

SCHEDULE AND TOPICS
SUBJECT: CYTOPHYSIOLOGY
2025 /2026

Field of study: Medicine, English Division; Year of study: 1st; 40h = 10h lectures + 30h classes.

LECTURES		
	Date	Subject
1.	8.10.2026 16:00-17:30	Structure and dynamics of biological membranes. Transmembrane transport and its mechanisms. Multidrug resistance.
2.	15.10.2026 15:00-16:30	Cell nucleus. Chromatin structure and epigenetics. Regulation of gene expression. Mechanisms of mitosis and meiosis. Nondisjunction.
3.	22.10.2026 15:00-16:30	The cell cycle and its control mechanisms. Cyclins, cyclin-dependent kinases, cell cycle checkpoints. Protooncogenes and tumor suppressor genes.
4.	29.10.2026 15:00-16:30	Cell growth and differentiation. Intercellular communication. Membrane and intracellular receptors. Signal transduction pathways.
5.	5.11.2026 15:00-16:30	Stem cells. Bone marrow transplantation. Aspects of undifferentiated cell therapy. Regenerative medicine.

PRACTICAL CLASSES Microscopic Laboratory (rooms No. 5 and 2), Department of Anatomy and Histology, Collegium Anatomicum, 30 Warszawska Street			
	Date	Subject	Range of classes
1.	9.10.2026 12.10.2026	Histology and its methods. Light and electron microscopy. Optical and digital microscopic imaging techniques. Immunohistochemistry.	JUNQUEIRA'S Basic Histology, Text & Atlas, 15e_A. L. Mescher: Chapter 1 + page 525
2.	16.10.2026 19.10.2026	Protruding from the apical surfaces of epithelial cells. Cytoskeleton. Cell junctions. Adhesion molecules. Basement membrane. Extracellular matrix. Vesicular transport: endocytosis, phagocytosis, transcytosis end exocytosis.	Lecture 1; JUNQUEIRA'S Basic Histology, Text & Atlas, 15e_A. L. Mescher: Chapter 2 and 3. Chandar, Viselli, 2018, „Cell and Molecular Biology” Lippincott Illustrated Reviews 2nd ed. pages: 11-27, 31-39, 40-51, 145-174.
3.	23.10.2026 26.10.2026	Cell nucleus, chromatin and nucleolus. Ribosomes and rough endoplasmic reticulum., translation. Golgi apparatus, protein modification and secretion. Regulation of intracellular protein turnover. Cell secretion and its regulation. Protein degradation: proteasomes and lysosomes. Cytoplasmic inclusions.	Lecture 2; JUNQUEIRA'S Basic Histology, Text & Atlas, 15e_A. L. Mescher: Chapter 2 and 3. Chandar, Viselli, 2018, „Cell and Molecular Biology” Lippincott Illustrated Reviews 2nd ed. pages: 55-61, 66-75, 102-114, 127-141.
4.	6.11.2026 9.11.2026	Mitochondria. Changes in the energy level of the cell. Peroxisomes. Reactive oxygen species. Apoptosis and necrosis.	Lecture 3; JUNQUEIRA'S Basic Histology, Text & Atlas, 15e_A. L. Mescher: Chapter 2 and 3. Chandar, Viselli, 2018, „Cell and Molecular Biology” Lippincott Illustrated Reviews 2nd ed. pages: 57-59+61, 204-219, 221-229, 231-242.
5.	13.11.2026 16.11.2026	Cell differentiation; examples of specialized cells; structural adaptations related to specific functions; selected aspects of their cytophysiology.	Lecture 4 + Lecture 5; JUNQUEIRA'S Basic Histology, Text & Atlas, 15e_A. L. Mescher: Chapter 3. Chandar, Viselli, 2018, „Cell and Molecular Biology” Lippincott Illustrated Reviews 2nd ed. pages: 2-9, 176-200.
6.	20.11.2026 23.11.2026	Inflammatory response cells: B lymphocyte, T lymphocyte, phagocytes, mast cells. Cytophysiology and development of the local inflammatory response, diapedesis. Macrophage-fibroblast interaction.	Making up missed classes/practical tasks and short tests.
7.	3.12.2026 16:45-18:15	Theoretical colloquium	Lectures 1-5; Classes 1-6; selected readings from textbooks: JUNQUEIRA'S Basic Histology, Text & Atlas, 15e_A. L. Mescher; Chandar, Viselli” „Cell and Molecular Biology” Lippincott Illustrated Reviews
8.	17.12.2026 16:45-18:15	Retake theoretical colloquium 1	
9.	28.01.2027 16:45-18:15	Retake theoretical colloquium 2	

Updated: 05.10.2026