Course Title	**Introduction to Haematology**				
Course Code	ABS207				
Course Type	Compulsory				
Level	BSc (Level 1)				
Year / Semester	2nd / 3rd Semester				
Teacher's Name	Dr Paula Costeas, Dr Vasilia Tamamouna				
ECTS	6	Lectures / week	3	Laboratories/week	2
Course Purpose	To provide students with an introduction to basic haematology and promote their understanding of the principles of hematology, hematopoiesis, blood components and function, as well as the manual automations in hematology and the common pathological blood disorders.				
Learning Outcomes	After completion of the course students are expected to be able to: 1. Discuss the emergence of the different hematopoietic lineages and know their function 2. Describe the maturation and differentiation pathways carried out by the hematopoietic cell lineages in the bone marrow 3. Describe the different hematological malignancies with respect to cell type, aggressiveness, treatment options 4. Understand the different techniques/ clinical assessment methodologies for hematological malignancies 5. Understand how bone marrow failure affects hematopoiesis and discuss treatment options 6. Discuss hereditary and acquired causes of anemia 7. Describe hemoglobin disorders and syndromes 8. Understand hemostasis, the mechanisms involved and the disorders associated with imbalance in hemostasis 9. Review critically scientific literature and report on current practices in the relevant fields of hematology				
Prerequisites	None	Corequisites	None		
Course Content	<u>Theory</u> 1. Principle of blood collection 2. Haematopoiesis – roles of cytokines, growth factors and bone marrow microenvironment (niches). Bone marrow failure: Aplastic anaemia. 3. Erythropoiesis; Normal red cell structure, red cell metabolism (including generation of ATP, 2,3 DPG and antioxidant defense); Normal haemoglobin (structure and function) Red cell senescence and removal by RE system 4. Leucopoiesis; Normal function of granulocytes, monocytes and lymphocytes; Anatomy of immune system (primary and secondary lymphoid organs) Innate immunity and the inflammatory response				

	5. Anaemia: Pathophysiology and clinical signs/symptoms; 6. Iron metabolism; Red cell disorders relating to iron, anemias. Haemochromatosis and other iron overload 7. Megaloblastic anaemia due to vit B12 or folate deficiency Haemolytic anaemia. Hereditary causes (spherocytosis, elliptocytosis, enzymopathies, etc.) Acquired causes (immune, non-immune including malaria and PNH 8. Genetic disorders of haemoglobin: Structure of the haemoglobin genes; Thalassaemia syndromes; Structural haemoglobinopathies 9. Non-malignant white cell disorders: Secondary leucocytosis and effects of bacterial / viral infection (including infectious mononucleosis; Agranulocytosis; Molecular pathogenesis of leukaemia. 10. Acute leukaemias; Myelodysplastic syndromes; Classification FAB/ WHO Aspects of treatment (chemotherapy – targeted and nontargeted; HSC transplantation) 11. Chronic myeloid leukaemia; Myeloproliferative disorders 12. Lymphoproliferative disorders: Chronic lymphocytic leukaemia; Hodgkins lymphoma; Non-Hodgkins lymphoma; Multiple Myeloma / Waldenstroms macroglobulinaemia 13. Haemostasis: Components of haemostasis system; Haemostasis mechanisms 14. Hemolytic anemias 15. Hemoglobinopathies and Thalassemia <u>Laboratories:</u> Students will gain hands on experience by using manual methods which are currently used in clinical hematology, including differential cell counting, use of microscopy to recognize cell types in both health and hematological conditions. Practicals will include blood sample analysis using automated analyzers.
Teaching Methodology	Teaching methodology includes lectures, poster and/or oral presentations, case studies, independent study and review sessions on the theoretical background and laboratory exercises, demonstrations and workshops in order to better understand and comprehend basic aspects of haematology. During lectures time will be allocated for discussions in order to encourage students to answer questions and draw their own conclusions and develop critical thinking approaches
Bibliography	<u>Textbooks:</u> 1. Clinical Hematology: Theory & Procedures, Enhanced Edition: Theory & Procedures, Enhanced Edition 6th Edition, 2019. Mary Lou Turgeon, ISBN: 978-1284294491 2. Hoffbrand's Essential Haematology, 8th Edition, Victor Hoffbrand, David P. Steensma. ISBN: 978-1-119-49590-1 December 2019 <u>References:</u>

	A list of recently published articles will be provided for further reading.
Assessment***	For student evaluation, the overall grade is determined by a written midterm exam (20%), a laboratory grade (20%) and a written final exam (60%). The mid-term exam is carried out between the 6th and 8th week and it mainly includes short answer questions and problem- solving questions and examines most modules of the course. As far as the laboratory grade is concerned, it comprises of the evaluation of the laboratory reports (60% of the laboratory grade) submitted by the students for each experiment/ demonstration/ workshop and a final laboratory examination (40% of the laboratory grade) which mainly includes short answer questions and problem-solving questions. In the laboratory reports, students are asked to describe the experiment procedure, to evaluate and analyse their results and to answer specific questions. The following criteria are taken into account when evaluating laboratory reports: (a) experimental data collection (30%), (b) data analysis (40%), and application of theory to draw conclusions (30%). The final exam of the course is carried out during the 14th-16th week of each semester and it includes short answer questions, critical thinking questions, and problem-solving questions regarding all course modules. The final assessment of the students is formative and summative and complies with the subject's expected learning outcomes and the quality of the course.
Language	Greek, English