

# Syllabus of Lab course in General Biology

*Master study, academic year 2021/2022*

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## **1. Exercise 20.9. - 01.10.2021**

Introduction to practical exercises. Organization and methods of work.

Cell diversity, organization of tissues and chemical composition of biological systems.

Microscopy - various types of microscopic techniques.

Task: Observation of permanent preparations under an optical microscope.

## **2. Exercise 04.10. – 15.10. 2021**

Cell cycle. Cell division - mitosis and meiosis. Cell aging and cell death.

Task: Observation the stages of mitosis and meiosis (videoanimation). Problem solving of selected topics.

## **3. Exercise 18.10. – 29.10. 2021**

Analysis of gene expression. Nucleic acids - isolation, reverse transcription and PCR method.

Biology of telomeres in eukaryotic cells.

Task: Determination of the relative length of human telomeres by PCR method. Problem solving of selected topics.

## **4. Exercise 01.11. – 12.11.2021**

Nucleic acids - their detection and separation.

Task: Electrophoretic separation of PCR products. Problem solving of selected topics.

## **5. Exercise 15.11. – 26.11. 2021**

Basic questions in genetics. Inheritance and variability. Mendel's laws. Methods of genetic research.

Task: Pedigree analysis, calculations in population genetics. Problem solving of selected topics.

## **6. Exercise 29.11. – 10.12. 2021**

Protein analysis - protein isolation and electrophoretic separation, Western blot and protein immunodetection.

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