



## ***COURSE SYLLABUS***

### **General information**

Course title:	<b>BIOLOGY</b>
ISVU course code:	266789
Course instructor:	
Course assistant:	
Study programme and specialization in which the course is taught:	Professional Undergraduate Study Food Technology
ECTS credits:	4.0
Semester of the course execution:	1.
Exam prerequisites:	
Course objectives:	Teach students fundamentals of selected topics in biology (applicable in the field of food technology), such as: Principles of scientific methods in biology; Organizational types of cells; Structure and function of cells; Cellular energetics; Reproduction of cells and organisms; Fundamentals of genetics; Systematics of the living world; Fundamentals of ecology. Train students for independent work in the laboratory.

### **Course structure**

<b>Teaching mode</b>	<b>Number of contact hours per semester:</b>	<b>Student's requirements per teaching mode</b>
Lectures:	30	attendance 80%
Exercises (auditory, linguistics):		
Exercises (laboratory, practical):	30	attendance 80%
Field work:		
Other:		
<b>TOTAL:</b>	<b>60</b>	

### **Monitoring of students' work and knowledge evaluation during the course**

<b>OUTCOMES</b>		<b>Colloquium</b>	<b>Laboratory notebook</b>	<b>Total</b>	<b>Pass</b>	<b>Time frame for the recognition of the outcome</b>
Outcome 1	Describe the properties, structure and function of cells	20		20	10	during the academic year
Outcome 2	Explain the importance of photosynthesis and cellular respiration in the living world	20		20	10	during the academic year
Outcome 3	Distinguish between mitosis and meiosis, distinguish between DNA and RNA and explain the laws of inheritance	20		20	10	during the academic year
Outcome 4	Group living organisms into	10		10	5	during the academic year



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	systematic categories and describe the general features of the kingdoms					
Outcome 5	Define basic terms related to ecology and ecological systems	10		10	5	during the academic year
Outcome 6	Independently prepare microscopic slides and analyze cell structures		20	20	10	during the academic year
Total % grade points		80	20	100	50	
Share in ECTS		3.2	0.8	4		

### **Knowledge evaluation on exams**

Exam prerequisites		Laboratory notebook			
OUTCOMES		Written exam	Oral exam	Total	Pass
Outcome 1	Describe the properties, structure and function of cells	20		20	10
Outcome 2	Explain the importance of photosynthesis and cellular respiration in the living world	20		20	10
Outcome 3	Distinguish between mitosis and meiosis, distinguish between DNA and RNA and explain the laws of inheritance	20		20	10
Outcome 4	Group living organisms into systematic categories and describe the general features of the kingdoms	10		10	5
Outcome 5	Define basic terms related to ecology and ecological systems	10		10	5
Outcome 6	Independently prepare microscopic slides and analyze cell structures		20	20	10
Total % of grade points		80	20	100	50
Share in ECTS		3.2	0.8	4	

### **Review of units per week with associated learning outcomes**

Week	Lecture course content and learning outcomes:	Outcome	Exercises course content and learning outcomes:	Outcome
1.	Introduction to biology. Characteristics of life. Principles of scientific methods in biology.	1	The working principle of a light microscope. Resolving power and use of the immersion lens.	6
2.	Basic organizational types of cells. Prokaryotic and eukaryotic cells.	1	Proper microscopy procedure. Preparation of slides for microscopic analysis.	6
3.	Cell membrane and transport of substances through the cell membrane.	1	Microscopy - biomembranes: plasmolysis.	1, 6
4.	Cell organelles - structure and function.	1	Microscopy - prokaryotic and eukaryotic cells.	1, 6



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5.	Cellular energetics. Plastids and photosynthesis.	2	Microscopy - plastids: chloroplasts, chromoplasts, leucoplasts.	1, 6
6.	Mitochondria and cellular respiration.	2	Reactions of photosynthesis and cellular respiration.	2
7.	Structure and function of the nucleus: chromosomes, DNA and genes.	3	The structure of DNA.	3
8.	Protein synthesis: transcription and translation.	3	Replication, transcription, translation.	3
9.	Cell division and cell cycle.	3	Microscopy - mitosis.	3, 6
10.	Genetics: Mendel's laws.	3	Microscopy - meiosis.	3, 6
11.	Biotechnology.	3	Basics of genetic crosses.	3
12.	Concepts of systematic categories and nomenclature. General characteristics of kingdoms of the living world.	4	Binomial nomenclature and its rules.	4
13.	Definition of ecology and basic ecological terms.	5	Human influence on the biosphere.	5
14.	Biogeochemical cycles.	5	Biogeochemical cycles of the most abundant elements in living organisms.	5
15.	Ecosystem functioning.	5	Aquatika (Freshwater aquarium Karlovac)	5

### **References (compulsory / additional)**

#### **Compulsory:**

1. Bašić-Zaninović, T., Perić, N. (2004): Biologija: putovanje kroz život. Kugler, Zagreb
2. Delić, A., Vijtiuk, N. (2005): Prirodoslovlje. Školska knjiga, Zagreb

#### **Additional:**

3. Pevalek-Kozlina, B. (2003): Fiziologija bilja. Profil-International
4. Berns, M. (1991): Stanice. Školska knjiga, Zagreb
5. Habdija, I., Primc Habdija, B., Radanović, I., Vidaković, J., Kučinić, M., Špoljar, M., Matoničkin, R., Miliša, M. (2004): Protista-Protozoa i Metazoa- Invertebrata. Funkcionalna građa i praktikum. Meridijani, Samobor
6. Šver, L., Bielen, A., Babić, I., Vladušić, T., Hrašćan, R., Durgo, K., Franekić, J. (2017): Priručnik za vježbe iz Biologije 1. Prehrambeno-biotehnološki fakultet Sveučilišta u Zagrebu
7. Urry, L. A., Cain, M. L. 1., Wasserman, S. A., Minorsky, P. V., Reece, J. B., & Campbell, N. A. (2017). Campbell biology. Eleventh edition. New York, NY, Pearson Education, Inc.