

Syllabus of lectures in General Biology

Master study, academic year 2021-2022

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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
2. . Cytology I . Cell theory. Prokaryotic and eukaryotic cell. Plant and animal cell. Nonmembrane cellular structures
3. Cytology II . Cytoplasmic membrane . Cell membrane organelles – structure and function
4. Transport through the membrane, intercellular connections
- 5.. Biocommunication. Cell signaling. Membrane receptors
6. DNA replication and mechanisms of DNA reparation
7. Gene expression and it's regulation – prokaryotic and eukaryotic transcription
8. Basic principles of translation in prokaryotes and eucaryotes – proteosynthesis and postranslational modifications
9. Cell cycle, cell division, cell death necrosis apoptosis
10. Sex cells, sexozomes, fertilization. Ontogenesis, stem cells
11. Nucleus – structure and function. Project HUGO. Introduction to the genetics. Mendelian laws. Investigative methods in genetics. Human genetics Genetic mutations. Population genetics. Genetic engineering
12. Cellular and molecular biology of cancer
13. Open topic and cosultations, problem solving session

Mgr Ondrej Sprušanský PhD.
Responsible teacher

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