

SCHEDULE AND TOPICS
SUBJECT: CYTOPHYSIOLOGY
2025 /2026

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

LECTURES THURSDAY, 15:00-16:30; Library UWM, room 306		
	Date	Subject
1.	09.10.2025	Structure and dynamics of biological membranes. Transmembrane transport and its mechanisms. Multidrug resistance.
2.	16.10.2025	Cell nucleus. Chromatin structure and epigenetics. Regulation of gene expression. Mechanisms of mitosis and meiosis. Nondisjunction.
3.	23.10.2025	The cell cycle and its control mechanisms. Cyclins, cyclin-dependent kinases, cell cycle checkpoints. Protooncogenes and tumor suppressor genes.
4.	06.11.2025	Cell growth and differentiation. Intercellular communication. Membrane and intracellular receptors. Signal transduction pathways.
5.	13.11.2025	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.	06.10.2025 10.10.2025	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.	13.10.2025 17.10.2025	Protruding from the apical surfaces of epithelial cells. Cytoskeleton. Cell junctions. Adhesion molecules. Basement membrane. Extracellular matrix. Vesicular transport: endocytosis, phagocytosis, transcytosis and 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.	20.10.2025 24.10.2025	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.	27.10.2025 07.11.2025	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.	03.11.2025 14.11.2025	Cell differentiation. Terminally differentiated cells.	Lecture 4; 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.	17.11.2025 21.11.2025	Inflammatory response cells: B lymphocyte, T lymphocyte, phagocytes, mast cells. Cytophysiology and development of the local inflammatory response, diapedesis. Macrophage-fibroblast interaction.	Crediting the missed classes and short tests.
TC	27.11.2025	Theoretical colloquium (written)	Lectures 1-5; Seminars 1-6; JUNQUEIRA'S Basic Histology, Text & Atlas, 15e_A. L. Mescher: Chapter 1, 2 and 3 Chandar, Viselli, 2018, „Cell and Molecular Biology” Lippincott Illustrated Reviews 2nd ed. pages as above.
ATC1	11.12.2025	Additional theoretical colloquium 1 (written)	
ATC2	08.01.2026	Additional theoretical colloquium 2 (written)	