Laboratory exercises** • peripheral blood lymphocyte isolation and culture • monocyte and lymphocyte subsets isolation using antibody-coated magnetic beads • identification of functional subsets of T cells by staining for cytokines • apoptosis measurement • Enzyme Linked ImmunoSorbent Assay (ELISA) test for cytokine identification • phagocytosis evaluation techniques • differential white blood cell count • hematocrit measurement (VPRC) • hemoglobin measurement • coagulation time measurement • blood typing • total Blood Cell Counts by hemocytometer • flow cytometry and FACS analysis (principle of the method, theory and applications)
Teaching Methodology	Face- to- face
Bibliography	AK. Abbas, AH H. Lichtman. Basic Immunology Updated Edition: Functions and Disorders of the Immune System Online Access, 3e (Basic Immunology: Functions and Disorders of the Immune System) Saunders; 3 edition (February 12, 2010). ISBN-10: 141605569X, ISBN-13: 978-1416055693 Turgeonr ML Clinical Hematology: Theory & procedures, 5th edition, Williams & Wilkins

Assessment	Mid – Term Examination 30% Final Examination 40% Assignments/Lab 20% Class Participation 10% 100%
Language	English