

(Table 5.2) Course unit description

<b>Study program:</b> BIOLOGY			
<b>Type and level of studies:</b> Undergraduate studies			
<b>Course unit:</b> B101 - Cell Biology			
<b>Teacher in charge:</b> Radmila M. Glišić, PhD			
<b>Language of instruction:</b> English			
<b>ECTS:</b> 7			
<b>Prerequisites:</b> /			
<b>Semester:</b> Winter semester			
<b>Course unit objective</b> Knowledge acquisition of general cell architecture, membrane and organelles structure and functions, cytoskeleton, cell junctions and cell divisions.			
<b>Learning outcomes of Course unit</b> Forming of expert who is qualified to apply acquired knowledge and skills in the field of the cell biology, that is to identify and analyze cellular structures at the level of electron microscopy.			
<b>Course unit contents</b> <i>Theoretical classes:</i> Cell as the basic unit of the living world. Historical development of the science of cell and cell models. Prokaryotic and eukaryotic cell type and basic differences. Chemical components of cell. Membrane cell system, cell membrane and its specializations. Transport through the cell membrane. Endocytosis and exocytosis. Nucleus and nuclear pores. Nucleolus. Chromatin and chromosomes. Cytoplasm and cytoskeleton. Derivatives of microtubules - centrioles, cilia and flagella. Ribosomes. Endoplasmic reticulum. The Golgi apparatus. Mitochondria. Organelles involved in the degradation of matter in the cell. Extracellular matrix. Intercellular adhesive junctions and communications. Cell division and cell death. General characteristics and ultrastructure of the plant cell. Dictyosomes. Vacuole. Mikrobodies. Aleurone grains and spherosome. Plastids, characteristics and types. Morphology, chemical composition and ultrastructure of chloroplast. Organization of pigments in tylakoid membranes. Development of chloroplast. Chloroplasts of eukaryotic algae. Photosynthetic apparatus of prokaryotes. <i>Practical classes:</i> Introduction to methods for microscopic studies of cells and tissues - making of routine HE preparations. Types and principles of microscope working (light and electron). Ultrastructural analysis of animal and plant cells on electronic micrographs. Microscopic observation of cell division phases - mitosis and meiosis.			
<b>Literature</b>			
<ul style="list-style-type: none"> <li>Cooper M. G., Hausman E. R. The cell: A molecular approach. Fifth edition. ASM Press, Washington, D.C.; Sinauer Associates, Inc. Sunderland, Massachusetts, 2009.</li> <li>Alberts B., Bray D., Hopkin K., Johnson A., Lewis J., Raff M., Roberts K., Walter P. Essential cell biology. Third edition. Garland Science, Taylor &amp; Francis Group, New York and London, 2010.</li> </ul>			
<b>Number of active teaching hours</b>			Other classes:
Lectures: 3	Practice: 2	Other forms of classes:	
<b>Teaching methods</b> Interactive teaching. Methods of individual work. Verbal-textual teaching methodological approach. Power point presentations, animations, video clips, seminars, consultations, laboratory work (ultrastructural analysis of animal and plant cells on electronic micrographs and microscopy of preparations)			
<b>Examination methods (maximum 100 points)</b>			
<b>Exam prerequisites</b>	<b>No. of points</b>	<b>Final exam</b>	<b>No. of points</b>
Practical classes	20	Written examination	25
Tests	10	Oral examination	30
Homework	/	Other	/
Seminars	15		
Project			
<b>Grading system</b>			
<b>Grade</b>	<b>No. of points</b>	<b>Description</b>	
10	>= 91	Excellent	
9	81-90	Exceptionally good	
8	71-80	Very good	
7	61-70	Good	
6	51-60	Passing	
5	<=50	Failing	