PHYSIOLOGY AND PATHOPHOPHYSIOLOGY	
GENERAL INFORMATIONS	
Course coordinator	Prof. Ines Drenjančević, MD, PhD Prof. Jasminka Milas Ahić, MD, PhD
Assistant/Associate	Assoc. Prof. Ana Stupin, MD, PhD Asst. Prof. Ivana Jukić, MD, PhD Asst. Prof. Aleksandar Kibel, MD, PhD Asst. Prof. Zrinka Mihaljević, prof. Asst. Prof. Vlatka Periša, MD, PhD Asst. Prof. Marko Stupin, MD, PhD Asst. Prof. Tihana Šimundić, MD, PhD Nataša Kozina, MEd. Petar Šušnjara, MMedLabDiag
Study Programme	Undergraduate University Study of Medical Laboratory Diagnostics
Status of the course	Mandatory
Year of study, semester	2nd year, 3rd semestar
ECTS	**5**
Workload (hours)	Lectures: 30; Seminars: 15; Laboratory exercise exercise in practicum: 15
Expected number of students	30 - 35
COURSE DESCRIPTION	
Course objectives	
The goal is to acquaint the student with physiological and pathophysiological events characteristic of individual functional units as well as the entire human organism.	
Enrolment requirements and entry competencies	
Passed first year courses.	
Learning outcomes at the Programme level	
1.1, 1.2, 2.1, 2.2, 2.5, 2.6, 2.7	
Learning outcomes (5-10)	
After completing lectures, seminars and exercises, independent study and passing the exam, students will be able to: 1. Explain homeostatic mechanisms. 2. Critically analyze the physiological functions of the organism. 3. Critically judge bodily processes and their maintenance of health. 4. Connect physiological disorders with the pathophysiological basis of the origin of the disease. 5. Identify basic points in physiological processes as biological markers. 6. Acquire the basic skills of measurement and interpretation of the results of the measurement of various physiological parameters. 7 7. Choose laboratory diagnostic methods for monitoring therapy, progression and outcome of the disease, which these methods make possible.	
Course content	
Lecture: Cell and functional organization of the human body Blood flow and blood cells. Hemostasis, blood clotting. Membrane and action potentials. The heart is like a pump. Contraction of skeletal and smooth muscle. Physical principles of circulation, hemodynamics, microcirculation and lymphatic system. Rhythmic excitation of the heart, Basics of ECG. Body fluids and examination of normal kidney functions. Transmission of gases through the respiratory membrane. Regulation of breathing, digestive system, metabolism and temperature regulation. Liver. Introduction to Pathological Physiology Disturbance and functions of cellular structures and	

cell death. Pathophysiology of cardiac disorders. Pathophysiology of inflammation and endogenous bioactive compounds in pathophysiological processes. Disorders of the renal system and arterial pressure. Autoimmune diseases and Immune hypersensitivity. Pathophysiology of endocrinopathy.
Seminars: Endocrine system. Respiratory system
Problem seminar: Sedimentation of erythrocytes (Z57), Pathophysiology of fever (Z47), Pathophysiology of anemia (Z94), Pathophysiology of chronic myeloid leukemia, Pathogenesis of sepsis and multisystem failure of the organism (Z61), Pathophysiology of anaphylactic circulatory collapse (Z69), Pathophysiology of bronchial asthma (Z109), Pathophysiology hypercapnic pulmonary insufficiency (Z111)
Laboratory exercises: Blood, determination of blood groups and rh factor; determining the composition of urine. Laboratory methods in physiological diagnostics. ECG and blood pressure measurement. Spirometry. Solving clinical problems: Acid-base balance. Nephrology. Immunology.

Mode of teaching

Lectures, Problem solving seminars, Laboratory exercises

Student obligations

The student is obliged to regularly attend and actively participate in all forms of classes. The successful performance of seminars and exercises requires prior preparation of the student. To work in the laboratory, he must have prescribed work clothes (white corner) and literature. The student must attend at least 70% of all forms of teaching (exercises, seminars and lectures) and take all forms of knowledge testing. A student who justifiably misses a seminar and/or exercise must make up for the missed material by taking a quiz.

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

Exam method: written exam.

Teaching activity	ECTS	Learning outcome	Student activity	Assessment methods	Grade points	
					Min.	Max.
Attending classes	0.5	1-7	Class attendance	Attendance record	2	4
Seminars	0.5	1-7	Preparation of seminar	Seminar presentation	3	6
Exercises	0.5	1-7	entrance exams, performing exercises, keeping work diary	work diary, entrance exam	5	10
Final exam	3.5	1-7	Studying for the final exam	Written exam	40	80
Total	**5**				**50**	**100**

Evaluation of the final written exam:

Percentage of correct answers (%)	Ocjenski bodovi
95-100	80
90-94,99	75
85-89,99	70
80-84,99	65
75-79,99	60
70-74,99	55

Calculation of final grade:

Grade points earned in the final exam are added to the grade points earned during the course. Grading in the ECTS system is done by absolute distribution, i.e. based on total achievement and is compared to the numerical system in the following manner: A - excellent (5): 90-100 grade points; B - very good (4): 80-89.99 grade points; C - good (3): 65-79.99 grade points; D - sufficient (2): 50-64.99 grade points.

Required reading (available in the library and through other media)

Title	Number of copies in the library	Availability through other media
Guyton A.C. and Hall J.E. Medicinska fiziologija, 14. izdanje, Medicinska naklada, Zagreb, 2022.	10	
Taradi M. Vježbe iz fiziologije čovjeka, Medicinska naklada, Zagreb 2003	12	
Gamulin i sur.Patofiziologija, 6. izdanje. Medicinska naklada, Zagreb, 2005.	21	
Kovač i sur. Patofiziologija. Zadaci za problemske seminare, Medicinska naklada Zagreb, 2006.god.	10	

Additional reading

All content that is not included in the mandatory literature will be published on the course website

Course evaluation procedures

Anonymous, quantitative, standardised student survey on the course and the teacher's work implemented by the Quality improvement office of the Faculty of Medicine Osijek.