HEMATOLOGY WITH LABORATORY TECHNOLOGIES	
GENERAL INFORMATION	
Course coordinator	Asst. Prof. Vlatka Periša, MD, PhD
Assistant/Associate	Assoc. Prof. Stana Tokić, MMolBiol, PhD Stefan Mrđenović, PhD Maja Lukić, MMedBiochem
Study Programme	Undergraduate University Study of Medical Laboratory Diagnostics
Status of the course	mandatory
Year of study, semester	2nd year, 4th semester
ECTS	**7**
Workload (hours)	Lectures: 45 ; Seminars: 5; Lab exercises: 45
Expected number of students	30 - 35

COURSE DESCRIPTION

Course objectives

The acquisition of knowledge from specific areas of hematology, in particular clinical hematology, training students in the application of hematology tests in disease diagnosis, solving differential diagnostic problems and monitoring of treatment protocols. Additionally, training students in monitoring changes in the function of individual organs and systems, and independent laboratory analysis, while providing knowledge of the organization of work in hematology and oncology laboratories and rational use in clinical or research laboratories.

Course requirements and required competences

Attended courses in the 1st year of the study program

Learning outcomes relevant to the study program

1.2, 2.1, 2.2, 2.3, 2.4, 3.1, 3.2

Expected learning outcomes at the course level

After attending lectures, seminars and exercises, self-learning and successfully passing the exam, the students will be able to:

1. critically assess problems in the field of hematology
2. link the cytomorphology of hematopoietic cells to their activity in the physiology of the hematological system
3. explain the metabolism of granulocytes, platelet differentiation, lymphopoiesis, lymphopoiesis cytomorphology and lymphopoietic cell activity in specific immunity
4. evaluate laboratory procedures in the analysis of erythrocytes, leucocytes and platelets;
5. conclude on morphological changes in cells and tissues of hematopoietic tissue
6. conclude on the morphology of peripheral blood and bone marrow cell elements
7. independently prepare hematological peripheral blood and bone marrow slides for diagnostic processing.

Course content

Lectures: Introduction to hematology; Normal hematopoiesis and hematopoietic organs; Anemia; Laboratory access to patients with hematological diseases; Lymphocytes and lymphatic organs; Lymphocyte and lymphatic system diseases; Leukocytes; Leukocyte diseases; Leukemia; Basic hematopoietic stem cell diseases, molecular methods and the interpretation of a rational selection of molecular tests in algorithms; Underlying principles of the treatment of malignant hematological diseases; Hemostasis; Platelet diseases.

Seminars: Inherited blood coagulation disorders; Acquired blood coagulation disorders.

Exercises: Introduction to laboratory hematology; Leukocytes; Laboratory hematology tests; Red blood cells; White blood cells; Hemostasis.

Form of instruction

Lectures; seminars; exercises.

Student obligations

Attending all forms of instruction is mandatory, and the student must sit for all exams. A student can be excused from 30% of every form of instruction. Missed exercises must be compensated by sitting for an exam.

Monitoring student learning *(*Interconnectedness of learning outcomes, teaching methods and grading*)*

Type of exam: written exam.

Curricular activities	ECTS	Learning outcome	Student participation	Assessment methods	Points	
					Min.	Max.
Attendance: lectures seminars exercises	0.25 0.75 2	1-6 7	Class attendance, Active participation in seminars; Completed exercise and an accepted paper	Records Paper	1 4 15	5 15 30
Final exam	4	1-7	Preparation for the final exam	Written exam	30	50
Total	**7**	1-7			**50**	**100**

Valuation of the written part of the final exam

Percentage of correctly solved tasks (%)	Points
60.00-64.99	30
65.00-69.99	33
70.00-74.99	36
75.00-79.99	39
80.00-84.99	41
85.00-89.99	43
90.00-94.99	47
95.00-100	50

Formulation of the final grade:

Points achieved in class are combined with points achieved on the final exam. The grading shall be carried out by using absolute distribution, i.e. shall be based on the final achievement and compared to the numerical system as follows:

A – excellent (5): 80-100 points; B – very good (4): 70-79.99 points; C – good (3): 60-69.99 points; D – sufficient (2): 50-59.99 points. Type of exam: written exam.

Mandatory reading (available in the library or in other mediums)

Title	Number of copies in the library	Availability in other mediums
1. Labar, B. et al. Hematologija [Hematology]. Zagreb, Školska knjiga, 2017	7	

Additional reading
1. Premužić-Lampič M.: Hematologija – klinička i laboratorijska [Hematology – Clinical and Laboratory], Medicinska naklada, Zagreb, 2000 2. Lewis SM, Bain BJ, Bates I: Dacie and Lewis Practical Haematology, 10th edition, Churchill Livingstone, Elsevier, 2006 3. McKenzie: Clinical Laboratory Hematology, ed E. Zeibig, Pearson Education, Inc. Upper Saddle River, New Jersey, 2004 4. Guyton A.C. and Hall J.E. Krvne stanice, imunost i zgrušavanje krvi [Blood Cells, Immunity and Blood Coagulation], Medicinska fiziologija, 11th Edition, Medicinska naklada, Zagreb, 2006
Quality monitoring methods ensuring the acquisition of competences upon completion
An anonymous, quantitative, standardized student survey on the course and the work of professors conducted by the Quality Assurance Office of the Faculty of Medicine Osijek.