

<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 (I)			
<b>Course unit objective</b> Knowledge acquisition of general eukaryotic cell architecture, membrane and organelles structure and functions, cytoskeleton, cell junctions and cell divisions.			
<b>Learning outcomes of Course unit</b> Forming of an expert who is qualified to apply acquired knowledge and skills in the field of the cell biology, that is identification and analysis of subcellular structures at the electron microscopy level (ultrastructure).			
<b>Course unit contents</b> <i>Theoretical classes:</i> Cell as the basic unit of the living world. Historical development of the science of a 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, nucleolus, chromatin and chromosomes. Cytoplasm and cytoskeleton. Centrioles, cilia, and flagella. Ribosomes. Endoplasmic reticulum. The Golgi apparatus. Mitochondria. Lysosome, peroxisome and proteosome. Extracellular matrix. Intercellular adhesive junctions and communications. Cell division and cell death. General characteristics and ultrastructure of the plant cell. Dictyosomes. Vacuole. Plastids. Morphology, chemical composition, ultrastructure and development of chloroplast. Organization of pigments in thylakoid membranes. <i>Practical classes:</i> Methods for microscopic studies of cells and tissues - making of routine HE preparations. Types and principles of microscope work (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:    Independent work:	
<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	Practical examination	25
Tests	10	Oral examination	30
Seminars	15		
<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	