

Syllabus of lectures in General Biology

Master study, academic year 2026-2027

*Mgr. Ondrej Sprušanský, PhD., Mgr. Lenka Bies Piváčková, PhD., PharmDr. Csaba Horváth, PhD.,
PharmDr. Nikola Chomaničová, PhD*

<i>lectures and exercises:</i>	<i>21.9.2026 - 18.12.2026</i>
<i>Semester evaluation and awarding of credits:</i>	<i>14.12.2026 – 18.12.2026</i>
<i>Exam period:</i>	<i>4.1.2027 - 19.2.2027</i>

1. Introduction to the biology. Division of the biological sciences. Chemical composition of living matter – chemical basis of life. Atoms, molecules, organic compounds, Carbohydrates, Lipids, Proteins, Nucleic acids OS 25.9.
2. Cell cycle, cell division, cell death necrosis apoptosis CH 2.10.
3. Cytology I . Cell theory. Prokaryotic and eukaryotic cell. Plant and animal cell. Nonmembrane cellular structures LBP 9.10.
4. Cytology II . Cytoplasmic membrane . Cell membrane organelles – structure and function LBP 16.10.
5. Transport through the membrane, intercellular connections CH 23.10.
6. DNA replication and mechanisms of DNA reparation LBP 30.10.
7. Gene expression and its regulation – prokaryotic and eukaryotic transcription OS 6.11.
8. Basic principles of translation in prokaryotes and eucaryotes – proteosynthesis and postranslational modifications OS 13.11.
9. Nucleus – structure and function. Project HUGO. Introduction to the genetics. Mendelian laws. Investigative methods in genetics. Human genetics Genetic mutations. Population genetics. Genetic engineering OS 20.11.
10. Intercellular communication. Cell signaling pathways. Membrane receptors LBP 27.11.
11. Sex cells, sexozomes, fertilization. Ontogenesis, stem cells NCh 4.12.
12. Cellular and molecular biology of cancer NCh 11.12.
13. Open topic and consultations, problem solving session OS LBP 18.12.

Mgr Ondrej Sprušanský PhD.
Responsible teacher

doc. PharmDr. Peter Křenek, PhD.
Head of the Department