Name of university, Name of faculty: Trnava University

Faculty of Health Care and Social Work

INFORMATION SHEET OF THE SUBJECT

Code: LMbEE04	**Name:** Biology I.	
Cover: Department of Theoretical Disciplines and Laboratory Investigation Methods		
Type of educational activity: Lecture **Scope of educational activity (in hours):** **Weekly:** - **For term of study:** ZS 24 **Method of educational activity:**	**Number of credits:** 3	**Recommended semester:** WT **Study grade:** 1. PO

Recommended semester	Study programme
1.year WT	Laboratory Medicine (E1-LVMvZ-23)

Underlie subjects:

Conditions for passing the course:
Method of evaluation: Completion by taking an examination
Continuous evaluation: none

Final evaluation: - written creative test

Evaluation: A: 100 – 95%; B: 94 – 89%; C: 88 – 83%; D: 82 – 77%; E: 76 – 71%; FX: 70% and less
Finished: exam - written test

Learning outcomes:
VV1 The student will know the structure of the cell, the function of its organelles, the structure of DNA, the structure of chromosomes
VV2 The student will understand the process of realization of genetic information
VV3 The student will be able to define the difference between a prokaryotic and a
eukaryotic cell at both the morphological and molecular level, especially with respect to the storage and implementation of genetic information
VV4 The student will know the mechanism of intercellular communication
VV5 The student will be familiar with the mechanism and modes of cell division

Schedule of subject:
1) Cell theory, structure of prokaryotic and eukaryotic cells, cell types - somatic, generative, stem, malignant
2) Cell structures (cytoskeleton) and organelles, with emphasis on the structure and function of the plasma membrane of the cell (transport of substances, intercellular communication, intracellular signaling)
3) Nucleic acids of the cell DNA and RNA (mRNA, rRNA, tRNA and snRNA, snoRNA, miRNA) and their functions
4) DNA in prokaryotic and eukaryotic cells, genome structure and how genetic information is implemented
5) Prokaryotic and eukaryotic chromosome. Chromatin (DNA protein complex), its
participation in the regulation of genetic information - remodelling and its mechanisms
6) Mechanism of DNA replication and enzymes involved
7) The genetic code and its characteristics
8) Mutations in DNA, types - distribution, mechanism of occurrence and consequences
9) Structure of prokaryotic and eukaryotic genes and basics of their regulation
10) Gene expression in prokaryotes and eukaryotes (transcription, posttranscriptional modifications, translation and posttranslational modifications)
11) Cell division (amitosis, mitosis and meiosis)
12) Mitosis - as part of the cell cycle. Molecular basis of cell cycle regulation

Recommended reading:
1) ALBERTS, B. a kol: Základy buněčné biologie - Úvod do molekulární biologie buňky. Espero, Praha, 2005, ISBN 8090290620.
2) PASSARGE, E.: Barevný atlas genetiky. Grada, Praha, 2019, ISBN 9788024730998.
3) PRITCHARD, D.J.-KORF, B.R.: Základy lékařské genetiky. Galén, Praha, 2007, ISBN 9788074925139.
4) SRŠEŇ,Š.- SRŠŇOVÁ, K: Základy klinickej genetiky. Osveta, Martin, 2000, ISBN 8080631859.
5) VOJTAŠŠÁK, J. a kol.: Vybrané kapitoly z lekárskej biológie a humánnej genetiky. LF UK, Bratislava, 2003, ISBN 80-223-1920-1.

Language requirements: Slovak

Notes:
Daily combined method consists of: lectures /on-line, distance, self-study/
Self-study is supported by e-learning.
100% participation is required.

Course evaluation:
Assessed students in total: 7

A	B	C	D	E	FX
0%	0%	29%	14%	29%	29%

Lecturers: prof. RNDr. Marie Korabečná, Ph.D., lecturer, examiner
Date of last change: 01.09.2026
Approved by: doc. Ing. Stanislava Blažíčková, PhD., MPH, univ.prof.