MEDICAL UNIVERSITY OF WARSAW

FACULTY OF MEDICINE

Medical University of Warsaw
Faculty of Medicine - English Division
61 Żwirki i Wigury Street
02-091 Warsaw, Poland

http: // www.wum.edu.pl/

2nd YEAR CURRICULUM

6-year program

Academic year: 2025/2026

AUTHORITIES OF MEDICAL UNIVERSITY OF WARSAW – TERM 2024-2028

Rector – Professor Rafał Krenke, MD, PhD

Vice Rector for Student Affairs and Education – Professor Marek Kuch, MD, PhD

Vice Rector for Science and Technology Transfer – Professor Marcin Sobczak, MD, PhD

Vice Rector for Human Resources – Professor Dorota Olczak-Kowalczyk, MD, PhD

Vice Rector for Clinical Affairs and Investments – Professor Agnieszka Cudnoch-Jędrzejewska, MD, PhD

Vice Rector for International Relations, Development and Promotion – Professor Michał Grąt, MD, PhD

FACULTY AUTHORITIES OF MEDICAL UNIVERSITY OF WARSAW – TERM: 2024-2028

Faculty of Medicine – Professor Paweł Włodarski MD, PhD

English Division – Faculty of Medicine – Assoc. Prof. Jacek Sieńko, MD, PhD.

DEAN'S OFFICE

Head of the Dean's Office – Krystyna Jarząb, MA

Student Administration Officer (1st, 2nd and 3rd - Year) – Aleksandra Chilecka

Student Administration Officer (4th, 5th, 6th - Year) – Dominka Renik, MA and Patrycja Karpińska, MA

STUDENT GOVERNMENT REPRESENTATIVES:

President – Alexis Vourtsis

Vice President, Head of Academic Affairs – Alexander Steiner

Vice President, Head of Student Affairs – Sylvie Marie Régine Etienne

Head of Communications and Administrative Management – Maria Kienitz

Social Media Coordinator –

Events Coordinator – Dyia Bachour

Events Coordinator – Divit Amarnani

www: *https://ed.wum.edu.pl/edsg*
https://edsgmuw.wixsite.com/wumedsg

YEAR REPRESENTATIVE:

Deya Aldeen Anas Turki Al-Drabee – 2 year

SCHEDULE – ACADEMIC YEAR 2025/2026

6-year program

WINTER SEMESTER – 01.10.2025 – 15.02.2026

STUDENT'S ACADEMIC CLASSES:	01.10.2025 – 21.12.2025
	05.01.2026 – 25.01.2026
WINTER HOLIDAYS:	22.12.2025 – 04.01.2026
EXAM SESSION:	**26.01.2026 – 01.02.2026**
DAYS OFF BETWEEN SEMESTER:	02.02.2026 – 08.02.2026
RETAKE EXAM SESSION:	09.02.2026 – 15.02.2026

SUMMER SEMESTER – 16.02.2026 – 30.09.2026

STUDENT'S ACADEMIC CLASSES:	16.02.2026 – 01.04.2026
	09.04.2026 – 26.04.2026
	04.05.2026 – 14.06.2026
EASTER HOLIDAYS:	02.04.2026 – 08.04.2026
SPRING HOLIDAYS:	27.04.2026 – 03.05.2026
DAYS OFF BEFORE EXAM SESSION:	15.06.2026 – 21.06.2026
EXAM SESSION:	**22.06.2026 – 12.07.2026**
SUMMER HOLIDAYS:	13.07.2026 – 30.09.2026
RETAKE EXAM SESSION:	31.08.2026 – 13.09.2026

Curriculum of the 2nd year of 6-year 2025/2026 ED program and the list of contents

2nd year

page	subject	form of credit	semester	Total no of hours	including				ECTS
					lecture	seminar	class	practical	
5	Biochemistry with Elements of Chemistry	exam	1&2	180	30	65	85		17
12	Physiology with Pathophysiology	exam	1&2	220	40	99	84		19
27	Immunology	exam	2	40	15	25			3
32	Polish for Medicine	credit	1&2	60			60		5
38	Genetics	credit	2	25		8	17		2
43	Parasitology	exam	1	35		10	25		2
48	Medical Communication	credit	2	35	15	8	12		2
53	Hygiene and Epidemiology	credit	1	30		10	20		2
59	Research Methodology	credit	1	35	5	15	15		2
-	Optional course	credit	1&2	90		90			6
65	Vocational Training - Emergency medical care, family medicine	credit	2	120				120	4
				870	105	330	318	120	64

Biochemistry with elements of chemistry

1. IMPRINT	
Academic Year	2025/2026
Department	Faculty of Medicine
Field of study	Medicine
Main scientific discipline	Medical sciences
Study Profile	General academic
Level of studies	Uniform MSc
Form of studies	Full time studies
Type of module / course	Obligatory
Form of verification of learning outcomes	Exam after IV semester
Educational Unit / Educational Units	Chair and Department of Biochemistry, Faculty of Medicine 02-097 Warsaw, ul. Banacha 1 Phone: +48 (22) 57 20 693 e-mail: biochemia@wum.edu.pl https://biochemia.wum.edu.pl
Head of Educational Unit / Heads of Educational Units	Professor Marta Struga, MSc, PhD
Course coordinator	Professor Marta Struga, MSc, PhD; marta.struga@wum.edu.pl Phone: +48 (22) 57 20 693
Person responsible for syllabus	Ewa Usarek, PhD; ewa.usarek@wum.edu.pl
Teachers	Alicja Chrzanowska, PhD; alicja.chrzanowska@wum.edu.pl Wojciech Graboń, PhD; wojciech.grabon@wum.edu.pl Dagmara Kurpios-Piec, PhD; dagmara.kurpios-piec@wum.edu.pl Magdalena Mielczarek-Puta, PhD; magdalena.mielczarek-puta@wum.edu.pl

	Dagmara Otto-Ślusarczyk, PhD; dagmara.otto@wum.edu.pl Michał Skrzycki, PhD; michal.skrzycki@wum.edu.pl Karolina Soroczyńska. MSc; karolina.soroczynska@wum.edu.pl Jolanta Szymańska-Majchrzak, PhD; jolanta.szymanska@wum.edu.pl Ewa Usarek, PhD; ewa.usarek@wum.edu.pl Barbara Żyżyńska-Granica, PhD; barbara.zyzynska@wum.edu.pl

2. BASIC INFORMATION

Year and semester of studies	Year 1, Semesters 1 and 2 (winter and summer)	**Number of ECTS credits**	17.00

FORMS OF CLASSES **Contacting hours with academic teacher**	**Number of hours**	**ECTS credits calculation**
Lecture (L)	30	1,2
Seminar (S)	65	2,6
Classes (C)	85	3,4
e-learning (e-L)		
Practical classes (PC)		
Work placement (WP)		
Unassisted student's work		
Preparation for classes and completions	245	9,8

3. COURSE OBJECTIVES

O1	To develop a solid understanding of the structures, properties, and metabolism of substances present in the body: proteins, carbohydrates, lipids, nucleic acids, vitamins, hormones; control and integration of metabolic pathways
O2	To give insight into understanding how metabolic processes can contribute to an explanation of pathological phenomena.
O3	To give the students experience in biochemical methodology to appreciate the clinical biochemistry techniques as diagnostic tools and to be able to interpret the results for appropriate diagnosis and follow up of patients.

4. STANDARDS OF LEARNING – DETAILED DESCRIPTION OF EFFECTS OF LEARNING

Code and number of the effect of learning in accordance with standards of learning	**Effects in the field of:** *(in accordance with appendix to the Regulation of Minister of Science and Higher education from 29th of September 2023)*
Knowledge – Graduate* knows and understands:	
G.K1	B.W1. water and electrolyte management in biological systems;
G.K2	B.W2. acid-base balance and the mechanism of action of buffers and their importance in body homeostasis;
G.K3	B.W3. the concepts of solubility, osmotic pressure, isotonicity, colloidal solutions and Gibbs-Donnan equilibrium;
G.K4	B.W9. the structure of lipids and polysaccharides and their functions in cellular and extracellular structures;
G.K5	B.W10. I-, II-, III- and IV-order structures of proteins and post-translational and functional modifications of proteins and their significance;
G.K6	B.W11. the function of nucleotides in the cell, the I- and II-strand structures of DNA and RNA and the structure of chromatin;
G.K7	B.W12. functions of the human genome, transcriptome and proteome and the methods used to study them, the processes of DNA replication, repair and recombination, transcription and translation and degradation of DNA, RNA and proteins, and the concepts of regulation of gene expression;
G.K8	B.W13. basic catabolic and anabolic pathways, how they are regulated and how they are influenced by genetic and environmental factors;
G.K9	B.W14. basic methods used in laboratory diagnostics, including protein and nucleic acid electrophoresis;
G.K10	B.W15. organ metabolism and the metabolic, biochemical and molecular basis of disease and therapy;
G.K11	B.W16. ways of communication between cells and between the cell and the extracellular matrix and signal transduction pathways in the cell, and examples of disruption of these processes leading to cancer and other diseases;
G.K12	B.W19. basics of excitation and conduction in the nervous system and higher nervous functions, as well as striated and smooth muscle physiology;
G.K13	B.W20. the function and regulation mechanisms of all organs and systems of the human body and the relationship between them;
G.K14	B.W26. principles of research for the advancement of medicine.
Skills– Graduate* is able to:	
G.S1	B.U3. calculate the molar and percentage concentrations of compounds and the concentrations of substances in iso-osmotic, mono- and multi-component solutions;
G.S2	B.U4. calculate the solubility of inorganic compounds, identify the chemical basis of the solubility or the lack of the solubility of organic compounds and their practical relevance to dietetics and therapeutics;
G.S3	B.U5. determine the pH of a solution and the effect of pH changes on inorganic and organic compounds;
G.S4	B.U6. predict the direction of biochemical processes in relation to the energy status of cells;

G.S5	B.U8. use medical databases and correctly interpret the information they contain to solve problems in basic and clinical sciences;
G.S6	B.U11. plan and carry out scientific research and interpret the results and formulate conclusions;
G.S7	B.U12. use basic laboratory and molecular techniques.

** In appendix to the Regulation of Minister of Science and Higher education from 29th of September 2023 „graduate", not student is mentioned.*

5. ADDITIONAL EFFECTS OF LEARNING *(non-compulsory)*

Number of effect of learning	**Effects in the fields of:**
Knowledge – Graduate knows and understands:	
K1	
K2	
Skills– Graduate is able to:	
S1	
S2	
Social Competencies – Graduate is ready for:	
SC1	
SC2	

6. CLASSES

Form of class	**Class contents**	**Effects of Learning**
Lecture	1. Water and electrolyte balance in biological system.	G.K1; G.K3;
	2. Basic reactions of inorganic compounds in water solutions. Mechanism of buffer action and their importance in organism homeostasis.	G.K1; G.K2; G.K3; G.S2; G.S3;
	3. Characterization of main groups of organic compounds. Isomerism.	G.K4;
	4. Proteins.	G.K5; G.K7;
	5. Enzymes.	G.K8; G.K14;
	6. Nucleic acids structure, DNA replication. Expression of genetic information: transcription, translation.	G.K5; G.K6; G.K7;
	7. Tissue oxidation.	G.K8;
	8. Carbohydrate metabolism.	G.K4; G.K8; G.K10; G.K14;
	9. Lipid metabolism.	G.K4; G.K8; G.K10; G.K14;

	10. Protein turnover, ureogenesis. Amino acids metabolism.	G.K8; G.K10; G.K14;
	11. Metabolism of purine and pyrimidine nucleotides.	G.K6; G.K8; G.K10; G.K14;
	12. Blood.	G.K2; G.K10;
	13. Vitamins and hormones.	G.K8; G.K10; G.K11;
	14. Biochemical functions of the liver, brain, muscles, and kidney.	G.K2; G.K8; G.K10; G.K12, G.K13;
	15. Biotransformation. Metabolism of ethanol.	G.K8; G.K10;
Seminar	1. Chemical calculations (concentrations).	G.K1; G.S1;
	2. Biochemical calculations (buffers).	G.K1; G.K2; G.K3; G.S1; G.S2; G.S3;
	3. Analysis of organic compounds and inorganic ions.	G.K3; G.K4; G.S2;
	4. Proteins.	G.K5; G.K7;
	5. Enzymes.	G.K8; G.K14; G.S4;
	6. Nucleic acids.	G.K5; G.K6; G.K7;
	7. Tissue oxidation.	G.K8; G.S4;
	8. Carbohydrate metabolism, part 1.	G.K4; G.K8; G.K10; G.K14; G.S4;
	9. Carbohydrate metabolism, part 2.	G.K4; G.K8; G.K10; G.K14; G.S4;
	10. Lipid metabolism, part 1.	G.K4; G.K8; G.K10; G.K14; G.S4;
	11. Lipid metabolism, part 2.	G.K4; G.K8; G.K10; G.K14; G.S4;
	12. Protein turnover, ureogenesis.	G.K8; G.K10; G.K14; G.S4;
	13. Amino acids metabolism.	G.K8; G.K10;
	14. Metabolism of purine and pyrimidine nucleotides.	G.K6; G.K8; G.K10; G.K14;
	15. Blood.	G.K2; G.K10;
	16. Vitamins and hormones.	G.K8; G.K10; G.K11;
	17. Biochemical functions of the liver.	G.K8; G.K10; G.K13; G.S4;
	18. Biochemical functions of the brain, muscles, and kidney.	G.K2; G.K8; G.K10; G.K12, G.K13; G.S4;
	19. Clinical cases, part 1.	G.K8; G.K10; G.K13; G.K14; G.S5;
	20. Clinical cases, part 2.	G.K8; G.K10; G.K13; G.K14; G.S5;
Classes	1. Basic laboratory techniques.	G.K9; G.S1; G.S6; G.S7;
	2. Acid – base balance in organism, buffers.	G.K1; G.K2; G.S1; G.S3; G.S6; G.S7;
	3. Qualitative analysis of organic compound.	G.K4; G.S6; G.S7;
	4. Amino acids and proteins.	G.K5; G.S6; G.S7;
	5. Proteins, properties and methods of separation.	G.K5; G.K7; G.K9; G.S6; G.S7;
	6. Enzymes.	G.K8; G.K9; G.S4; G.S6; G.S7;

	7. Enzymes - kinetics.	G.K8; G.S6; G.S7;
	8. Nucleic acids.	G.K6; G.K7; G.K9; G.S6; G.S7;
	9. Carbohydrates - chemical properties.	G.K4; G.S6; G.S7;
	10. Carbohydrates – biochemical properties.	G.K4; G.K9; G.K10; G.K14; G.S6; G.S7;
	11. Lipids.	G.K4; G.K9; G.K10; G.K14; G.S6; G.S7;
	12. Digestive enzymes.	G.K10; G.S6; G.S7;
	13. Blood constituents.	G.K9; G.K10; G.K14; G.S6; G.S7;
	14. Diagnostic enzymes.	G.K9; G.K10; G.K14; G.S6; G.S7;
	15. Urine constituents.	G.K2; G.K9; G.K10; G.K14; G.S6; G.S7;
	16. Biochemistry all around us.	G.K4; G.K9; G.K14; G.S6; G.S7;

7. LITERATURE

Obligatory

1. General Chemistry with Qualitative Analysis – Whitten, Davis, Peck, VI ed., Saunders College Publishing.
2. Introduction to Organic Chemistry – Brown, W.H. Saunders College Publishing.
3. Biochemistry Lippincott's Illustrated Reviews, D.R. Ferrier (R.A. Harvey ed.), Wolters Kluwer, Lippincott, Williams & Wilkins.
4. Harpers' biochemistry, R.K. Murray, D.K. Granner, P.A. Mayers, V.W. Rodwell, Appleton & Lange.

Supplementary

1. An Introduction to Medicinal Chemistry, L.P. Graham, Oxford University Press.
2. Biochemistry. L. Stryer, W.H. Freeman & Company, New York.
3. Principles of Medical Biochemistry, G. Meisenberg, W.H. Simmons, Elsevier.
4. Medical Biochemistry, J.W. Baynes, M.H. Dominiczak, Elsevier.
5. Textbook of Biochemistry with clinical correlations, T.M. Devlin, Willey-Liss, Inc.

8. VERIFYING THE EFFECT OF LEARNING

Code of the course effect of learning	Ways of verifying the effect of learning	Completion criterion
G.K1; G.K2; G.K3; G.K4; G.K5; G.K6; G.K7; G.K8; G.K9; G.K10; G.K11; G.K12, G.K13; G.K14; G.S1; G.S2; G.S3; G.S4; G.S5;	Continuous assessment during seminars – weekly tests Active discussion during seminars	At least 60% of points Credit by the teacher
	Intermediate assessment tests (3 tests, 50 questions each, test questions with one correct answer) Final exam (test, 100 questions, test questions with one correct answer)	At least 55% of points
G.K1; G.K2; G.K3; G.K4; G.K5; G.K6; G.K7; G.K8; G.K9;	Continuous assessment during laboratory classes – weekly tests	At least 60% of points

G.K10; G.K12, G.K13; G.K14; G.S1; G.S3; G.S6; G.S7;	Written laboratory reports	Credit by the teacher

9. ADDITIONAL INFORMATION

Biochemistry course coordinator: Ewa Usarek ewa.usarek@wum.edu.pl
Practical laboratory classes are held in the laboratory of the Biochemistry Department (Banacha St. 1, the building of the Faculty of Pharmacy, block I, the 1st floor).

Detailed schedules, updates, information, and useful files will be available on the e-learning platform from the beginning of October.

The Student is obligated to:
- attend all lectures, laboratory classes, and seminars (attendance list); being late for over 15 minutes is considered as an absence
- be prepared and participate in discussions during seminars and laboratory classes
- use university e-mail addresses s0xxxxx@student.wum.edu.pl

It is not allowed:
- to copy lab reports, assignments, test or exam answers
- to allow someone else to copy another Student's report/assignments/test/exam
- to use electronic devices to communicate or store data during the test or exam

The student is entitled to two excused absences (in both semesters), provided they are supported by written confirmation. Absences due to illness will only be excused with a medical certificate or doctor's note. The student must notify the course coordinator within three business days.
Unexcused absences from classes are not permitted and may result in failure of the entire biochemistry course.
Unexcused absence from any intermediate assessment or the final exam will result in automatic failure.

Students can get the credit for the whole course and can take the final exam if she/he credits laboratory classes, seminars, and three assessment tests. Students who don't achieve credit from seminar or laboratory classes or fail assessment test(s) are allowed two retakes (the second retake is a commission retake, called conditional admission).
Grading:
0 - 54 % - 2.0
55 - 63 % - 3.0
64 - 73 % - 3.5
74 - 83 % - 4.0
84 - 92 % - 4.5
93 - 100 % - 5.0
The final grade may be increased by additional points in the case of good results of the intermediate tests:
- the average grade 4.75-5.00: 5 points
- the average grade 4.50-4.74: 3 points
- the average grade 4.25-4.49: 2 points

Students may join the Biochemistry Science Club "Explore".
The person responsible is Barbara Żyżyńska-Granica, barbara.zyzynska@wum.edu.pl

ATTENTION
The final 10 minutes of the last class of the block/semester/year should be allotted for students to fill out the Survey of Evaluation of Classes and Academic Teachers

Physiology with pathophysiology elements

1. IMPRINT

Academic Year	2025/2026
Department	Faculty of Medicine
Field of study	Medicine
Main scientific discipline	Medical Sciences
Study Profile	general academic
Level of studies	uniform MSc
Form of studies	Full time studies
Type of module / course	obligatory
Form of verification of learning outcomes	exam
Educational Unit / Educational Units	Chair and Department of Experimental and Clinical Physiology (1MA) ul. Banacha 1b, 02-097 Warszawa e-mail: fizjologia@wum.edu.pl
Head of Educational Unit / Heads of Educational Units	Agnieszka Cudnoch-Jędrzejewska, MD, PhD, Professor
Course coordinator	Kaja Kasarełło, PhD, e-mail: kaja.kasarello@wum.edu.pl Michał Kowara, MD, PhD, e-mail: michal.kowara@wum.edu.pl
Person responsible for syllabus	Kaja Kasarełło, PhD, e-mail: kaja.kasarello@wum.edu.pl Michał Kowara, MD, PhD, e-mail: michal.kowara@wum.edu.pl
Teachers	Agnieszka Cudnoch-Jedrzejewska, MD, PhD, Professor; Professor; Paweł Zalewski, PhD, Professor; Katarzyna Kamińska, PhD; Kaja Kasarełło, PhD; Michał Kowara, MD, PhD; Jagoda Kruszewska, MD; Longin Niemczyk, MD, PhD; Jan Pawlonka, MD; Katarzyna Romanowska-Próchnicka, MD, PhD; Ewa Sikorska, MD; Aleksandra Stangret, PhD; Mateusz Szudzik, PhD; Małgorzata Wojciechowska, MD, PhD; Agnieszka Wsół, MD, PhD.; Tymoteusz Żera, MD, PhD;

2. BASIC INFORMATION

Year and semester of studies	2nd year - 3rd and 4th semester	**Number of ECTS credits**	19.00

FORMS OF CLASSES	**Number of hours**	**ECTS credits calculation**
Contacting hours with academic teacher		
Lecture (L)	40	1,6
Seminar (S)	99	4
Classes (C)	81	3,4
e-learning (e-L)	-	-
Practical classes (PC)	-	-
Work placement (WP)	-	-
Unassisted student's work		
Preparation for classes and completions	255	10

3. COURSE OBJECTIVES

O1	The aim of teaching physiology is to learn about the mechanisms that enable the human body to function properly, to develop the ability to associate processes and think about individual organs and systems as elements of the whole organism, and to learn about the mechanisms that enable the integration of the functions of individual organs. Moreover, teaching physiology also aims to understand the adaptive capabilities of the human body to the natural stresses of everyday life and to extreme conditions.
O2	The aim of teaching pathophysiology is to learn about the changes that occur in the body under the influence of pathogenic factors and to understand the causes that trigger them.
O3	The physiology and pathophysiology curriculum is aligned with the translational medicine curriculum. It provides the basis for comprehensive critical analysis and understanding of symptoms and disease mechanisms, as well as for proper preventive, therapeutic, and rehabilitative measures in further clinical work.

4. STANDARDS OF LEARNING – DETAILED DESCRIPTION OF EFFECTS OF LEARNING

Code and number of the effect of learning in accordance with standards of learning	**Effects in the field of:** *(in accordance with appendix to the Regulation of Minister of Science and Higher education from 29th of September 2023)*
Knowledge – Graduate* knows and understands:	

B.W1	water-electrolytes homeostasis in biological systems
B.W2	acid-base balance, functions of buffer solutions and their role in homeostasis
B.W3	definitions of: solubility, osmotic pressure, isotonicity, colloid solutions and Gibbs-Donnan effect
B.W4	physical laws describing fluid flow and factors affecting vascular resistance to blood flow;
B.W6	physicochemical and molecular basis of the functioning of sensory organs
B.W13	basic catabolic and anabolic pathways, how they are regulated and how they are influenced by genetic and environmental factors;
B.W15	organ metabolism and the metabolic, biochemical and molecular basis of disease and therapy;
B.W16	ways of communication between cells and between the cell and the extracellular matrix and signal transduction pathways in the cell, and examples of disruption of these processes leading to cancer and other diseases;
B.W17	processes: cell cycle, cell proliferation, differentiation and ageing, apoptosis and necrosis and their importance for organismal functioning;
B.W19	basics of excitation and conduction in the nervous system and higher nervous functions, as well as striated and smooth muscle physiology;
B.W20	the function and regulation mechanisms of all organs and systems of the human body and the relationship between them;
B.W21	ageing processes and organ function changes associated with ageing;
B.W22	the basic quantitative parameters describing the performance of the various systems and organs, including the ranges of norms and demographic factors influencing the value of these parameters;
C.W4	the genetic determinants of human blood groups and serological conflict in the Rh system;
C.W24	aetiology, mechanisms and consequences of haemodynamic disorders;
C.W25	organ pathology, macroscopic and microscopic pathomorphological changes and clinical implications, together with pathomorphological nomenclature;
C.W26	pathogenesis of diseases, including genetic and environmental conditions;
C.W27	pathomechanism and clinical forms of the most common diseases of the various systems and organs, metabolic diseases and disorders of water-electrolyte, endocrine and acid-base metabolism;
C.W36	symptoms of the most common acute poisonings with selected groups of drugs, alcohol and other psychoactive substances, fungi and heavy metals;
C.W38	effect of oxidative stress on cells and its importance in the pathogenesis of disease and in the processes of ageing;
C.W39	consequences of vitamin and mineral deficiencies and excesses;
C.W40	the causes and consequences of poor nutrition, including prolonged under- and over-eating and the use of unbalanced diets, and digestive and absorption disorders;
D.W4	the concept of stress, including eustress and distress, and the impact of stress on the aetiopathogenesis and course of somatic diseases and psychiatric disorders, and mechanisms of coping with stress;
E.W7	environmental and epidemiological conditions, causes, symptoms, principles of diagnosis and therapeutic management of the most common adult internal medicine diseases and their complications:

E.W16	environmental and epidemiological conditions, causes, symptoms, principles of diagnosis and therapeutic management of the most common neurological diseases and their complications:
F.W15	women's reproductive functions, disorders related to them, and diagnostic and therapeutic procedures in particular:
F.W16	male reproductive functions and related disorders as well as diagnostic and therapeutic procedures;
Skills– Graduate* is able to:	
B.U1	use the knowledge of the laws of physics to explain the effects of external factors such as temperature, acceleration, pressure, electromagnetic fields and ionizing radiation on the body and its components
B.U7	perform simple functional tests assessing human body as a stable regulatory system (stress tests, exercise tests) and interpret numerical data on basic physiological variables
C.U7	relate images of tissue and organ damage to clinical signs of disease, history and laboratory findings to establish a diagnosis in the most common diseases of adults and children;

** In appendix to the Regulation of Minister of Science and Higher education from 29th of September 2023 „graduate", not student is mentioned.*

5. ADDITIONAL EFFECTS OF LEARNING *(non-compulsory)*

Number of effect of learning	**Effects in the fields of:**
Knowledge – Graduate knows and understands:	
K1	Define thesis, understand the difference between law, theory and hypothesis, define strong and weak points of hypotheses.
Skills– Graduate is able to:	
S1	Predict physiological reactions in different situations
Social Competencies – Graduate is ready for:	
SC1	Perform constructive discussion about scientific theory or hypothesis

6. CLASSES

Form of class	**Class contents**	**Effects of Learning**
Seminar and class	**Block I. Week 1: Cell physiology.** Extracellular and intracellular fluid composition. Transport of the substances across cell membranes – functional properties of the cell membrane, diffusion, active transport of substances across membrane. Ion channels function and classification. Donnan equilibrium. Origin of the resting potential. Equilibrium potential for potassium ions. Characteristics of potassium channels responsible for the resting potential. Threshold potential. Origin of the action potential. Equilibrium potential for sodium ions. Characteristics of channels participating in different phases of the action potential. Differences between the resting and action potential in excitable cells. Channelopathies (Bartter's syndrome, Brugada disease, cystic fibrosis, long and short QT syndrome, malignant hyperthermia, migraine, myasthenia).	B.W3, B.W20, B.W22, B.U1, B.W13, B.W16, B.W17

Seminar and class	**Block I. Week 2: Neuron physiology. Neurotransmission systems of the brain** **Neuron physiology.** Neuron and its properties. Functional and structural classification of neurons. Definitions of terms: stimulus, excitability, nerve impulse. Structure of peripheral nerves, types of nerve fibers and their characteristics. Classification of nerve fibers. Mechanism of transmission of excitation along nerve fibers. Continuous and saltatory conduction. Factors influencing the speed of impulse conduction along nerve fiber. Characteristics of dendrites and their function. Classification of electrical and chemical synapses. Mechanism of neurotransmitter release - vesicular cycle. Synaptic plasticity, factors regulating the process of synaptogenesis. Nerve regeneration. **Neurotransmission systems of the brain.** Acetylcholine, catecholamines, serotonin, excitatory and inhibitory amino acids. Location of neurons producing a given type of neurotransmitter. Projections of the neurotransmitters in the central nervous system. Cotransmitters. Pre- and postsynaptic receptors. Participation of neurotransmitters in the regulation of physiological processes. The influence of psychoactive substances on neurotransmission pathways.	B.W19, B.W20, B.W22, C.W36, C.W39
Seminar and class	**Block I. Week 3: Autonomic nervous system. Physiology of myocytes – smooth myocytes, skeletal myocytes, cardiomyocytes.** **Autonomic nervous system** General organization of the autonomic nervous system. Neurotransmitters and autonomic ganglia. Basic characteristics of sympathetic and parasympathetic function. Selective stimulation of target organs by sympathetic and parasympathetic systems or “mass discharge”. Autonomic system impact on different tissues and organs. Atropine, muscarine and phosphoroorganic compounds intoxication. Horner syndrome. **Physiology of myocytes – smooth myocytes, skeletal myocytes, cardiomyocytes.** Physiological anatomy of skeletal muscle. Central mechanism of muscle contraction. Molecular mechanism of muscle contraction. Energetics of muscle contraction. Characteristics of the whole muscle contraction. Neuromuscular junction and transmission of impulses from nerve endings to skeletal muscle fibers. Muscle action potential. Excitation-contraction coupling. Contraction of smooth muscle. Regulation of contraction by calcium ions. Nervous and hormonal control of smooth muscle contraction. Physiology of cardiac muscle.	B.W19, B.W20, B.W22, B.U7, C.W36, C.W39
Seminar and class	**Block I. Week 4: Physiology of the motor system - part II. Motor functions at the level of spinal cord, cortex, brainstem, basal ganglia and cerebellum.** Organization of the spinal cord for motor functions. Muscle sensory receptors – muscle spindles and Golgi tendon organs and their roles in muscle control. Flexor reflex and the withdrawal reflexes. Crossed extensor reflex. Reciprocal inhibition and reciprocal innervation. Reflexes of posture and locomotion. Motor cortex and corticospinal tract. Control of motor functions by the brain stem. Vestibular	B.W20, B.W21, B.U1, B.U7, B.U9

	sensation and the maintenance of equilibrium. The cerebellum and its motor functions. The basal ganglia and their motor functions. Integration of the many parts of the total motor control system.	
Seminar and class	**Block I. Week 5: Pathophysiology of the motor system** Pre- and postsynaptic disturbances of neuromuscular junction (myasthenia gravis, Lamber-Eaton syndrome, botulism). Myopathies. Channelopathies of striates muscles. Multiple sclerosis. Pyramid tracts lesion. Pathophysiology of selected extrapyramidal system diseases: Parkinson's disease, Huntington's disease, hemiballismus, essential tremor, cerebellar ataxia. Decerebration. Pathological nystagmus. Motion sickness.	B.W20, B.W22, B.U7, C.W25, C.W26, C.W27, C.U7, E.W16
Seminar and class	**Block I. Week 6: Physiology and pathophysiology of sensory system. Physiological and pathological pain.** **Sensations:** Types of sensory receptors and the stimuli they detect. Transmission of sensory stimuli into nerve impulses. Signal intensity transmission in nerve tracts – spatial and temporal summation. Classification of somatic senses. Detection and transmission of tactile sensations. Sensory pathways for transmitting somatic signals into the central nervous system. Transmission in the dorsal column-medial lemniscal system. Transmission of sensory signals in the anterolateral pathway. Somatosensory cortex lesions. Lesions of sensory integration, autism and Asperger syndrome **Pain:** Fast pain and slow pain and their qualities. Pain receptors and their stimulation. Dual pathways for transmission of signals into central nervous system. Pain suppression (analgesia) system in the brain and in the spinal cord. Referred pain. Visceral pain. Thermal sensations. Practical issues - pathological pain, principles of pain treatment: analgetic ladder, opioids in treatment of acute and chronic pain.	B.W20, B.W22, B.U7
Seminar and class	**Block I. Week 7: Physiology and pathophysiology of sensory system. Vision, hearing, taste and smell.** Physical principles of optics. Optics of the eye. Fluid system of the eye – intraocular fluid. Anatomy and function of the structural elements of the retina. Photochemistry of vision. Color vision. Eye adaptation to light and darkness. Visual field (stereoscopic vision). Neural function of the retina. Visual pathways. Organization and function of the visual cortex. ye movements and their control. Autonomic control of accommodation and pupillary aperture. Eye refractive errors – nearsightedness (myopia), farsightedness (hyperopia), astigmatism. Strabismus. Cataracts. Glaucoma. Retinal Detachment. Night blindness. Color blindness. Tympanic membrane and the ossicular system. Cochlea. Corti's organ. Endolymph and perilymph. Mechanism of acoustic waves conversion into electric impulses. Central auditory mechanisms. Vestibular sensation and the maintenance of equilibrium . Basis of laryngological	B.W6, B.W20, B.W22, B.U7, C.W25, C.W26, C.W27, C.U7

	examination – hearing tests. Conductive and sensorineural hearing loss. Hearing aids and cochlear implants. Sense of taste. Sense of smell.	
Seminar and class in center of stimulation	**Block I. Week 8: Cerebral cortex, intellectual functions of the brain, learning and memory. Limbic system. Behavior. Sleep. Basis of the bioelectric activity of brain (EEG). Pathophysiology – sleep disturbances, amnesia, dementia, mood disturbances, psychosis.** Characteristics of limbic system. Function of prefrontal cortex. Congenital behavior: unconditional reflex, instinct, imprinting, impulse. Adaptive behavior (classical and instrumental conditioning). Reward system. Definition of learning and memory. Division and types of memory. Anatomy of memory. Long-term potentiation and long-term depression.. Retrograde and anterograde amnesia. Results of prefrontal cortex, hippocampus and surrounding temporal lobes damage. Results of amygdala damage. Amnestic syndromes (Alzheimer's disease, vascular dementia, Lewy body dementia). Sleep.. Role of reticular system in regulation of sleep and wake. Examination of cerebral bioelectric activity by electroencephalography (EEG). Stages of sleep in human. Characteristics and physiological meaning of REM and NREM sleep. Biological rhythms disturbances – jet lag. Sleep deprivation, narcolepsy, somnambulism. EEG record abnormalities. Epilepsy and its types.	B.W20, B.W22, E.W16
Seminar and class	**Block I. Week 9: 1st Midterm** – themes from the 1st Block.	B.W3, B.W6, B.W20, B.W21, B.W22, B.W25, B.U1 B.U7, B.U9, C.W27, C.W32, C.W33, C.W34, C.W36, C.U7, C.U20
Seminar and class	**Block II. Week 10: Physiology and pathophysiology of blood.** Blood composition. Blood proteins and their functions. Role of erythropoietin. Structure and functions of erythrocytes. Classification of leukocytes. Functions of platelets. Iron turnover. Hemoglobin – types and characteristics, hemoglobin dissociation curve. Oxygen and carbon dioxide transport in blood. 0-A-B blood types. Rh blood types. Basic diagnostic tests – erythrocyte sedimentation rate (ESR), hematocrit, resistance of erythrocytes to hemolysis – application. Alterations in red cells system – anemias, polycythemias. Hemoglobinopathies. Alterations in white cells system – leukocytosis, leukopenia. Main serological conflicts.	B.W20, B.W22, B.U1, C.W4, C.W25, C.W26, C.W27, C.W39, C.W40, C.U7, E.W7
Seminar and class	**Block II. Week 11: Physiology of cardiovascular system – part I. Cardiac muscle – the heart as a pump and the function of the heart valves. Rhythmical excitation of the heart. Cardiac output. Overview of the circulation.** Cardiac cycle. Specialized excitatory and conductive system of the heart. Control of excitation and conduction in the heart. Physical characteristics of the circulation. Normal values for cardiac output at rest and during activity. Control of cardiac output by venous return – Frank-Starling mechanism of the heart. Main cardiac	B.W4, B.W20, B.W22, B.U1

	hemodynamics parameters – end-diastolic and end-systolic volume, stroke volume, cardiac output, ejection fraction, contraction frequency. Preload and afterload. Regulation of cardiac muscle contraction – contractility (homeometric regulation), Frank-Starling law (heterometric regulation). Influence of afterload on muscle shortening velocity (Hill's equation). Circulation – arteries, veins, capillaries. Vascular distensibility. Arterial pressure pulsations. Veins and their function Blood flow, velocity, resistance, pressure. Flow continuity equation. Poiseuille equation. Laminar and turbulent flow.	
Seminar and class	**Block II. Week 12: Physiology of cardiovascular system – part II. Nervous and humoral regulation of cardiovascular system activity.** Humoral control of the tissue blood flow – vasoconstrictors, vasodilators, vascular control by ions and other chemical factors. Nervous regulation of the circulation. Special features of nervous control of arterial pressure. Renal-body fluid system for arterial pressure control. Role of the renin-angiotensin system in arterial pressure control. Summary of integrated multifaceted systems for arterial pressure regulation. Definition of the "set-point" of blood pressure. Blood pressure "set-point" changes during visceral and cutaneous pain, carotid sinus syndrome, brain hypoxia, increase of intracranial pressure (Cushing's sign), changes in oxygen and carbon dioxide level in arterial blood. Orthostatic hypotension	B.W20, B.W22, B.U7
Seminar and class	**Block II. Week 13: Physiology of cardiovascular system III. Role of endothelium in vascular lumen regulation. Regulation of circulation in different organs. Microcirculation. Pathophysiology of the shock.** Local control of blood flow in response to tissue needs. Mechanisms of blood flow control – acute control of local blood flow, long-term blood flow regulation. Control of tissue blood flow – endothelium-derived constricting and relaxing factors (nitric oxide, prostaglandins, prostacycline, thromboxane, endothelin, adenosine). Special mechanisms for acute blood flow control in specific tissues (kidney, brain, skin).Structure of the microcirculation and capillary system. Flow of blood in the capillaries – vasomotion. Exchange of water, nutrients and other substances between the blood and interstitial fluid. Interstitium and interstitial fluid. Fluid filtration across capillaries. Lymphatic system. Mechanism of edema generation: hydrostatic, oncotic, lymphatic. Blood flow regulation in skeletal muscle at rest and during exercise. Coronary circulation – physiology, physiological control, cardiac muscle metabolism. Circulatory shock and its treatment.	B.W20, B.W22
Seminar and class in center of stimulation	**Block II. Week 14: Physiology of cardiovascular system IV. Principles of electrocardiography.** Fundamentals of electrocardiography – waveforms of the normal electrocardiogram. Flow of the current around the heart during the cardiac cycle. Electrocardiographic leads. Vectorial analysis of the normal electrocardiogram. Mean electrical axis of the ventricular QRS and its significance. Structure and properties of heart conduction system. Sinus rhythm. Physical and electrophysiological basis of electrocardiography. Defibrillation and electrical cardioversion.	B.W20, B.W22, B.U7

	Pathological ECG recordings: rhythm and conduction disturbances: respiratory sinus arrhythmia, bradycardia, tachycardia, supraventricular arrythmias (supraventricular extrasystoles, atrial flutter, atrial fibrillation), ventricular arrhythmias (ventricular extrasystoles, ventricular tachycardia, ventricular fibrillation), atrioventricular blocks (1^{st} , 2^{nd} and 3^{rd} degree), asystole, ischemia and electrolyte balance disturbances, pre-excitation.	
Seminar and class	**Block II. Week 15: Pathophysiology of cardiovascular system.** Pathophysiology in clinical cases - analysis of clinical cases of cardiovascular system pathologies**.**	B.W20, B.W22, C.W25, C.W26, C.W27, C.W38, C.U7, E.W7
Seminar and class	**Block II. Week 16: 2^{nd} Midterm** – themes from the 2^{nd} Block.	B.W16, B.W20, B.W21, B.W21, B.W22, B.W25, B.U1, B.U7, B.U9, C.W4, C.W27, C.W29, C.W24, C.W32, C.W33, C.W34, C.W38, C.U7, C.U20
Seminar and class	**Block III. Week 17: Physiology and pathophysiology of urinary system.** Kidney structure and vasculature. Nephron as a basic functional unit of kidney. Mechanism of primary urine formation (glomerular filtration: filtration membrane, effective filtration pressure). Creatinine clearance – methods of calculation, Cocroft-Gault formula, MDRD formula. Final urine formation (tubular transport). Renal blood flow regulation and its autoregulation. Pressure diuresis. Other causes of diuresis change. Neurogenic regulation of renal flow and tubular transport (renal innervation, reflexive regulation). Hormonal and humoral regulation of renal flow and tubular transport (renin-angiotensin-aldosterone system, vasopressin, endothelins, nitric oxide, natriuretic peptides, dopamine, adrenomedullin, cytokines). Urine concentrating and diluting mechanisms (countercurrent multiplication, countercurrent exchange, urea recycling). Calcium and phosphate balance regulation by kidney. Hormonal functions of kindey - erithropoietin, vitamin D. Role of kidney in blood pressure regulation. Pathophysiology - Polyuria, oliguria, anuria. Diabetes insipidus (central and renal form). Acute kidney failure and chronic kidney disease, proteinuria. Nephritic and nephrotic syndrome. Nephrolithiasis. Influence of uremia on the whole organism. Cystitis and urinary tract infection.	B.W20, B.W22, B.U1, B.U7, C.W25, C.W26, C.W27, C.U7, E.W7
Seminar and class	**Block III. Week 18: Physiology and pathophysiology of water, electrolyte and acid-base balance** **Water and electrolyte balance.** Body fluid compartments – volumes and composition. Body fluids ion composition and osmolarity. Transport of osmotically active substances across biological membranes – regulation. Mechanisms regulating water and electrolytes intracorporeal translocations. Mechanisms regulating cellular volumes. Water, sodium, potassium, calcium and phosphate balance. Mechanisms regulating water and sodium balance.	B.W1, B.W2, B.W20, B.W22, C.W25, C.W26, C.W27, C.U7, E.W7

	Dehydration and overhydration – types, mechanisms and consequences. Electrolyte balance disturbances – hiper- and hyponatremia, hyper- and hypokaliemia, hyper- and hypocalcemia, hyper- and hypomagnesemia). **Acid-base balance.** Volatile and non-volatile acids. Inter- and intracellular buffering systems. Role of kidney and respiratory system in pH maintenance. Acid-base balance – methods of assessment. Cerebrospinal fluid pH regulation. Primary and secondary acid-base balance disturbances: acidosis (respiratory, metabolic – causes), alkalosis (respiratory, metabolic – causes). Compensatory mechanisms in primary acid-base balance disturbances (rules of respiratory and renal compensation). Influence of acid-base balance disturbances on electrolyte balance.	
Seminar and class	**Block III. Week 19: Respiratory system – anatomical and biophysical basis of respiration.** Mechanisms of pulmonary ventilation. Pulmonary volumes and capacities. Alveolar ventilation. Anatomy of the respiratory system. Structure and function of bronchial tree. Respiratory tracts innervation. Structure and function of pulmonary alveolus. . Respiratory system resistances. Surface tension. Surfactant. Respiratory muscles work. Pulmonary leakage. Pulmonary circulation. Pulmonary vessels walls structure. Pressure and flow resistance in pulmonary circulation. Pulmonary vessels diameter regulation, influence of oxygen pressure on pulmonary vessels smooth muscles. Neuronal and humoral regulation of respiratory system activity. Regulation of respiration, generation of respiratory pattern. Regulation of respiratory center; central and peripheral receptors. Airways and lungs receptors and associated reflexes – cough, yawn, reaction to toxic substances inspiration).	B.W20, B.W22, B.U1, B.U7
Seminar and class	**Block III. Week 20: Respiratory system – clinical physiology and pathophysiology.** Respiratory system basic diagnostic tests (spirometry). Difference between obturation and restriction. Spirometry testing (obturation reversibility, provocation tests). Plethysmography in restrictive diseases diagnostics. Mechanism of lungs artificial ventilation. Acute and chronic respiratory failure. Pathophysiology of respiratory system inflammatory diseases (laryngitis, bronchitis, pneumonia). Pathophysiology of obstructive and restrictive diseases (bronchial asthma, COPD, emphysema, pneumoconiosis, pneumonia, viral respiratory infections – COVID-19 and others, tuberculosis). Cystis fibrosis. Pulmonary embolism (PE). Pathological respiratory patterns. Obstructive sleep apnea. Nicotinismus. Acute Mountain Sickness (AMS).	B.W20, B.W22, B.U7, C.W25, C.W26, C.W27, C.W38, C.U7, E.W7
Seminar and class	**Block III. Week 21: Integrative physiology - respiratory system pathophysiology, urinary system pathophysiology, acid-base balance disturbances.**	B.W20, B.W22, C.W25, C.W26, C.W27, E.W7

	Pathophysiology in clinical cases - analysis of clinical cases of respiratory system pathologies, urinary system pathologies and acid-base balance disturbances	
Seminar and class	**Block III. Week 22: 3rd Midterm** – themes from the 3rd Block.	B.W16, B.W20, B.W21, B.W21, B.W22, B.W25, B.U1, B.U7, B.U9, C.W4, C.W27, C.W29, C.W24, C.W32, C.W33, C.W34, C.W38, C.U7, C.U20
Seminar and class	**Block IV. Week 23: Physiology and pathophysiology of gastrointestinal system** Neurohormonal regulation of food intake. Autonomic intestinal system. Gastrointestinal and biliary system motility. Secretory function of digestive glands – saliva excretion, gastric, pancreatic and intestinal secretion). Interaction between endocrine and exocrine pancreatic secretion. Structure and function of liver. Digestion and absorption (water, electrolytes, vitamins, minerals, carbohydrates, proteins, fats). Hepatic circulation – anatomic and functional peculiarities. Disturbances of gastrointestinal motility function (vomiting, diarrhea, constipation, achalasia, GERD, peptic ulcers). Gastric and duodenal ulcer disease. Pathophysiology of liver, gall bladder and biliary ducts (jaundice, viral hepatic diseases, acute liver failure, liver cirrhosis and portal hypertension, cholecystitis, autoimmune liver disease, Wilson's disease, non-alcoholic fatty liver disease)). Pathophysiology of pancreas (acute and chronic pancreatitis). Intestinal inflammation – Lesniowski-Crohn's disease, ulcerative colitis) – Disturbances of digestion and absorption (celiac disease, pernicious anemia). Gastrointestinal neoplastic diseases.	B.W20, B.W22, B.U1, C.W25, C.W26, C.W27, C.W40, C.U7, E.W7
Seminar and class	**Block IV. Week 24: Endocrine system part I. Hypothalamic-pituitary-thyroid axis, Hypothalamic-pituitary-adrenal axis – physiology and pathophysiology. Hypothalamic and pituitary hormones.** Hypothalamic-pituitary-thyroid axis. TRH and TSH – activity and regulation of secretion. Thyroid hormones regulatory function. Interaction between thyroid and other hormones. Hypothalamic-pituitary-suprarenal axis. CRH and ACTH – activity and regulation of secretion. Mineralocorticoids and glucocorticoids – regulatory function. Hyperprolactinemia. Cushing's syndrome and Cushing's disease. Conn's syndrome. Hyperthyroidism and hypothyroidism. Suprarenal cortex and medulla disturbances.	B.W15, B.W20, B.W22, C.W25, C.W26, C.W27, C.U7, E.W7
Seminar and class	**Block IV. Week 25: Endocrine system part II. Pancreatic endocrine function. Endocrine regulation of growth and metabolism. Stress phenomenon.** Endocrine regulation of growth and metabolism. Growth hormone – regulation of secretion and mechanism of action. Specificity and selectivity of individual growth factors activity in organs and tissues. Gigantism, acromegaly, pituitary dwarfism. Pancreas as endocrine organ (glucagon and insulin). Type 1 and type 2 diabetes mellitus. Hypoglycemia. Islet cells tumors (insulinoma, gastrinoma).	B.W15, B.W20, B.W22, C.W25, C.W26, C.W27, C.U7, D.W4, E.W7

	Theories of stress. Adaptative function of stress. Stress hormones (hypothalamic-pituitary-suprarenal axis, ADH). Brain neurotransmission systems alterations and sympathetic system excitement during stress. Human organism's reaction to acute and chronic stress. Stress influence on cardiovascular and psychiatric disorders development. PTSD.	
Seminar and class	**Block IV. Week 26: Physiology and pathophysiology of reproductive system, pregnancy and bird. Lactation.** Endocrine regulation of reproductive function. Sex hormones in men and women – mechanism of action and regulation of secretion. Menstrual cycle (hormone levels alterations, endometrial alterations, vaginal mucosal alterations). Maturation and puberty. Menopause. Andropause. Klinefelter Syndrome, Turner Syndrome, true hermaphroditism, pseudohermaphroditism, hypogonadism, hyperprolactinemia, endometriosis. Fertilization and zygote implantation. Uterine-fetal unit (exchange between mother and fetus, hormones of uterine-fetal unit). Development of the fetus. Alterations in pregnant woman's organism (hormonal, metabolic, cardiovascular, respiratory, genitourinary, gastrointestinal and nervous system). Birth. Lactation. Female and male infertility. Miscarriage risk factors. Gestational diabetes and hypertension.. Ectopic pregnancy., Fetal Alcoholic Syndrome (FAS), Fetal hypotrophy. Prematurity – causes and long-term consequences.	B.W20, B.W22, E.W7, F.W15, F.W16
Seminar and class	**Block IV. Week 27: Resting and exercise energy expenditure. Thermoregulation. Obesity. Metabolic disturbances.** Central regulation of hunger and satiety. Fat tissue as a source and target of hormones. Basic and rest metabolism. Energetic balance of the organism. Rules of proper nutrition. Metabolic disorders. Obesity and malnutrition. Heat production and exchange with environment. Heat balance. Internal and skin temperature. Internal temperature alterations – tolerance limits. Thermoregulation system – mechanism of action central and peripheral thermoreceptors, cerebral thermoregulation center. Role of cutaneous circulation in thermoregulation. Regulation of perspiration. Human organism reaction to heat and cold. Acclimatization to cold and hot temperatures. Hypothermia. Hyperthermia (heat shock – mechanism, diagnosis). Malignant hyperthermia. Fever.	B.W15, B.W20, B.W22, C.W25, C.W26, C.W27, C.W40, C.U7
Seminar and class	**Block IV. Week 28: Physiology of physical exercise.** Male and female athletes. Muscles in exercise – strength, power, endurance of muscles, muscles metabolic systems. Nutrients used during muscles activity. Effects of athletic training on muscles and muscle performance. Cardiovascular system in exercise. Body heat in exercise. Body fluids and salt in exercise. Drugs and athletes. Body fitness benefits.	B.W15, B.W20, B.W22, B.U7
Seminar and class	**Block IV. Week 29: 4th Midterm** – themes from the 4th Block.	B.W1, B.W2, B.W3, B.W16, B.W20, B.W21, F.W15, B.W21, B.W22, B.W25, B.U1, B.U7, B.U9, C.W27, C.W24, C.W32, C.W33, C.W34, C.W36, C.W39, C.W49, C.W40, C.W51, C.U7, C.U20

Seminar and class	**Week 30: Summary seminar – final seminar for the entire course. Retakes.**	B.W1, B.W2, B.W3, B.W16, B.W20, B.W21, F.W15, B.W21, B.W22, B.W25, B.U1, B.U7, B.U9, CW.27, C.W24, C.W32, C.W33, C.W34, C.W36, C.W39, C.W49, C.W40, C.W51, C.U7, C.U20
Lecture	**Inauguration lecture.**	B.W20, B.W21, B.W25, C.W27, C.W32, C.W34
Lecture	**Neurodegenerative diseases.**	B.W20, B.W21, B.W25, C.W27, C.W32, C.W34
Lecture	**Behaviour. Limbic system. Prefrontal cortex. Neurobiology of speech.**	B.W20, B.W21, B.W25, C.W27, C.W32, C.W34
Lecture	**Consciousness and awareness. Disturbances of consciousness.**	B.W20, B.W21, B.W25, C.W27, C.W32, C.W34
Lecture	**Neurodegeneration in ophthalmic diseases. Clinical aspects.**	B.W20, B.W21, B.W25, C.W27, C.W32, C.W34
Lecture	**Hemostasis. Hemostatic disorders**	B.W21, B.W25, C.W27, C.W33, C.W34
Lecture	**Electrocardiography**	B.W20, B.W25, C.W32, C.W36
Lecture	**The conducting system of the heart. Mechanisms of cardiac arrhythmia. The examples of the most common arrhythmia.**	B.W1, B.W20, B.W21, B.W22, B.W25, C.W24, C.W32, C.W33, C.W34
Lecture	**Short- and long-term regulation of blood pressure. Arterial hypertension.**	B.W1, B.W20, B.W21, B.W22, B.W25, C.W24, C.W32, C.W33, C.W34
Lecture	**Pathophysiology of the most common heart diseases**	B.W21, B.W25, C.W29, C.W24, C.W32, C.W33, C.W34
Lecture	**Coronary artery disease. Myocardial infarction.**	B.W21, B.W22, B.W25, C.W24, C.W32, C.W33, C.W34
Lecture	**Pathophysiology of acute and chronic heart failure.**	B.W21, B.W22, B.W25, C.W24, C.W32, C.W33, C.W34
Lecture	**Pulmonary circulation. Deep vein thrombosis and pulmonary embolism. Pulmonary hypertension**	B.W21, B.W25, C.W27, C.W33, C.W34
Lecture	**The pathophysiology of the most common respiratory system diseases. Basic diagnostic tests. Mechanical ventilation.**	B.W21, B.W22, B.W25, C.W24, C.W32, C.W33, C.W34
Lecture	**Pathophysiology of urinary tract diseases. Basic diagnostic tests.**	B.W1, B.W2, B.W21, B.W22, B.W25, C.W24, C.W32, C.W33, C.W34
Lecture	**Pathophysiology of the most common diseases of the digestive system.**	B.W21, B.W22, B.W25, C.W24, C.W32, C.W33, C.W34, C.W49
Lecture	**Hormonal regulation of metabolism. Regulation of calcium homeostasis. Hormonal regulation of growth. Pathophysiology of the endocrine system.**	B.W16, B.W21, B.W22, B.W25, C.W24, C.W32, C.W33, C.W34, C.W51
Lecture	**Physiology and pathophysiology of pregnancy.**	B.W21, F.W15, B.W22, B.W25, C.W24, C.W32, C.W33, C.W34, C.W51

Lecture	**Mechanisms of human adaptation to extreme conditions.**	B.W1, B.W2, B.W21, B.W25, C.U20
Lecture	**Physiology of ageing. Civilization diseases.**	B.W21, B.W22, C.W38

7. LITERATURE

Obligatory

John E. Hall. Guyton and Hall Textbook of Medical Physiology, 14th Edition , 2021, Elsevier

Supplementary

Rodney A. Rhoades, David R. Bell : Medical physiology : principles for clinical medicine — 2013, 4th ed. Wolter's Kluwer

Gary D. Hammer, MD, PhD, Stephen J. McPhee, MD, Pathophysiology of Disease: An Introduction to Clinical Medicine, 2014, 7e, McGraw Hill.

8. VERIFYING THE EFFECT OF LEARNING

Code of the course effect of learning	Ways of verifying the effect of learning	Completion criterion
B.W1,2,3,7,16,20,21-25 B.U1,7,9 C.W4,20,27,29,30,32-34,45,47-51 C.U7,20	Seminars and classes – Students need to actively participate in the seminars and classes, which is assessed by the assistant who perform the seminar or class. **In every week,** the **"Weekly Set",** which is a MCQ with **5 questions** on e-learning platform needs to be completed. There will be 2 trials for each "Weekly Set". **Student should take all the Weekly Sets. If A Weekly Set is not taken the vote from this Weekly Set is 0 point.** **The summary vote is calculated before every Midterm MCQ Test, from the Weekly Sets in all didactic weeks from the certain Block**.	Weekly Sets – the MCQs – student needs to obtain average vote 3/5 or higher (from all the Weekly Sets) to be qualified for the Midterm MCQ Test. If average vote is lower than 3/5 the additional qualification to the Midterm MCQ is needed.
B.U1,7,9 B.W1-3, 7,16,2-25,33 C.U7,20 C.W22,27,29,30,32-34,45,47-51	**4 Midterm MCQ Tests** after completion of each **Block** – test with 20 MCQ. Retake if the Midterm MCQ is failed – test with 10 MCQ If the retake is failed – 2nd retake (Commission Midterm Retake) - oral examination directly by the assistant responsible for the didactic, during summary seminar, at the end of the academic year, before the session.	12/20 (60%) points to pass Retake – 6/10 points to pass 2nd retake – completion confirmed by the lecturer
B.U1,7,9 B.W1-3, 7,16,2-25,33 C.U7,20 C.W22,27,29,30,32-34,45,47-51	Final exam – test with 100 MCQ Includes topics from lectures, seminars and classes.	60% of points to pass

9. ADDITIONAL INFORMATION

COURSE SITE:

Lectures: on site or e-learning – information will be given on e-learning platform and the website.

Seminars:

- *Monday Group … - 17.00-19.00 – dept. classroom, Medical Simulation Center*
- *Monday Group … - 15.00-17.00 – dept. classroom, Medical Simulation Center*
- *Tuesday Group … - 17.00-19.00 – dept. classroom, Medical Simulation Center*
- *Tuesday Group … - 15:00-17:00 – dept. classroom, Medical Simulation Center*

Practical classes

- *Group … Friday 09:00-11:30 – dept. classroom, Medical Simulation Center*
- *Group … Friday 11:30-14:00 – dept. classroom, Medical Simulation Center*
- *Group … Friday 14:15-16.45 – dept. classroom, Medical Simulation Center*
- *Group … Friday 16:45-19:15 – dept. classroom, Medical Simulation Center*

PRESENCES/ABSENCES

The presence at the lectures, seminars and classes is compulsory. ***During the entire course, 4 absences (either in seminar or on class – class and seminar are treated separately) are permissible . Any additional absence requires formal justification. All the absences (even those permissible) must be made up in the form announced by the course coordinator.***

WEEKLY SETS

- Every week the "Weekly Set" – a MCQ (5 questions, 1 point for each question) on e-learning platform needs to be completed. There will be 2 trials for the Weekly Set.
- Importantly – the required knowledge to pass the MCQ covers the entire material arranged for the certain week
- If the Weekly Set doesn't be prepared on e-learning platform the Students will be informed and the MCQ will be organized on Classes (on Friday).

MIDTERM MCQ TEST

- *Each Block is summarized with* ***Midterm MCQ Test*** *with 20 questions. Scoring 60% is necessary to pass.*

FINAL EXAM

Final exam – 100 MCQs
- 60% of points needs to be gained in order to pass the exam and obtain grade 3 (satisfactory). The scoring for the higher grades will be created after the exam, according to the Gaussian curve.
- In case of the failure in the Final Exam – the organization, form and complete criterion for the retake will be issued by the Chair and Department of Experimental and Clinical Physiology.

SCIENTIFIC CLUB

information on the Department website.

It will be an opportunity for activity in the Scientific Club – the students are invited for the qualification to Scientific Club after the Final Exam.

ATTENTION

The final 10 minutes of the last class of the block/semester/year should be allotted for students to fill out the Survey of Evaluation of Classes and Academic Teachers

Immunology

1. IMPRINT	
Academic Year	2025/2026
Department	Faculty of Medicine
Field of study	Medicine
Main scientific discipline	Medical sciences
Study Profile	General academic
Level of studies	Uniform MSc
Form of studies	Full time studies
Type of module / course	Obligatory
Form of verification of learning outcomes	**Exam**
Educational Unit / Educational Units	**Department of Clinical Immunology** Nowogrodzka 59 St, 02-006 Warsaw Tel.: (+48 22) 502 14 72, 502 12 60 Faks: (+48 22) 502 21 59 E-mail: ewa.rusinowicz@uckwum.pl Secretary: Ewa Rusinowicz <ewa.rusinowicz(at)uckwum.pl>, Head: Prof. Leszek Pączek <leszek.paczek(at)wum.edu.pl> Didactic coordinator: Dr hab. Beata Kaleta <beata.kaleta(at)wum.edu.pl>
Head of Educational Unit / Heads of Educational Units	Prof. Leszek Pączek <leszek.paczek(at)wum.edu.pl>
Course coordinator	Dr hab. Beata Kaleta <beata.kaleta(at)wum.edu.pl>
Person responsible for syllabus	Dr hab. Beata Kaleta <beata.kaleta(at)wum.edu.pl>
Teachers	Dr hab. n. med. i n. o zdr. Beata Kaleta Dr hab. n. med. Jan Borysowski Dr n. med. Monika Kniotek Dr hab. n. med. Radosław Zagożdżon Lek. Emilia Knioła

2. BASIC INFORMATION

Year and semester of studies	II year,4 semester	**Number of ECTS credits**	3.00

FORMS OF CLASSES **Contacting hours with academic teacher**	**Number of hours**	**ECTS credits calculation**
Lecture (L)	15	0.6
Seminar (S)	25	1.00
Classes (C)		
e-learning (e-L)		
Practical classes (PC)		
Work placement (WP)		
Unassisted student's work		
Preparation for classes and completions	35	1.4

3. COURSE OBJECTIVES

O1	Familiarization with basic immunology in reference to elements of clinical immunology

4. STANDARDS OF LEARNING – DETAILED DESCRIPTION OF EFFECTS OF LEARNING

Code and number of the effect of learning in accordance with standards of learning	**Effects in the field of:** *((in accordance with appendix to the Regulation of Minister of Science and Higher education from 29th of September 2023)*
Knowledge – Graduate* knows and understands:	
Skills– Graduate* is able to:	
C.W16	diagnostic principles for infectious, allergic, autoimmune and neoplastic diseases and blood diseases, based on the antigen-antibody reaction;
C.W18	specific and non-specific mechanisms of humoral and cellular immunity;

C.W19	major tissue compatibility system;
C.W20	types of hypersensitivity reactions, types of immunodeficiency and basics of immunomodulation;
C.W21	issues in the immunology of cancer and immune-mediated diseases and principles of immunotherapy;
C.W22	the genetic basis of donor and recipient selection and the basics of transplant immunology;
C.W42	molecular basis of cancer and issues in cancer immunology;
C.W43	practical elements of molecular biology and immunology used in the diagnosis and therapy of oncological diseases

** In appendix to the Regulation of Minister of Science and Higher education from 29th of September 2023 „graduate", not student is mentioned.*

5. ADDITIONAL EFFECTS OF LEARNING *(non-compulsory)*

Number of effect of learning	**Effects in the fields of:**
Knowledge – Graduate knows and understands:	
K1	
K2	
Skills– Graduate is able to:	
S1	
S2	
Social Competencies – Graduate is ready for:	
SC1	
SC2	

6. CLASSES

Form of class	**Class contents**	**Effects of Learning**
Lectures	• RZ Introduction to the immune system: properties of immune response, features of innate and adaptive immunity, • MK Cells and tissues of the immune system: immune system cells, anatomy and functions of lymphoid tissues • BK Antibodies and antigens: antibody structure, synthesis, assembly and expression, antibody binding of antigens, structure-function relationships in antibody molecules • EK Antigen presentation to T lymphocytes and the function of Major Histocompatibility Complex Molecules: properties of antigens recognized by T cells, antigen capture and functions of antigen-presenting cells, the MHC, processing of protein antigens, presentation of nonprotein antigens to T cells	C.W16. C.W18. C.W19. C.W20. C.W21. C.W22. C.W42. C.W43.

	• RZ Immune receptors and signal transduction: features of antigen receptor signaling, T cell receptor complex and T cells signaling, B cell antigen receptor complex, attenuation of immune receptor signaling, cytokines and cytokine receptor signaling • MK Activation of T lymphocytes: recognition of antigen, role of costimulation in T cell activation, functional responses of T cells, decline of T cell responses • JB Activation of B cells and antibody production: antigen recognition and antigen-induced B cell activation, helper T cell-dependent antibody responses to antigens, regulation of humoral immune response • EK Differentiation and functions of effector T cells: subsets and properties of CD4+ and CD8+ T cells	
Seminars	• BK Circulation and migration of leukocytes: adhesion molecules, chemokines and chemokine receptors, leukocyte-endothelial interactions, leukocyte recruitment into tissues, migration of lymphocytes, neutrophils and monocytes • MK Innate immunity and natural killer cells: functions of innate immunity, pattern recognition receptors, cellular components of the innate immune system, soluble effector molecules of innate immunity, antiviral response and NK cells • MK Development of lymphocytes and antigen receptor gene rearrangement: lymphocyte development, rearrangement of antigen receptor genes in T and B cells, T and B cells development • EK Effector mechanisms of humoral immunity: neutralization of microbes and microbial toxins, antibody-mediated opsonization and phagocytosis, the complement system: pathways, receptors, regulation, functions, complement deficiencies • RZ Specialized immunity at epithelial barriers and immune privileged tissues: immunity in the gastrointestinal, respiratory and genitourinary system, cutaneous immune system, immune-privileged tissues, immunity in the fetus and newborn • MK Immunity to microbes: immunity to extracellular and intracellular bacteria, fungi, viruses, parasites, strategies for vaccine development • JB Hypersensitivity disorders and allergy: causes of hypersensitivity diseases, mechanisms and classification of hypersensitivity reactions, diseases caused by antibodies and antigen-antibody complexes, diseases caused by T cells, therapeutic approaches for immunologic diseases, selected immunologic diseases: pathogenesis and treatment • EK Immunologic tolerance and autoimmunity: T and B cells tolerance, tolerance to commensal microbes and other foreign antigens, mechanisms of autoimmunity • RZ Tumor immunology: tumor antigens, immune responses to tumors, evasion of immune responses by tumors, immunotherapy for tumors • JB Transplantation immunology: immune responses to allografts, patterns and mechanisms of allograft rejection, prevention and treatment of allograft rejection, xenogeneic transplantation, blood transfusion and AB0 and Rh blood group antigens, hematopoietic stem cell transplantation • RZ Primary immunodeficiencies: defects in innate immunity, SCID, antibody deficiencies, defects in T cells activation and function, multisystem diseases with immunodeficiency, therapy for primary immunodeficiencies	C.W16. C.W18. C.W19. C.W20. C.W21. C.W22. C.W42. C.W43.

	• BK Acquired immunodeficiencies: causes, HIV structure, life cycle, clinical features of HIV. Immune response to HIV, treatment and prevention of AIDS and vaccine development	

7. LITERATURE

Obligatory

„Cellular and Molecular Immunology" (10th edition) (Cellular and Molecular Immunology, Abul K. Abbas & Andrew H. Lichtman & Shiv Pillai)

Supplementary

Riot, s Essential Immunology" (13th edition) by Peter J. Delves, Seamus J. Martin, Dennis R. Burton, Ivan M Riott

8. VERIFYING THE EFFECT OF LEARNING

Code of the course effect of learning	Ways of verifying the effect of learning	Completion criterion
C.W16. C.W18. C.W19. C.W20. C.W21. C.W22. C.W42. C.W43.	Exam – single choice test (50 questions) Correction exam - single choice test (50 questions) Commission exam – oral exam (3-5 descriptive questions)	EXAM CRITERIA: • 2.0 (failed): 0-25 points • 3.0 (satisfactory): 26 – 30 points • 3.5 (rather good): 31 – 35 points • 4.0 (good): 36 – 40 points • 4.5 (more than good): 41 – 45 points • 5.0 (very good): 46 – 50 points

9. ADDITIONAL INFORMATION

Attendance at all seminars is mandatory and will be verified by checking the attendance list. In exceptional situations, a student who was absent from a seminar on a given topic and **is on sick leave** for that time must pass the seminar orally or in writing to his/her assistant.
In case of any absences which were not passed student will **not be admitted to the exam**.
All classes take place in the Lindleya campus.

ATTENTION

The final 10 minutes of the last class of the block/semester/year should be allotted for students to fill out the Survey of Evaluation of Classes and Academic Teachers

Basic Polish for medicine

1. IMPRINT	
Academic Year	2025/2026
Department	Faculty of Medicine
Field of study	Medicine
Main scientific discipline	Medical sciences
Study Profile	General academic
Level of studies	uniform MSc
Form of studies	Full-time studies
Type of module / course	obligatory
Form of verification of learning outcomes	completion
Educational Unit / Educational Units	Foreign Language Department The Didactic Center, ul. Trojdena 2a, 02-109 Warsaw sjosekretariat@wum.edu.pl, tel. 22 5720863 www.sjo.wum.edu.pl/
Head of Educational Unit / Heads of Educational Units	Maciej Ganczar, PhD, Professor at MUW maciej.ganczar@wum.edu.pl
Course coordinator	Anna Maczkowska, MA anna.maczkowska@wum.edu.pl
Person responsible for syllabus	Anna Maczkowska, MA anna.maczkowska@wum.edu.pl
Teachers	Maciej Ganczar, PhD, Professor at MUW Krystyna Luto, PhD Anna Maczkowska, MA

2. BASIC INFORMATION			
Year and semester of studies	2nd, 1st and 2nd semester	**Number of ECTS credits**	5.00

FORMS OF CLASSES **Contacting hours with academic teacher**	**Number of hours**	**ECTS credits calculation**
Lecture (L)		
Seminar (S)		
Classes (C)	60	1,4
e-learning (e-L)		
Practical classes (PC)		
Work placement (WP)		
Unassisted student's work		
Preparation for classes and completions	160	3,6

3. COURSE OBJECTIVES

O1	The 2nd year Polish language course is designed to improve the students' command of the language and provide them with basic medical terminology and skills to communicate with an adult and paediatric patient at elementary level.

4. STANDARDS OF LEARNING – DETAILED DESCRIPTION OF EFFECTS OF LEARNING

Code and number of the effect of learning in accordance with standards of learning	**Effects in the field of:** *(in accordance with appendix to the Regulation of Minister of Science and Higher education from 29th of September 2023)*
Knowledge – Graduate* knows and understands:	
D.W7	the specificity and role of verbal (conscious message construction) and non-verbal communication
Skills– Graduate* is able to:	
D.U5	critically analyse medical literature, including literature in in English, and draw conclusions
D.U6	communicate with the patient in one of the foreign languages at B2+ level of the Common European Framework of Reference for Languages

** In appendix to the Regulation of Minister of Science and Higher education from 29th of September 2023 „graduate", not student is mentioned.*

5. ADDITIONAL EFFECTS OF LEARNING *(non-compulsory)*

Number of effect of learning	Effects in the fields of:
Knowledge – Graduate knows and understands:	
K1	names of basic symptoms, ailments, medical specialties and parts of hospital and hospital staff in Polish
K2	
Skills– Graduate is able to:	
S1	take a patient's history at elementary Polish language level (personal history; chief complaint (pain): location, radiation, quality, quantity, duration, frequency, aggravating and relieving factors, associated symptoms; past history; family history; drug history; social history; the review of systems)
S2	give simple instructions to an adult and paediatric patient during a physical examination and explain the doctor's intentions
Social Competencies – Graduate is ready for:	
SC1	continually broadening their knowledge

6. CLASSES

Form of class	Class contents	Effects of Learning
D1/2	Discussing the syllabus (the course content, learning outcomes and the methods of their verification; rules and regulations; credit receiving criteria). Everyday activities – verbs. Revision of Past and Present tense • The *trzeba/można* + infinitive construction • Revision of genitive, accusative and nominative cases; introduction of locative case and the verb "opiekować się"	D.U6, D.W7 K1 S1, S2, S3
D 3/4	Parts of the human body • The verb *boleć* (singular&plural/present&past tense) Organs of the human body • The cases of the noun and adjective in the singular&plural genitive, accusative, locative, instrumental and nominative – forms and uses	D.U6, D.W7 K1 S1, S2, S3
D 5/6	•Time expressions (revision) • Revision of the tenses (present&past). Distinction between imperfective & perfective verbs • Questions: *jak długo?, jak często?, ile razy?, od jak dawna?, O której godzinie?*	D.U6, D.W7 K1 S1, S2, S3
D 7/8	• Dative case – forms and usage • Hospital stay (case description) – vocabulary. Useful phrases (*wezwać pogotowie, przyjąć do szpitala*)	D.U6, D.W7 K1 S1, S2, S3
D 9/10	• Hospital departments and staff • Giving directions	D.U6, D.W7 K1 S1, S2, S3

D 11/12	• Medical specialties and specialists • Revision of genitive and locative cases (*do kardiologa, na oddziale, w szpitalu*) • names of organ systems	D.U6, D.W7 K1 S1, S2, S3
D 13/14	• types of medications • The verb *brać/wziąć* (singular/present&past tense) • basic ailments (*katar, kaszel, dreszcze*) • revision of 1st term vocabulary	D.U.6, D.W7 K1 S1, S2, S3
D 15	Intermediate test	D.U6, D.W7 K1 S1, S2, S3
D 16/17	Instructions for the clinical examination of adults • Explaining the doctor's intentions to the patient	D.U6, D.W7 K1 S1, S2, S3
D18/19	Instructions for the clinical examination of children • Explaining the doctor's intentions to the patient • The imperative mood	D.U6, D.W7 K1 S1, S2, S3
D 20/21	The common cold and flu – a patient's description of the symptoms in the present/past tense • usage of formal register (*pan/pani*) • question formation • taking history – basic rules	D.U6, D.W7 K1 S1, S2, S3
D22/23	Pain history – location, radiation, onset (timing, setting), previous similar pain, duration, character, severity, exacerbating and relieving factors, associated symptoms (vocabulary). • Common diseases • The verbs *chorować (na), leczyć się (na)* (present&past tense), *umrzeć (na)* (past tense)	D.U5, D.U6, D.W7 K1 S1, S2, S3
D24/25	The medical interview: personal history (name, age, occupation, height, weight, marital/family status) social history – alcohol, smoking	D.U5, D.U6, D.W7 K1 S1, S2, S3
D26	The medical interview: chief complaint • past history – surgeries, injuries, hospital admissions, previous illnesses, birth control, pregnancies / births, menstrual periods, allergies	D.U5, D.U6, D.W7 K1 S1, S2, S3
D27/28	The medical interview: systemic inquiry (basic questions) Revision	D.U5, D.U6, D.W7 K1 S1, S2, S3
D29	Final test – written part	D.U5, D.U6, D.W7 K1 S1, S2, S3
D30	Final test – oral part	D.U5, D.U6, D.W7 K1 S1, S2, S3

7. LITERATURE

Obligatory

Maciej Ganczar, Anna Maczkowska “Jak się pani dzisiaj czuje?” Podręcznik do nauki medycznego języka polskiego jako obcego

Supplementary

Handouts prepared by the teachers.

Maria Janowska, Świetlana Sikorska "Proszę oddychać! Część III Warszawski Uniwersytet Medyczny

8. VERIFYING THE EFFECT OF LEARNING

Code of the course effect of learning	Ways of verifying the effect of learning	Completion criterion
D.W7, D.5, D.U6	Written test. Oral test.	To successfully complete the 2nd year Polish language course and obtain credit, a student is required to: • attend all classes (min. 13 out of 15 in a semester) A student who misses more than 2 classes per semester without a valid excuse will not be allowed to take the course tests and will not receive course credits. The only valid excuse for absence is illness. Absences due to illness will be excused on presentation of a valid medical note within one week of return to study. The student is obliged to make up for each absence (excused or unexcused) by performing a special written/oral task assigned by the teacher OR by attending a class with another group (on teacher's permission). If a student misses a class, she/he must catch up on the missed material. It is the student's responsibility to communicate with the class teacher as soon as possible about any attendance issues. • come to classes punctually If a student arrives less than 15 minutes late three times per semester, it will count as one absence. Arriving to class more than 15 minutes late is counted as an absence. • actively participate in each class • complete all the assignments by the due date • pass the intermediate progress tests during the winter and the summer semester and the course written and oral tests (covering the coursework of both the winter and summer semesters) at the end of the summer semester A student who fails the course tests can attempt two retakes. The final course grade a student receives is the average (arithmetic mean) of the written and oral test grades (grades of 2-5), or a grade of 3 for passing a retake. A minimum score of 60% must be obtained on each (written and oral) test to pass the course. A student who misses a scheduled test will receive a score of 0 (which equals failing) unless she/he notifies the class teacher of the reason for her/his failure to take the test within three days of the scheduled test date and makes up the missed test if the reason is justified at the date set by the class teacher. A student who fails the second retake of the final test needs to repeat the course. Students who are 'independent users' of the Polish language (Level B2 as described in the Common European Framework) may be exempted from attending the second year Polish language course (and the second year Polish language course provided they achieve the required score)

		if they pass the B2 level examination organised by the University's Centre for Foreign Languages (Studium Języków Obcych) at the beginning of the academic year. Students interested in taking the exam should check with their class teacher for the exam date, time and location at the first class meeting. The scale of grades is as follows: 2.0 (failed) Below 60% 3.0 (satisfactory) 60-69% 3.5 (rather good) 70-79% 4.0 (good) 80-85% 4.5 (more than good) 86-90% 5.0 (very good) 91-100%

9. ADDITIONAL INFORMATION

All detailed information about the course completion criteria and rules are listed in the Rules and Regulations of the Centre for Foreign Languages https://sjo.wum.edu.pl/node/449

ATTENTION

The final 10 minutes of the last class of the block/semester/year should be allotted for students to fill out the Survey of Evaluation of Classes and Academic Teachers

GENETICS - BASIC

1. IMPRINT	
Academic Year	2025/2026
Department	Faculty of Medicine
Field of study	Medicine
Main scientific discipline	Medical sciences
Study Profile	General academic
Level of studies	Uniform MSc
Form of studies	Full time studies
Type of module / course	Obligatory
Form of verification of learning outcomes	Credit
Educational Unit / Educational Units	Department of Medical Genetics (1WY) Center for Biostructure Research, First Faculty of Medicine ul. Pawińskiego 3c, 02-106 Warszawa phone: +48 22 572 06 95, fax: +48 22 572 06 96 http://www.genetyka.wum.edu.pl e-mail: krzysztof.szczaluba@wum.edu.pl
Head of Educational Unit / Heads of Educational Units	Head of the Department: Rafał Płoski MD PhD
Course coordinator	Krzysztof Szczaluba MD PhD e-mail: krzysztof.szczaluba@wum.edu.pl tel. 22 572 06 95

Person responsible for syllabus	Krzysztof Szczaluba MD PhD e-mail: krzysztof.szczaluba@wum.edu.pl tel. 22 572 06 95
Teachers	Rafał Płoski MD PhD Joanna Kosińska PhD Agnieszka Pollak PhD Małgorzata Rydzanicz PhD Anna Walczak PhD Piotr Gasperowicz PhD Karolina Rutkowska MSc

2. BASIC INFORMATION

Year and semester of studies	2nd Year, 4th (spring) semester	**Number of ECTS credits**	2.00

FORMS OF CLASSES **Contacting hours with academic teacher**	**Number of hours**	**ECTS credits calculation**
Lecture (L)	-	-
Seminar (S)	8	0.5
Classes (C)	17 (live, contact classes:17)	0.5
e-learning (e-L)	-	-
Practical classes (PC)	-	-
Work placement (WP)	-	-
Unassisted student's work		
Preparation for classes and completions	25	1.00

3. COURSE OBJECTIVES

O1	The aim of the course is to present theoretical and laboratory basics of medical and clinical genetics. In the course, the main focus is on teaching how to make use of the obtained knowledge in practice.
O2	Students will also learn to interpret basic genetic analysis, understand principles of genetics counselling and will be acquainted with basic laboratory and statistical methods used in the research in the field of human genetics.

4. STANDARDS OF LEARNING – DETAILED DESCRIPTION OF EFFECTS OF LEARNING	
Code and number of effect of learning in accordance with standards of learning	**Effects in the field of:** *(in accordance with appendix to the Regulation of Minister of Science and Higher education from 29th of September 2023)*
Knowledge – Graduate* knows and understands:	
C.W1	the normal human karyotype and the different types of sex determination;
C.W3	principles of inheritance of different numbers of traits, inheritance of quantitative traits, independent inheritance of traits and inheritance of extra-nuclear genetic information;
C.W5	genetic determinants of the most common single-gene, polygenic and multifactorial diseases, basic chromosome aberration syndromes, syndromes caused by genomic rearrangements, polymorphisms, epigenetic and post-transcriptional changes;
C.W6	factors affecting the primary and secondary genetic balance of the population;
C.W7	genetic determinants of congenital malformations and selected rare diseases and the possibility of their prevention;
C.W8	genetic diagnostic methods and the basic indications for their use;
C.W26	pathogenesis of diseases, including genetic and environmental conditions;
Skills– Graduate* is able to:	
C.U1	chart and analyse bloodlines and identify clinical and bloodline features suggestive of a genetic basis for diseases;
C.U2	make decisions on the need for cytogenetic and molecular tests;
C.U3	read basic genetic test results, including karyotypes;
C.U4	determine genetic risk based on bloodline and genetic test result for chromosomal aberrations, genomic rearrangements, single-gene and multifactorial diseases;

** In appendix to the Regulation of Minister of Science and Higher education from 29th of September 2023 „graduate", not student is mentioned.*

5. ADDITIONAL EFFECTS OF LEARNING *(non-compulsory)*	
Number of effect of learning	**Effects in the fields of:**
Knowledge – Graduate knows and understands:	
K1	Student is able to work in a group in order to solve a problem from the field of genetics.

6. CLASSES		
Form of class	**Class contents**	**Effects of Learning**

Seminars & Classes	1. Basics of genetic medical history and pedigree analysis. Modes of inheritance in human. Genomic imprinting. Drawing pedigrees based on clinical cases. Analysis of modes of inheritance 2. Calculating genetic risk in multifactorial diseases. Applicability of RR and OR in medical genetics. Calculating reoccurrence risk in monogenic diseases. Empirical estimation of disease likelihood in a family using Bayes theory 3. Usefulness of LR calculation in medical genetics. Calculating likelihood of pedigrees 4. *De novo* mutations. Calculating genetic risk considering mutagenesis 5. Genes identification and mapping. Linkage analysis 6. Introduction to cytogenetic testing. Chromosomal basis of human diseases. Methods in molecular cytogenetics. Analysis of cytogenetic results. Using online databases in CGH analysis. 7. Personalized medicine – whole-genome sequencing of DNA. Analysis of DNA sequencing results.	C.W1, C.W3, C.W5, C.W6, C.W7, C.W8, C.W26, C.U1, C.U2, C.U3, C.U4, K1

7. LITERATURE

Obligatory

Medical Genetics
Jorde, Carey, Bamshad
4th Edition
Elsevier

Supplementary

-

8. VERIFYING THE EFFECT OF LEARNING

Code of the course effect of learning	Ways of verifying the effect of learning	Completion criterion
C.U1, C.U2, C.U3, C.U4, K1	Report from completed task	Solving correctly a given task (drawing a pedigree based on clinical description of a family; interpreting a result of a genetic testing; calculating genetic risk; defining a term; explaining a biological process)
C.W1, C.W3, C.W5, C.W6, C.W7, C.W8, C.W26, C.U1, C.U2, C.U3, C.U4, K1	Credit (test)	Answering correctly to more than 50% of questions

9. ADDITIONAL INFORMATION *(information essential for the course instructor that are not included in the other part of the course syllabus e.g. if the course is related to scientific research, detailed description of, information about the Science Club)*

Students are obliged to attend all seminars and classes. No absence is accepted during classes and seminars. Each absence on classes and seminars would have to be covered with another group. Change of groups is possible only as an exchange with a person from another group. Being late for over 15 minutes counts as an absence.

Person responsible for students affairs: Krzysztof Szczaluba MD PhD krzysztof.szczaluba@wum.edu.pl

Evaluation criteria	
Form of passing the course: *passing without a grade*	
Pass	Criteria
Not passed	Getting 50% of points or less
Passed	Getting more than 50% of points

ATTENTION

The final 10 minutes of the last class in the block/semester/year should be allocated to students' Survey of Evaluation of Classes and Academic Teachers.

Parasitology

1. IMPRINT	
Academic Year	2025/2026
Department	Faculty of Medicine
Field of study	Medicine
Main scientific discipline	Medical sciences
Study Profile	General academic
Level of studies	Uniform MSc
Form of studies	Full time studies
Type of module / course	Obligatory
Form of verification of learning outcomes	Exam
Educational Unit / Educational Units	*Department of General Biology and Parasitology, 5 Chałubińskiego Str., 02-004 Warsaw, tel. (22) 6212607*
Head of Educational Unit / Heads of Educational Units	*Ph.D., Professor, Daniel Młocicki*
Course coordinator	*Ph.D., Associate Professor, Monika Dybicz, monika.dybicz@wum.edu.pl*
Person responsible for syllabus	*Monika Dybicz, monika.dybicz@wum.edu.pl*
Teachers	Monika Dybicz, Daniel Młocicki, Aleksandra Sędzikowska

2. BASIC INFORMATION			
Year and semester of studies	Year II, winter semester	**Number of ECTS credits**	2.00
FORMS OF CLASSES			

Contacting hours with academic teacher	Number of hours	ECTS credits calculation
Lecture (L)		
Seminar (S)	10	0,4
Classes (C)	25	1
e-learning (e-L)		
Practical classes (PC)		
Work placement (WP)		
Unassisted student's work		
Preparation for classes and completions	15	0,6

3. COURSE OBJECTIVES

O1	The main objective is to provide necessary information on the biology, physiology and morphology of medically important parasites invading the tissues, organs and systems of the human body.
O2	Transfer of knowledge about current problems of medical parasitology, environmental factors of parasite invasion and dispersion, opportunistic species, pathogenesis and course of parasitic diseases in the states of immunosuppression or immunological defects and epidemiology of parasitic invasions.
O3	Making the future doctor aware of the dangers of parasites occurring in Poland and in the world.
O4	Learning the rules for conducting a correct parasitological interview with the patient.
O5	Introduction of the methods of modern laboratory diagnostics. Acquiring the student's ability to correctly interpret diagnostic test results.

4. STANDARDS OF LEARNING – DETAILED DESCRIPTION OF EFFECTS OF LEARNING

Code and number of the effect of learning in accordance with standards of learning	**Effects in the field of:** *((in accordance with appendix to the Regulation of Minister of Science and Higher education from 29th of September 2023)*
Knowledge – Graduate* knows and understands:	

C.W10	micro-organisms including pathogenic and those constituting the human microbiome, and human-invasive forms or life stages of selected parasites;
C.W11	the epidemiology of parasitic infections, including their geographical distribution
C.W12	the pathogenesis and pathophysiology of infections and contagions and the impact of pathogens such as parasites on the human body and population, including their modes of action, the consequences of exposure to them and the principles of prevention
C.W14	aetiology, pathogenesis, pathophysiology, routes of transmission, forms and prevention of iatrogenic infections;
C.W15	methods used in parasitological diagnosis (indications, principles of performance, interpretation of results)
C.W16	diagnostic principles for infectious, allergic, autoimmune and neoplastic diseases and blood diseases, based on the antigen-antibody reaction (in the field of parasitology)
C.W28	the different groups of medicinal products, their mechanisms and effects of action, their basic indications and contraindications and their basic pharmacokinetic and pharmacodynamic parameters;
Skills– Graduate* is able to:	
C.U5	identify pathogens under the microscope
C.U6	interpret microbiological test results
C.U7	relate images of tissue and organ damage to clinical signs of disease, history and laboratory findings to establish a diagnosis in the most common diseases of adults and children (in the field of parasitology)

** In appendix to the Regulation of Minister of Science and Higher education from 29th of September 2023 „graduate", not student is mentioned.*

5. ADDITIONAL EFFECTS OF LEARNING *(non-compulsory)*	
Number of effect of learning	**Effects in the fields of:**
Knowledge – Graduate knows and understands:	
K1	Health education issues.
K2	Rules of conducting the scientific research and disseminating their results.
Skills– Graduate is able to:	
S1	Carry out diagnostics of parasitic diseases, assess and describe the somatic and mental state of the patient.
S2	Critically evaluate the results of scientific research and properly justify the position.
Social Competencies – Graduate is ready for:	
SC1	Transfer of knowledge in the society about parasitological threats in the country and during foreign travel, especially to tropical and endemic regions.
SC2	Use of objective sources of information.

6. Classes

Form of class	Class contents	Effects of Learning
Seminars and practical classes	1. Introduction to parasitology. Host-parasite relationship. Protozoa of the digestive system (*Giardia intestinalis, Entamoeba histolytica/E. dispar, E. coli, Endolimax nana, Iodamoeba butchlii, Balantidium coli, Blastocystis hominis, Pentatrichomonas hominis*). 2. Protozoa of the oral cavity and urogenital system (*E. gingivalis, Trichomonas tenax, T. vaginalis*). 3. Cellular and tissue protozoans (*Plasmodium* spp., *Trypanosoma* spp., *Leishmania* spp., *Babesia* spp.). 4. Opportunistic and facultative protozoans (*Toxoplasma gondii*, *Cryptosporidium parvum, Cyclospora cayetanensis, Isospora belli, Sarcocystic* spp., *Acanthamoeba* spp., *Naegleria* spp.). 5. Flukes of the digestive and circulatory system (*Fasciola hepatica*, *Opisthorchis felineus*, *Dicrocoelium dendriticum*, *Fasciolopsis buski*, *Schistosoma* spp.). 6. Intestinal tapeworms (*Taenia solium, T. saginata, Rodentolepis nana, Hymenolepis diminuta, Dipylidium caninum*, *Diphyllobothrium latum, Spirometra erinaceieuropaei*). 7. Nematodes of the gastrointestinal tract (*Ascaris lumbricoides, Enterobius vermicularis, Trichuris trichiura, Ancylostoma duodenale, Necator americanus, Strongyloides stercoralis*). 8. Helminths invading human tissues and organs (*Echinococcus granulosus, E. multilocularis, Toxocara canis, Anisakis* spp., *Trichinella* spp.). 9. Filariae (*Loa loa, Onchocerca volvulus, Wuchereria bancrofti, Brugia malayi, Dirofilaria repens, Dracunculus medinensis*). 10. Parasitic insects and pathogen carriers. 11. Parasitic arachnids and pathogen carriers. 12. Laboratory diagnostics of parasitic diseases. 13. Repetition. Discussing clinical cases. 14. Preparation recognition.	C.W10, C.W11, C.W12, C.W15, C.W16, C.U5, C.U6, C.U7

7. Literature

Obligatory

1. Essentials of Medical Parasitology. Apurba Sankar Sastry, Sandhya Bhat K. JP Medical Ltd, 2014.

2. Parasitology worbook. Monika Dybicz, Aleksandra Sędzikowska, Monika Pliszka. 2024.

Supplementary

Medical Parasitology. Rohela Mahmud, Yvonne Ai Lian Lim, Amirah Amir. Springer, 2018.

8. Verifying the effect of learning

Code of the course effect of learning	Ways of verifying the effect of learning	Completion criterion
C.W10, C.W11, C.W12, C.W15, C.W16, C.U5, C.U6, C.U7	Question answer or quiz during classes.	Correct answer to the question.

C.U5	Identification of 3 parasites specimen.	Correct identification of 100% specimen.
C.W10, C.W11, C.W12, C.W15, C.W16, C.U5, C.U6, C.U7	Exam in the form of a multiple choice test composed of 50 questions.	Obtaining over 55,00% points.

9. ADDITIONAL INFORMATION

1. Students are required to prepare for the course, which will be verified by the student's answer or written test.
2. Due to contact with invasive material during classes, hygiene instructions should be strictly followed.
3. Attendance at all classes is obligatory, attendance should be on time. Absence from class is justified on the basis of a medical certificate or certificate of a random accident. Abandoned class should be done with another group or individually in exceptional situations after prior agreement with the person responsible for the subject (Ph.D. Monika Dybicz).
4. Persons applying for transfer of the subject from previous years or from another university should write an application to the Head of the Department of General Biology and Parasitology and obtain permission of the Faculty Dean.
5. The student can have three attempts to take credit. There are two terms of the final exam.
6. There is Parasitological Scientific Club at the department. For more information contact: monika.dybicz@wum.edu.pl.

ATTENTION

The final 10 minutes of the last class of the block/semester/year should be allotted for students to fill out the Survey of Evaluation of Classes and Academic Teachers

Medical Communication

1. IMPRINT	
Academic Year	2025/2026
Department	Faculty of Medicine
Field of study	Medicine
Main scientific discipline	Medical sciences
Study Profile	General academic
Level of studies	Uniform MSc
Form of studies	Full time studies
Type of module / course	Obligatory
Form of verification of learning outcomes	Completion
Educational Unit / Educational Units	Studium Psychologii Zdrowia [Department of Health Psychology (DHP)] – seminars and practicals (in-person classes) ul. Litewska 14/16, 00-575 Warszawa, Tel. +48 22 116 92 11 Studium Komunikacji Medycznej [Department of Medical Communication (DMC)] – e-learning lectures ul. Litewska 14/16, 00-575 Warszawa, Tel. +48 22 116 92 270
Head of Educational Unit / Heads of Educational Units	DHP: Professor Dorota Włodarczyk, MA, PhD DMC: Antonina Doroszewska, MA, PhD
Course coordinator	Magdalena Łazarewicz, MA, PhD e-mail: magdalena.lazarewicz@wum.edu.pl
Person responsible for syllabus	Magdalena Łazarewicz, MA, PhD e-mail: magdalena.lazarewicz@wum.edu.pl
Teachers	Practicals: Magdalena Łazarewicz, MA, PhD (magdalena.lazarewicz@wum.edu.pl) Tomasz Duda, MA, PhD (Tomasz.duda@wum.edu.pl) Elżbieta Łazarewicz-Wyrzykowska, MA, PhD (ela.lazarewicz.wyrzykowska@gmail.com) Adrianna Wielgopolan, MA, PhD (adrianna.wielgopolan@psych.uw.edu.pl) E-learning lecture:

	Paulina Kumięga, MD (paulina.kumiega@wum.edu.pl) Adrianna Beczek, MD (adrianna.beczek@wum.edu.pl)

2. BASIC INFORMATION

Year and semester of studies	II year, 3rd & 4th semester (winter and spring semester)	**Number of ECTS credits**	2.00

FORMS OF CLASSES **Contacting hours with academic teacher**	**Number of hours**	**ECTS credits calculation**
Lecture (L)	15 (e-learning)	0.6
Seminar (S)	8	0.3
Classes (C)	12	0.5
e-learning (e-L)		
Practical classes (PC)		
Work placement (WP)		
Unassisted student's work		
Preparation for classes and completions	15	0.6

3. COURSE OBJECTIVES

O1	Acquiring knowledge about the goals, principles and techniques of interpersonal communication.
O2	Learning methods to improve communication in medical practice and building a proper doctor-patient relationship.
O3	Learning and developing verbal and non-verbal communication skills in conversation with the patient.
O4	Development of knowledge and skills in collecting and transmitting information and building motivation for treatment and compliance with medical recommendations.
O5	Shaping the future doctor's attitude towards the patient based on respect, the right to autonomy, trust and empathy.

4. STANDARDS OF LEARNING – DETAILED DESCRIPTION OF EFFECTS OF LEARNING

Code and number of the effect of learning in accordance with standards of learning	**Effects in the field of:** *(in accordance with appendix to the Regulation of Minister of Science and Higher education from 29th of September 2023)*
Knowledge – Graduate* knows and understands:	

D.W6	the concept of empathy and the phrases and behaviours used to express it;
D.W7	the specificity and role of verbal (conscious message construction) and non-verbal communication (e.g. facial expressions, gestures, silence and space management)
Skills– Graduate* is able to:	
D.U7.	develop and improve self-awareness, self-reflection and self-care, and reflect with others on their own way of communicating and behaving;
D.U9.	describe and critically evaluate their own behaviour and communication, taking into account the possibility of alternative behaviour;
D.U10.	use open-ended questions, closed questions, paraphrasing, clarification, internal and final summaries, signalling, active listening adequately to the situation (e.g. capturing and recognizing signals sent by the interlocutor, verbal and non-verbal techniques) and facilitation (encouraging the interlocutor to speak);
D.U11.	adapt verbal communication to the needs of the patient, expressing themselves clearly and avoiding medical jargon;
D.U12.	recognise and analyse difficult situations and communication challenges, including crying, strong emotions, anxiety, interruptions, awkward and sensitive issues, silence, withdrawal, aggressive and demanding behaviour, and deal with them in a constructive manner;
D.U13.	establish contact with the patient and the person accompanying the patient in order to build an appropriate relationship (e.g. 4 Habits Model: Invest in the beginning, Demonstrate empathy, Recognize the patient's perspective), Invest in the end);
D.U14.	look at the situation from the patient's perspective, building an appropriate conversational context and using the elicitation method, and then incorporating this into the construction of verbal messages.

** In appendix to the Regulation of Minister of Science and Higher education from 29th of September 2023 „graduate", not student is mentioned.*

5. ADDITIONAL EFFECTS OF LEARNING *(non-compulsory)*

Number of effect of learning	**Effects in the field of:**
Knowledge – Graduate knows and understands:	
K1	-
Skills– Graduate is able to:	
S1	-
Social Competencies – Graduate is ready for:	
SC1	establishing and maintaining deep and respectful contact with the patient, as well as showing understanding for ideological and cultural differences
SC2	being guided by the patient's best interests
SC3	noticing and recognizing one's own limitations, making self-assessment of deficits and educational needs

6. CLASSES

Form of class	**Class contents**	**Effects of Learning**

e-L	Functions of medical communication. Communication and patient satisfaction. The role of empathy in doctor-patient relationship. Methods of communication. Communication barriers and errors. Medical interview. Communication in medical team. Difficult conversations with patients. Motivational interviewing.	D.W6, D.W7, SC1, SC2
S1	The importance of communication for medical outcomes; basic rules of building a good doctor-patient/family relationship; showing respect and building rapport. Empathy and support - responding to patient's expectations and needs with empathy, eliciting and validating emotional state of patients during treatment process, providing emotional support to patients.	D.W6, D.U7, D.U9, D.U13, D.U14, SC1-SC3
S2	Goals and stages of medical consultation in the context of the doctor-patient relationship. Communication errors and methods to improve communication and empathy. Verbal and nonverbal aspects of communication; eliciting patient's perspective.	D.W7, D.U7, D.U9-D.U14, SC1-SC3
C1	Using communication techniques appropriate to the goals and stages of medical consultation, part 1	D.W6, D.W7, D.U7, D.U9-D.U14, SC1-SC3
C2	Using communication techniques appropriate to the goals and stages of medical consultation, part 2	D.W6, D.W7, D.U7, D.U9-D.U14, SC1-SC3
C3	Using communication techniques appropriate to the goals and stages of medical consultation, part 3	D.W6, D.W7, D.U7, D.U9-D.U14, SC1-SC3

7. LITERATURE

Obligatory

Materials provided withing the e-learning; PDF materials provided by the teacher during the course.

Supplementary

Silverman, J., Kurtz, S, Draper J (2008) Skills for Communicating with Patients. Radcliffe Publishing.

Lloyd, M., Bor R., Noble, L. (2019) Clinical Communication Skills for Medicine. Elsevier.

8. VERIFYING THE EFFECT OF LEARNING

Code of the course effect of learning	Ways of verifying the effect of learning	Completion criterion
D.W6, D.W7, D.U10, SC1, SC2	Completing the e-learning course and submitting the written exercise required in the e-learning course.	Completion criterion: 80% progress, 80% passing grades in tasks, submission of the obligatory written assignment and obtaining at least 51% of points in the written assessment
D.W6, D.W7, D.U7, D.U9-D.U14, SC1-SC3	Active participation and implementation of tasks during seminars and classes according to the rules specified by the instructor. Task report.	Correct execution of tasks. Correctly prepared report.

9. ADDITIONAL INFORMATION

E-learning lectures (Department of Medical Communication)

Medical Communication lectures are conducted entirely via e-learning (8 modules). They will be held from November 2025 (winter semester) by the Department of Medical Communication. Detailed information regarding the schedule, format, and deadlines for e-learning courses is available on the e-learning.wum.edu.pl platform.

After completing the e-learning lectures students are obliged to submit a final written assessment on the platform. All the information regarding the assessment can be found on the e-learning.wum.edu.pl platform.

Those who fail the e-learning course (by either failing the final assessment or failing to complete other criteria) are entitled to a second attempt. This involves preparing an extra written assignment on medical communication. All the information regarding the retake extra written assignment will be sent to whom it may concern by the e-learning coordinator after the first assessment deadline.

Contact information to the e-learning coordinator: Paulina Kumięga, MD, paulina.kumiega@wum.edu.pl

Seminars and classes (Department of Health Psychology)
Attendance: Students are expected to attend and actively participate in all seminars and classes. Only one excused absence is permitted during the course (doctors note must be provided). In the event of such an absence, students must make up the missed work. They should notify the instructor as soon as possible to determine the method for covering the missed material (specific tasks depending on the missed class).
Group changes (during seminars) or subgroup changes (during classes) are allowed only with prior approval from the course coordinator.
Punctuality is essential. Arriving more than 15 minutes late will be counted as an absence and will require the student to complete additional task at the instructor's discretion, depending on the material missed.
To maintain a productive learning environment, students must turn off or silence all electronic devices that could disrupt the class.

Contact information to the course coordinator:
Magdalena Łazarewicz, MA, PhD
magdalena.lazarewicz@wum.edu.pl

The Department of Health Psychology runs the Psychological Students Science Club "Psyche" (in English) (contact information: magdalena.lazarewicz@wum.edu.pl).

ATTENTION
The final 10 minutes of the last class in the block/semester/year should be allocated to students' Survey of Evaluation of Classes and Academic Teachers.

Hygiene and epidemiology

1. IMPRINT	
Academic Year	2025/2026
Department	Faculty of Medicine
Field of study	Medicine
Main scientific discipline	Medical sciences
Study Profile	General academic
Level of studies	Uniform MSc
Form of studies	Full time studies
Type of module / course	Obligatory
Form of verification of learning outcomes	Completion
Educational Unit / Educational Units	Department of Social Medicine and Public Health Medical University of Warsaw Pawińskiego Str, 3a, 02-106 Warsaw
Head of Educational Unit / Heads of Educational Units	Professor Aneta Nitsch-Osuch, MD, PhD
Course coordinator	Professor Aneta Nitsch-Osuch, MD, PhD msizp@wum.edu.pl anna.jagielska@wum.edu.pl
Person responsible for syllabus	Anna Jagielska, MD, PhD – anna.jagielska@wum.edu.pl
Teachers	Irena Kosińska, MSc, PhD – irena.kosinska@wum.edu.pl Anna Jagielska, MD, PhD – anna.jagielska@wum.edu.pl Katarzyna Okręglicka, MSc, PhD – katarzyna.okreglicka@wum.edu.pl Aleksandra Kozłowska, MSc, PhD – aleksandra.kozlowska@wum.edu.pl

2. BASIC INFORMATION

Year and semester of studies	2nd year, 1st and 2nd semester	**Number of ECTS credits**	2.00

FORMS OF CLASSES	**Number of hours**	**ECTS credits calculation**
Contacting hours with academic teacher		
Lecture (L)		
Seminar (S)	10	0.4
Classes (C)	20	0.8
e-learning (e-L)		
Practical classes (PC)		
Work placement (WP)		
Unassisted student's work		
Preparation for classes and completions	20	0,8

3. COURSE OBJECTIVES

O1	Presentation of the history, basic definitions and tasks of hygiene, epidemiology and health promotion
O2	Teaching about a healthy lifestyle: proper nutrition, proper physical activity, avoidance of addictions, healthy environment and others
O3	Teaching the principles to motivate patients to health-promoting behaviors
O4	Teaching the principles of prevention of infectious diseases and chronic non-communicable diseases
O5	Providing knowledge on epidemiological methods for assessing population health and disease risk factors

4. STANDARDS OF LEARNING – DETAILED DESCRIPTION OF EFFECTS OF LEARNING

Code and number of the effect of learning in accordance with standards of learning	**Effects in the field of:** *(in accordance with appendix to the Regulation of Minister of Science and Higher education from 29th of September 2023)*
Knowledge – Graduate* knows and understands:	
C.W14	aetiology, pathogenesis, pathophysiology, routes of transmission, forms and prevention of iatrogenic infections;

C.W17	principles of disinfection, sterilisation and aseptic management;
C.W26	pathogenesis of diseases, including genetic and environmental conditions;
G.W1	methods for assessing the health of individuals and populations, measures and principles of monitoring the health of populations, systems of classifying diseases and medical procedures;
G.W2	determinants of diseases, methods of identifying and examining disease risk factors, advantages and disadvantages of epidemiological research and principles of cause-and-effect inference in medicine;
G.W3	epidemiology of infectious diseases, including those related to health care, and non-infectious diseases, types and methods of prevention at various stages of the natural history of the disease, and the role and principles of epidemiological surveillance;
G.W9	legal regulations regarding transplants, artificial procreation, termination of pregnancy, aesthetic treatments, palliative care, persistent therapy, mental illnesses, infectious diseases;
G.W21	epidemiology of cancer diseases, in particular their nutritional, environmental and other lifestyle conditions affecting oncological risk;
G.W22	the importance of screening tests in oncology, including the risks associated with diagnostic tests of healthy people, and health benefits in relation to the most common cancer diseases in the Republic of Poland
Skills– Graduate* is able to:	
G.U1.	describe the demographic structure of the population and, on this basis, assess and predict health problems of the population;
G.U2.	collect information on the conditions and presence of risk factors for infectious and non-communicable diseases and plan preventive activities at various levels of prevention;
G.U3.	interpret positive and negative measures of health;
G.U4	assess the epidemiological situation of infectious and non-communicable diseases in the Republic of Poland and in the world;
G.U10	organize the work environment in a way that ensures the safety of the patient and other people, taking into account the influence of human factors and ergonomic principles;

** In appendix to the Regulation of Minister of Science and Higher education from 29th of September 2023 „graduate", not student is mentioned.*

5. ADDITIONAL EFFECTS OF LEARNING *(non-compulsory)*	
Number of effect of learning	**Effects in the fields of:**
Knowledge – Graduate knows and understands:	
K1	
K2	
Skills– Graduate is able to:	
S1	
S2	

Social Competencies – Graduate is ready for:	
SC1	
SC2	

6. CLASSES

Form of class	Class contents	Effects of Learning
S1	History of hygiene and epidemiology. Basic concepts and definitions	C.W14, C.W26, G.W1, G.W2,
S2	Modern tasks of health promotion with special attention to the role of the elements of a healthy lifestyle	C.W14, C.W26, G.W2, G.W3, G.W21, G.W22
S3	Epidemiological surveillance	C.W17, G.W3, G.U2, G.U10
S4	Current situation of noncommunicable diseases in Poland and in the world.	C.W26, G.W1, G.W2, G.W9, G.W21, G.W22, G.U2, G.W4, G.U10
S5	Health and the environment. Implementation of the health promotion at a workplace.	C.W17, G.W1, G.U1, G.U10
S6	Current situation of communicable diseases in Poland and in the world. New and re-emerging infectious diseases.	C.W14, G.W9, G.U1, G.U2, G.W3, G.W4
S7	The prevention of noncommunicable diseases	C.W26, G.W2, G.W21, G.U2, G.W4
S8	Types of epidemiological studies. Environmental epidemiology. Case – control and cohort studies. Clinical trial.	G.W1, G.W2, G.W3, G.U2, G.W4
S9	Hand hygiene as a fundamental method for preventing hospital infections and ensuring the safety of patients and medical staff. Hospital hygiene.	C.W17, G.U10
C1	Healthy lifestyle in everyday practice of medical doctors.	C.W14, C.W26, G.W2, G.W21, G.W22
C2	Methods to motivate patients to a healthy lifestyle	C.W14, C.W26, G.W2, G.W21, G.W22
C3	Identification of individual and environmental risk factors	G.U1, G.U2, G.W3, G.W4
C4	Prophylaxis for the treatment of early stages of non-communicable diseases.	G.W21, G.W22, G.U2, G.U10
C5	Methods for assessing the health status of individuals and populations Death charts.	G.W3, G.W9, G.W4
C6	Classifications of diseases and medical procedures. International Classification of Diseases and Health Problems.	G.W3, G.W9, G.W4
C7	Epidemiology in practice: study planning, interpretation of results, use of statistical methods, interpretation of results. Screening tests.	G.W1, G.W2, G.W3, G.U2, G.W4
C8	Methods for the prevention of infectious diseases at the population level. Anti-vaccine movements. Reporting of vaccine adverse effect (VAE) in every day medical practice.	C.W14, G.W9, G.U1, G.U2, G.W3, G.W4
C9	Reporting of an infectious disease and an alarm pathogen. Develop the outbreak of an infectious disease. Evaluation of the epidemiological	C.W14, G.W9, G.U1, G.U2, G.W3, G.W4

	situation of diseases widespread in the Republic of Poland and worldwide	
C10	Hand hygiene – practical exercises	C.W14, C.W26, G.W2, G.W21, G.W22
C11	Air quality and health.	C.W14, C.W26, G.W2, G.W21, G.W22

7. LITERATURE

Obligatory

1. Friedman G.D. Primer of Epidemiology. McGraw-Hill, New York (available in the Institute)
2. Jędrychowski W, Mugeri U. Epidemiologic methods in studying chronic diseases. International Center for Studies & research in Biomedicine, Luxembourg 2000.
3. Ahrens W., Pigeot I. Handbook of Epidemiology. Springer-Verlag, Berlin, Heilderberg 2005 (selected chapters)
4. TUCKER KL et al. Modern nutrition in health and disease, 2024
5. www.who.org
6. https://www.ecdc.europa.eu/en
7. Polish Journal of Nutrition
8. American Journal of Preventive Medicine

8. VERIFYING THE EFFECT OF LEARNING

Code of the course effect of learning	Ways of verifying the effect of learning	Completion criterion
C.W14, C.W17, C.W26, G.W1, G.W2, G.W3, G.W9, G.W21, G.W22, G.U1, G.U2, G.U3, G.U4, G.U10	Participation in e-learning course (both obligatory and additional parts). Solving quizzes and test. Obtaining a certificate. Attendance at all seminar classes. Active participation in the seminars. Passing the practical tasks during the classes. Positive evaluation of the acquired skills and competences obtained from the teacher - exercise report. Preparation and presentation of a given topic related to health promotion. The final written test, including the content of seminars and exercises.	100% attendance Credit - completion of the task in at least 61%. Single-choice test To pass a student needs to score at least >61% correct answers Assessment Criteria 2. 0 (failed) < 61% of points. 3. 0 (satisfactory) 61-75% 3. 5 (satisfactory +) 76-80% 4. 0 (good) 81-86% 4,5 (good +) 87-90% 5. 0 (very good) >90%

9. ADDITIONAL INFORMATION

1. In the implementation of the course it is important to attend seminars and classes, as they present the latest scientific developments.
2. Person responsible for conducting the didactics: Anna Jagielska, MD, PhD, anna.jagielska@wum.edu.pl
3. Absences (excused) can be made up with another group by prior arrangement with the person in charge of teaching.
4. Conditions of conducting the exercises: punctuality, during the exercises it is forbidden to use mobile phones or recording meetings.

5. The Department of Social Medicine and Public Health is affiliated with 1) Student Scientific Association of Hygiene and Prevention. Supervisor of SSA - Dr Irena Kosińska, e-mail: irena.kosinska@wum.edu.pl (environmental topics) and 2) Students Scientific Association of Healthcare Management (contact to a scientific supervisor Dr Magdalena Bogdan: mbogdan@wum.edu.pl). Information about the SSA is available on the Department's website.
6. The up-to-date information about the Department's activities and announcements about didactics might be found at our website https://msizp.wum.edu.pl

ATTENTION

The final 10 minutes of the last class of the block/semester/year should be allotted for students to fill out the Survey of Evaluation of Classes and Academic Teachers

Research Methodology

1. IMPRINT	
Academic Year	2025/2026
Department	Faculty of Medicine
Field of study	Medicine
Main scientific discipline	Medical sciences
Study Profile	General academic
Level of studies	Uniform MSc
Form of studies	Full-time studies
Type of module / course	Obligatory
Form of verification of learning outcomes	Completion
Educational Unit / Educational Units	**Department of Methodology (1MN)** Center for Preclinical Research, 1b Banacha Street, 3rd floor, room B06 e-mail: metodologia@wum.edu.pl, www.metodologia.wum.edu.pl **Department of Health Economics and Medical Law** Żwirki Wigury 81 Street, ZIAM building room no 5, tel. : 22 57-20-702 , e-mail: zep@wum.edu.pl www. zep.wum.edu.pl/

Head of Educational Unit / Heads of Educational Units	Assoc. Prof. Piotr Dziechciarz, MD,PhD
Course coordinator	Wiktor Paskal, MD, PhD, metodologia@wum.edu.pl
Person responsible for syllabus	Wiktor Paskal, MD, PhD, metodologia@wum.edu.pl
Teachers	Department of Methodology of Scientific Research Prof. Piotr Dziechciarz, MD, PhD Wiktor Paskal, MD, PhD Kacper Pełka MD, Dawid Mehlich MD, Klaudia Klicka MD, Michał Kopka MD, Albert Stachura MD, Department of Health Economics and Medical Law Prof. Aleksandra Czerw, PhD

2. BASIC INFORMATION

Year and semester of studies	II year, III and IV semester	**Number of ECTS credits**	2

FORMS OF CLASSES **Contacting hours with academic teacher**	**Number of hours**	**ECTS credits calculation**
Lecture (L)	5 (3 in e-learning)	0.2
Seminar (S)	15 (15 in e-learning)	0.6
Classes (C)	15	0.6
e-learning (e-L)		
Practical classes (PC)		
Work placement (WP)		
Unassisted student's work		
Preparation for classes and completions	15	0,6

3.	**COURSE OBJECTIVES**
O1	To acquire the knowledge and skills necessary to conduct scientific research in accordance with Good Laboratory Practice (GLP) and Good Clinical Practice (GCP) standards.
O2	To systematize evidence-based knowledge (Evidence Based Medicine, EBM) necessary in daily medical practice.
O3	Introduction to sources of scientific data, ways of obtaining them and critical analysis. The phenomenon of pseudoscience.
O4	Gain the ability to plan and execute a simple scientific project and prepare the results for publication in scientific journals and presentation at conferences.
O5	Formation of correct ethical attitudes in scientific research.

4.	**STANDARDS OF LEARNING – DETAILED DESCRIPTION OF EFFECTS OF LEARNING**
Code and number of effect of learning in accordance with standards of learning	**Effects in the fields of:** *(in accordance with appendix to the Regulation of Minister of Science and Higher education from 29th of September 2023)* *B.W23 B.W24, B.W26, D.W19* *B.U8, B.U9, B.U10, B.U11, D.U4, D.U5*
Knowledge – Graduate* knows and understands:	
B.W23	basic IT and biostatistical tools used in medicine;
B.W24	basic methods of statistical analysis used in population and diagnostic studies;
B.W26	principles of research for the advancement of medicine
D.W19	the fundamentals of evidence-based medicine;
Skills– Graduate* is able to:	
B.U8	use medical databases and correctly interpret the information they contain to solve problems in basic and clinical sciences;
B.U9	select an appropriate statistical test, carry out basic statistical analyses and use appropriate methods to present the results;
B.U10	classify scientific research methodology, including distinguishing between experimental and observational studies with their sub-types, ranking them according to the reliability of the results provided and correctly assessing the strength of scientific evidence;
B.U11	plan and carry out scientific research and interpret the results and formulate conclusions;
D.U4	demonstrate responsibility for improving their own skills and transferring knowledge to others;
D.U5	critically analyse medical literature, including literature in in English, and draw conclusions;

** In appendix to the Regulation of Minister of Science and Higher education from 29th of September 2023 „graduate", not student is mentioned.*

5.	**ADDITIONAL EFFECTS OF LEARNING** *(non-compulsory)*
Number of effect of learning	**Effects in the fields of:**

6. CLASSES

Form of class	Class contents	Effects of Learning
Lectures	**L1 - Creative scientific and research activities - conditions, requirements and legal protection.** Conducting legal research in medicine and the biological sciences. Legally permissible animal, clinical, biomedical research. Protection of patients' personal data. Limits and legal conditions of creativity in medical and biological sciences. Copyright and industrial property rights. Lecture in the form of synchronous e-learning	BW.24, BW 26
	L2 - Science, not fiction. Means several words about manipulations in science. Unreliability and falsification in science. Manipulations in research design and interpretation. Problems of "predatory journals". Using scientific research in marketing and advertisement. Issues of pseudoscience. Lecture in the form of asynchronous e-learning	B.W26, D.W16
Seminars	**S1 - Ethics in scientific research.** Knowledge of regulations regarding the ethics of conducting animal and human research. Protection of sensitive data. The guidelines of the Declaration of Helsinki for the conduct of human research. Informed consent for research. Preparing an application to the bioethics committee. Animal research - EU and IACUC guidelines, principles of animal research design, legislation and preparation of applications to the Animal Ethics Committee. Seminar in the form of asynchronous e-learning	BW 26 BU11
	S2 - Fundamentals of EBM. Learning the principles of EBM, clinical research design. Types of scientific research. Research design - formulating a research question. Seminar in the form of asynchronous e-learning.	DW 19, BU 10
	S3 - Data types, basic statistics for research Identify the type of data obtained from research studies. Use and significance of PPV, NPV, OR, HR, CI95%. Determination of the minimum group size in the planned study. Seminar in the form of asynchronous e-learning.	BU10, BU11
	S4 - Medical databases. Effective use of medical databases to answer a scientific or clinical question. Basics of use and features of selected services for scientists and physicians. Seminar in the form of asynchronous e-learning	BU8, BU10, BU11
	S5 -Clinical trials Design, organization, methodology, phases of clinical trials. Interpretation of results including the most frequent errors. Use of research results in practice and medical technology assessment. Seminar in the form of asynchronous e-learning	BU8, BU10, BU11, BU23, BU24
	S6 - Methodology of preclinical research. Planning of pre-clinical research. Use of basic research results in clinical trials. Relevance and limitations of experimental studies. Seminar in the form of asynchronous e-learning	BU8, BU10, BU11, BU23, BU24
	S7 - Critical analysis of publications. Analysis of scientific articles using CONSORT and PRISMA guidelines. Systematic reviews and meta-analyses. Statistical versus clinical significance. Interpretation of survival using the Kaplan-Meier method Seminar in the form of asynchronous e-learning	BU 8, BU9, DU 4, DU 5

	S8 - Principles of preparing an abstract of a scientific article and a conference report. Rules for preparing clear and correct abstracts. Discussion of the most common mistakes made in scientific reports. Seminar in the form of asynchronous e-learning	BU 8, BU9, DU 4, DU 5
Classes	**C1 - Data types, basic statistics for research** Exercise complementary to the topic S3. Exercise in the form of asynchronous e-learning	BU 8, BU9, DU 4, DU 5
	C2 - Statistical analysis of scientific data. Statistical analysis of research data, interpretation of results, selection of optimal significance tests. Descriptive statistics, analysis of differences between groups. Practical use and interpretation of test results: Student's T-test, Mann-U-Whitney, Chi-square. Exercise in stationary form.	B.U 8, B.U9
	C3-C5 Exercises complementary to the topics of seminars S6-S8. Exercise in the form of synchronous e-learning.	BU 8, BU9, DU 4, DU 5
	C6 - Forms of scientific data presentation. Principles of graphic presentation of results. Creating clear charts, tables and diagrams. Tools helpful in preparing presentations. Practicing presentation of results. Exercise in the form of synchronous and asynchronous e-learning.	BU 8, BU9, DU 4, DU 5

7. LITERATURE

Obligatory

Materials on the e-learning platform prepared by the Department of Methodology

Supplementary

- Podstawy EBM czyli Medycyny opartej na danych naukowych dla lekarzy i studentów medycyny. Pod red. Piotra Gajewskiego, Romana Jaeschke, Jana Brożka. Wyd. Medycyna praktyczna, Kraków 2008, wyd. 1.
- Medical databases and professional medical journals – Pubmed, Embase, Scopus, Cochrane, Web of Science.
- Kodeks Etyki Lekarskiej, tekst jednolity z dnia 2 stycznia 2004r., zawierający zmiany uchwalone w dniu 20 września przez Nadzwyczajny VII Krajowy Zjazd Lekarzy, Warszawa 2004
- https://poradnik-naukowy.gumed.edu.pl/

8. VERIFYING THE EFFECT OF LEARNING

Code of the course effect of learning	Ways of verifying the effect of learning	Completion criterion
e.g. G.K1, G.S1, K1	*This field defines the methods used for grading students e.g. pop quiz, test, written report etc.*	*e.g. threshold number of points*
D.W24, B.W23, B.W26, BU8, BU10, BU11, BU23, BU24, DU4, DU5	Credit of e-course (S, C): test questions and practical tasks in the form of e-learning Passing the final test from the materials on the e-learning platform	Credit for classes in the form of e-learning.
	Exercises and seminars (C, S) with an assistant: attendance, activity, realization of the topic, answering to the questions of the teacher and preparing a presentation on the last class.	Positive evaluation by the teacher.

9. ADDITIONAL INFORMATION *(information essential for the course instructor that are not included in the other part of the course syllabus e.g. if the course is related to scientific research, detailed description of, information about the Science Club)*

General comments.

The series of classes conducted by different Departments, led by the Department of Research Methodology, lasts for 6 weeks.

On the website of the Department of Research Methodology (http://metodologia.wum.edu.pl/) and on the e-learning platform there will be available schedules with information on how the classes will be conducted and the dates of classes for particular groups.

Full-time and e-learning synchronous classes (6 weekly meetings) will be held according to the schedule set for the following Dean's groups.

Seminars as well as Asynchronous Exercises and Lectures (C1, C5, W2) will be available on the e-learning platform (https://e-learning.wum.edu.pl/login/index.php) throughout the academic year.

The synchronous lecture (W1) takes place in the summer semester. The date will be communicated to the students at the beginning of the summer semester.

ATTENTION - the condition to take the last class in the schedule for a given group is a positive result of the final test on the e-learning platform. To take the test you need to read all obligatory materials on the platform and pass all sub-tests (otherwise the test will not be available).

We recommend that you familiarize yourself with the subsequent modules of the course on an ongoing basis. Many seminars (S3, S6-8, C6) constitute direct preparation for the exercise classes of the given topic (C2-C6) and the familiarisation with the material may be verified by the tutors during the classes.

Regulations and organization of classes:

1. Attendance at classes and seminars is compulsory.
2. Any absence from classes must be made up. Making up the classes at another time is possible only after an agreement with the Department, subject to availability. Inquiries about making up classes (e-learning and classes with an assistant) should be sent to: metodologia@wum.edu.pl
3. Part of the seminars is conducted in the form of e-learning. A student is obliged to do subsequent modules according to the schedule available on the e-learning platform.
4. Students are obliged to come to classes prepared to the content. Not being ready for classes is treated as an absence (especially during exercises C2-C6).
5. The condition to get the pass mark for the course is the participation in all classes and seminars and getting the positive mark of the assistant for the knowledge of the material provided for the given exercise and making and presenting the presentation during the last class.

The person responsible for didactics - Wiktor Paskal, MD, PhD. Contact via e-mail: metodologia@wum.edu.pl

Obtaining credit in the index is possible after completing all seminars, exercises and lecture in the summer semester.

There is a Student Scientific Society at the Department. Persons interested in cooperation are welcome to contact; SKN Supervisor - Wiktor Paskal, MD, PhD; e-mail: metodologia@wum.edu.pl.
The profile of the Department's scientific activity - https://metodologia.wum.edu.pl/node/81

ATTENTION

The final 10 minutes of the last class of the block/semester/year should be allotted for students to fill out the Survey of Evaluation of Classes and Academic Teachers

INTERNSHIP AFTER THE SECOND YEAR OF STUDIES
Emergency medical care, family medicine

1. IMPRINT	
Academic Year	2025/2026
Department	Faculty of Medicine
Field of study	Medicine
Main scientific discipline	Medical Science
Study Profile	general academic
Level of studies	uniform MSc
Form of studies	Full time studies
Type of module / course	obligatory
Form of verification of learning outcomes	Completion
Educational Unit / Educational Units	
Head of Educational Unit / Heads of Educational Units	
Course coordinator	Joanna Kacperczyk-Bartnik, MD, PhD, e-mail: joanna.kacperczyk-bartnik@wum.edu.pl (1W61) II Department of Obstetrics and Gynecology, MUW 2 Karowa St., 00-315 Warsaw Phone: 48 22 59 66 421
Person responsible for syllabus	
Teachers	

2. BASIC INFORMATION			
Year and semester of studies	After the second year of studies	**Number of ECTS credits**	4

FORMS OF CLASSES **Contacting hours with academic teacher**	**Number of hours**	**ECTS credits calculation**
Lecture (L)		
Seminar (S)		
Classes (C)		
e-learning (e-L)		
Practical classes (PC)		
Work placement (WP)	120= 90 hrs - primary health care (family medicine) 30 hrs - emergency care	4
Unassisted student's work		
Preparation for classes and completions		

3. COURSE OBJECTIVES

O1	Acquiring practical skills in primary health care (family medicine)
O2	Acquiring practical skills in emergency care

4. STANDARDS OF LEARNING – DETAILED DESCRIPTION OF EFFECTS OF LEARNING

Code and number of the effect of learning in accordance with standards of learning	**Effects in the field of:** *(in accordance with appendix to the Regulation of Minister of Science and Higher education from 29th of September 2023)*
Knowledge – Graduate* knows and understands:	
G.K1	
In the field of primary health care (family medicine) **Skills– Graduate* is able to:**	
C.U11	prepare prescription formulation records of selected medicinal substances and issue prescriptions, including e-prescriptions, in accordance with legislation
D.U7	develop and improve self-awareness, self-reflection and self-care, and reflect with others on their own way of communicating and behaving;
D.U9	describe and critically evaluate their own behaviour and communication, taking into account the possibility of alternative behaviour;

D.U10	use open and closed questions, paraphrase, clarification, internal and final summaries, signaling, active listening (e.g. capturing and recognizing signals sent by the interlocutor, verbal and nonverbal techniques) and facilitation (encouraging the interlocutor to speak) appropriate to the situation;
D.U11	adapt verbal communication to the needs of the patient, expressing themselves clearly and avoiding medical jargon;
D.U12	recognise and analyse difficult situations and communication challenges, including crying, strong emotions, anxiety, interruptions, awkward and sensitive issues, silence, withdrawal, aggressive and demanding behaviour, and deal with them in a constructive manner;
D.U13	establish contact with the patient and the person accompanying the patient in order to build an appropriate relationship (e.g. 4 Habits Model: Invest in the beginning, Demonstrate empathy, Recognize the patient's perspective), Invest in the end);
D.U14	look at the situation from the patient's perspective, building an appropriate conversational context and using the elicitation method, and then incorporating this into the construction of verbal messages;
E.U1	take a medical history of an adult, including an older person, using skills regarding the content, process and perception of communication, taking into account the biomedical perspective and the patient's perspective
E.U2	take a medical history of the child and his/her caregivers, using skills regarding the content, process and perception of communication, taking into account the biomedical and patient perspectives; **E.U3**. take a medical history in a life-threatening situation using the SAMPLE scheme (S - Symptoms, A - Allergies, M - Medications, P - Past medical history, L - Last meal (last meal), E – Events prior to injury/illness (events before the accident/illness));
E.U5 pkt 1	perform a complete and focused physical examination of the adult appropriate to the specific clinical situation, including examination of: 1) physical examination
E.U6 pkt 1	conduct a complete and focused physical examination of the child from neonatal to adolescent period, adapted to the specific clinical situation, including examination of: 1) pediatric examination
E.U8	perform check-up tests, including comparing anthropometric and blood pressure measurements with data on percentile charts, and assessing the degree of puberty;
E.U9	recognize the most common symptoms of the disease in adults, use diagnostic tests and interpret their results, perform differential diagnosis, implement therapy, monitor the effects of treatment and assess indications for specialist consultation, in particular in the case of symptoms such as:
E.U10	recognize the most common symptoms of the disease in children, apply diagnostic tests and interpret their results, conduct differential diagnosis, implement therapy, monitor the effects of treatment and assess indications for specialist consultation, in particular in the case of symptoms such as:
E.U13	qualify the patient for vaccinations;
E.U18	keep the patient's medical records, including in electronic form, in accordance with the law;
G.U6	issue medical certificates and medical opinions, prepare opinions for the patient, authorized bodies and entities, prepare and maintain medical records (in electronic and paper form) and use information and communication tools and services in health care (e-health);

In the field of emergency assistance

Skills– Graduate* is able to:

E.U1	take a medical history of an adult, including an older person, using skills regarding the content, process and perception of communication, taking into account the biomedical perspective and the patient's perspective
E.U2	take a medical history of the child and his/her caregivers, using skills regarding the content, process and perception of communication, taking into account the biomedical and patient perspectives; **E.U3**. take a medical history in a life-threatening situation using the SAMPLE scheme (S - Symptoms, A - Allergies, M - Medications, P - Past medical history, L - Last meal (last meal), E – Events prior to injury/illness (events before the accident/illness));

E.U3	take a medical history in a life-threatening situation using the SAMPLE scheme (S - Symptoms, A - Allergies, M - Medications, P - Past medical history, L - Last meal (last meal), E – Events prior to injury/illness (events before the accident/illness));
E.U9	recognize the most common symptoms of the disease in adults, use diagnostic tests and interpret their results, perform differential diagnosis, implement therapy, monitor the effects of treatment and assess indications for specialist consultation, in particular in the case of symptoms such as:
E.U10	recognize the most common symptoms of the disease in children, apply diagnostic tests and interpret their results, conduct differential diagnosis, implement therapy, monitor the effects of treatment and assess indications for specialist consultation, in particular in the case of symptoms such as:
E.U18	keep the patient's medical records, including in electronic form, in accordance with the law;
E.U16	declare the patient dead;
F.U2	apply and change a sterile dressing;
F.U3	assess and treat a simple wound, including local anesthesia (superficial, infiltration), applying and removing surgical sutures, applying and changing a sterile surgical dressing;
F.U6	immobilise the limb on an ad hoc basis, including the choice of the type of immobilisation in typical clinical situations, and check the correctness of the limb's blood supply after the immobilisation dressing has been applied;
F.U8	treat external bleeding;
F.U11	perform BLS basic life support in adults, including using an automatic external defibrillator, in accordance with ERC guidelines;
F.U20	recognize ophthalmological conditions requiring urgent specialist assistance and provide initial pre-hospital assistance in cases of physical and chemical eye injuries;
G.U6	issue medical certificates and medical opinions, prepare opinions for the patient, authorized bodies and entities, prepare and maintain medical records (in electronic and paper form) and use information and communication tools and services in health care (e-health);

** In appendix to the Regulation of Minister of Science and Higher education from 29th of September 2023 „graduate", not student is mentioned.*

5. ADDITIONAL EFFECTS OF LEARNING *(non-compulsory)*	
Number of effect of learning	**Effects in the fields of:**
Knowledge – Graduate knows and understands:	
K1	
In the field of primary health care (family medicine) **Skills– Graduate is able to:**	
S1	familiarized himself with the scope of work of the clinic, including the procedure for registering patients, types of documentation, the method of its maintenance and the system of maintaining records in the clinic or centre, as well as the principles of issuing certificates of incapacity for work, other medical certificates, referrals for specialist examinations and the methods of completing them
In the field of In the field of emergency assistance **Skills– Graduate is able to:**	

S2	became familiar with the scope of activities of the emergency department, etc., maintaining documentation, ruling on temporary incapacity for work, referring patients to hospital, providing transport services, organizing rescue operations in cases of mass poisoning, illness, accidents, natural disasters, etc.
S3	Familiarized himself with the work of a paramedic during resuscitation, accident and pediatric ambulance trips or performing the same activities in hospital emergency departments
S4	assesses the patient's general condition, state of consciousness and awareness
Social Competencies – Graduate is ready for:	
SC1	establishing and maintaining deep and respectful contact with the patient, as well as showing understanding for differences in worldviews and cultures
SC2	being guided by the patient's well-being
SC3	respecting medical confidentiality and patient rights
SC4	taking action towards the patient based on ethical principles, with awareness of the social conditions and limitations resulting from the disease
SC5	perceiving and recognizing one's own limitations and making self-assessment of deficits and educational needs
SC6	promoting pro-health behaviors
SC7	using objective sources of information
SC8	formulating conclusions from one's own measurements or observations
SC9	implementing the principles of professional camaraderie and cooperation in a team of specialists, including representatives of other medical professions, also in a multicultural and multinational environment
SC10	formulating opinions on various aspects of professional activity
SC11	taking responsibility related to decisions made as part of professional activity, including in terms of one's own safety and the safety of others

6. CLASSES

Form of class	Class contents	Effects of Learning
Work placement (WP)	**Professional practice in primary healthcare (family medicine):** - scope of work in a clinic: patient registration process, types of documentation, its maintenance, and the system for maintaining records in a clinic or center - principles for issuing certificates of incapacity for work, other medical certificates, referrals for specialist tests, and how to complete them - conducting an interview and physical examination of an adult patient - conducting an interview and physical examination of a child - assessment of a child's development during a physical examination with reference to normative growth charts, determining the level of sexual maturation - qualification for vaccinations - principles for the proper interpretation of the results of basic diagnostic tests	C.U11, D.U7, D.U9, D.U10, D.U11, D.U12, D.U13, D.U14, E.U1, E.U2, E.U5 pkt 1, E.U6 pkt 1, E.U8, E.U9, E.U10, E.U13, E.U18, G.U6, S1, SC1-SC11
Work placement (WP)	**Professional practice in emergency care:** - Scope of activities of the Hospital Emergency Department, maintaining records, determining temporary incapacity for work, referring patients to the hospital, providing transport services,	E.U1, E.U2, E.U3, E.U9, E.U10, E.U16, E.U18, F.U2, F.U3, F.U6, F.U8, F.U11, F.U20, G.U6,

	organizing rescue operations in cases of mass poisoning, illness, accidents, natural disasters, etc. - Working as a paramedic during accident and pediatric ambulance dispatches, performing the same activities in hospital emergency departments - Conducting a medical interview with an adult patient and with a child and their parents - Assessing the patient's general condition, level of consciousness, and awareness - Recognizing conditions that pose an immediate threat to life - Principles of proper interpretation of basic diagnostic test results - Procedures for trauma (applying a dressing or immobilization, dressing a wound) - Criteria for recognizing a patient's agony and declaring death - Maintaining patient medical records - Managing external bleeding - Basic life support with an automated external defibrillator and other life-saving procedures, as well as principles of first aid - Conditions ophthalmological requiring immediate specialist assistance, providing initial, qualified assistance in cases of physical and chemical eye injuries	S2, S3, S4, SC1-SC11

7. LITERATURE

Obligatory
Supplementary

8. VERIFYING THE EFFECT OF LEARNING

Code of the course effect of learning	Ways of verifying the effect of learning	Completion criterion
C.U11, D.U7, D.U9, D.U10, D.U11, D.U12, D.U13, D.U14, E.U1, E.U2, E.U5 pkt 1, E.U6 pkt 1, E.U8, E.U9, E.U10, E.U13, E.U18, G.U6, S1, SC1-SC11	<u>PRIMARY HEALTH CARE (FAMILY MEDICINE)</u> Completed internship card and information about the internship coordinator with: - assessment of practical skills (made by the internship coordinator based on student observation) - max 6 points Rating scale: very good (5.0): 6 points good (4.0): 5 points sufficient (3.0): 3-4 points insufficient (2.0): below 3 points - assessment of social competences and professionalism (made by the internship coordinator based on student observation) - max 10 points Rating scale: very good (5.0): 9-10 points good (4.0): 7-8 points sufficient (3.0): 5-6 points insufficient (2.0): below 5.0 points	The condition for passing the internship is to obtain at least a satisfactory grade in terms of both the practical skills and social competences. Placement of the internship by the Internship Supervisor of the Medical University of Warsaw

E.U1, E.U2, E.U3, E.U9, E.U10, E.U16, E.U18, F.U2, F.U3, F.U6, F.U8, F.U11, F.U20, G.U6, S2, S3, S4, SC1-SC11	<u>EMERGENCY ASSISTANCE</u> Completed internship card and information about the internship coordinator with: - assessment of practical skills (made by the internship coordinator based on student observation) - max 12 points Rating scale: very good (5.0): 11-12 points good (4.0): 8-10 points sufficient (3.0): 6-7 points insufficient (2.0): below 6 points - assessment of social competences and professionalism (made by the internship coordinator based on student observation) - max 10 points Rating scale: very good (5.0): 9-10 points good (4.0): 7-8 points sufficient (3.0): 5-6 points insufficient (2.0): below 5.0 points	The condition for passing the internship is to obtain at least a satisfactory grade in terms of both the practical skills and social competences. Placement of the internship by the Internship Supervisor of the Medical University of Warsaw

9. ADDITIONAL INFORMATION

Information on internships is available on the faculty website: https://ed.wum.edu.pl/node/763
Please read the Regulations for internships at the Faculty of Medicine, WUM, available on the website.
Internships are held during the summer holidays.

VOCATIONAL TRAINING

Primary health care (family medicine) – 3 weeks – 90h
Emergency medical aid – 1 week – 30 h
2nd year, , 6-year program ED students
Faculty of Medicine

Second year students are expected to have their summer training according to following rule:

a) a three-week family medicine training in the outpatients' department at a teaching hospital – 90h,

b) a one-week training in the emergency medical aid service – 30h.

The head of the department or an appointed supervisor assigns a detailed program of the training and scheduled duties and also evaluates students' performance.

Responsible for the appropriate course of the training is a fully qualified specialist in a particular medical, laboratory or nursing area.

Students are expected to perform under supervision, all the nursing procedures typical of the outpatients' departments and to be involved in carrying out examinations or investigations in particular diagnostic laboratories and departments.

The ultimate goals of instruction provided in the outpatients' department are:

1. to acquaint students with procedures concerning patients' registration, types of records and filing system used in the outpatients' departments,
2. to provide information on rules of referring patients on sick leaves, releasing sickness certificates, referrals to specialists, filling in particular forms and letters
3. to teach the techniques of repairing surgical dressing materials and surgical instrument for sterilization,
4. to acquaint students with the functioning of the treatment room, to teach them to give subcutaneous, intracutaneous and intramuscular injections, to perform diagnostic tests and to interpret the results,
5. to teach the technique of application of plaster of Paris,
6. to teach the theory and, if possible, the practical application of the first aid in emergencies,
7. to prepare students to assist the physician in minor procedures,
8. to prepare students to assist the physician in examining outpatients and participating in home rounds.

Students' practical training in the Ambulance Service comprises the following:

1. instruction in the scope of activities provided by the service (completing and filing records, assessing the time of temporary work disability, referring patients to hospital, rendering transport service, organizing emergency / rescue operation in mass poisoning, epidemics, accidents, natural disasters etc.
2. assisting the physician in providing emergency aid and shadowing them on home calls.
3. assisting the physician in general, resuscitation, accident and emergency, pediatric and ob/ gyn ambulance calls.
4. instruction in life-saving procedures.

Throughout the course of the training students are expected to make records of their activities and procedures performed. They are also assessed by the instructor in charge and are finally granted their passing mark by the head of the department. Certificates written in English or translated should be submitted to the Dean's Office of the Medical University of Warsaw by September 20th of the subsequent academic year.