



Biology and human genetics 1 – General medicine - winter semester academic year 2026/2027

Lecture:

1.	Introduction to Medical Biology. Structure and functional organization of prokaryotic and eukaryotic cells. Molecules in cells and organisms.	18.09.2026	prof. Danišovič
2.	Biomembranes, substance transport and intercellular communication. Receptors.	25.09.2026	prof. Danišovič
3.	The organelles of eukaryotic cells.	02.10.2026	prof. Danišovič
4.	Cell reproduction (mitosis, amitosis, meiosis).	09.10.2026	assoc. prof. Böhmer
5.	Cell death (apoptosis, autophagy, necrosis).	16.10.2026	assoc. prof. Böhmer
6.	Introduction to molecular genetics. Composition, structure, function and conformational types of DNA. Replication of prokaryotic DNA.	23.10.2026	Dr. Pastoráková
7.	Eukaryotic DNA replication. Genetic code. Gene structure. Transcription. Pre-mRNA post-transcriptional modification.	30.10.2026	Dr. Priščáková
8.	Types, structure, synthesis and function of RNA (tRNA, rRNA, snRNA, snoRNA, miRNA). Translation. Post-translational modification of proteins.	06.11.2026	Dr. Petrovič
9.	Forms of entry and existence of foreign DNA in a cell. Vectors. The principle of recombination techniques.	13.11.2026	Dr. Pastoráková
10.	Relationships between microorganisms and macroorganisms.	20.11.2026	assoc. prof. Böhmer
11.	Viruses - characteristics, reproduction, genomes.	27.11.2026	assoc. prof. Gbelcová
12.	Selected diseases caused by viruses	04.12.2026	assoc. prof. Gbelcová

Practical trainings:

1.	Introduction to practical training. Basics of microscopy.	21.-24.09.2026	appointed teachers
2.	Native and fixed preparations of different cell types. Osmosis and the cell.	28.09.-01.10.2026	appointed teachers
3.	Organelles of the eukaryotic cell.	05.-08.10.2026	appointed teachers
4.	Cell reproduction and <i>in vitro</i> cell cultures.	12.-15.10.2026	appointed teachers
5.	Evaluation of basic biological properties of cells. Cell death detection methods.	19.-22.10.2026	appointed teachers
6.	Collection, preparation, and handling of biological samples. Laboratory equipment for DNA analysis. DNA and RNA isolation.	26.-29.10.2026	appointed teachers
7.	Genetic code. Gel electrophoresis, use of restriction enzymes.	02.-05.11.2026	appointed teachers
8.	Methods of DNA analysis.	09.-12.11.2026	appointed teachers
9.	Omics. The use of molecular biology methods in biomedical practice.	16.-19.11.2026	appointed teachers
10.	Microscopic and genetic techniques for studying and diagnosing infections and antibiotic resistance.	23.-26.11.2026	appointed teachers
11.	Credit test.	30.11.-03.12.2026	appointed teachers
12.	Case reports.	07.-10.12.2026	appointed teachers