

<b>GENERAL INFORMATION</b>		
Course	<b>The life of the Cell</b>	
Course coordinator	<b>Asst. Prof. Katarina Mišković Špoljarić, PhD</b>	
Assistant/Associate	Prof. Ljubica Glavaš-Obrovac, PhD	
Study Programme	<b>Integrated undergraduate and graduate university study of Medicine in German language</b>	
Status of the course	Elective	
Year of study, semester	1st year; 1st semestar	
Grading scale and workload	ECTS	<b>1</b>
	Hours (L+S+E)	<b>15 (5+0+10)</b>
<b>COURSE DESCRIPTION</b>		
<b>Course objectives</b>		
Introduce students with the methods of observation of cell structures, their architecture and role in the life of the cell.		
<b>Enrolment requirements and entry competencies</b>		
None.		
<b>Learning outcomes at the Programme level</b>		
<b>1.1., 2.2., 3.4.</b>		
<b>Learning outcomes (5-10)</b>		
After completing the course, the student will be able to: <ul style="list-style-type: none"> <li>1. Explain the architecture of the cell</li> <li>2. Point out the differences between cell organelles</li> <li>3. Interpret the passage of a cell through the cell cycle, the causes and methods of cell death</li> <li>4. Compare cell analysis methods that include the usage of a microscope and cell fractionation</li> <li>5. Apply the acquired knowledge for the purposes of cell visualization using different cell staining methods</li> </ul>		
<b>Course content</b>		

Cell - organization and role of cell organelles. The localization of organelles in relation to the division of the cell into the nucleus and cytoplasm. The importance of lipids in the assemblage of the cell membrane and links with transport in and out of the cell (endocytosis, exocytosis, transcytosis). Protein synthesis and links to ribosome and endoplasmic reticulum architecture. Mitochondrion as the main site of cellular energy production. The role of lysosomes and peroxisomes in maintaining cell function. Cellular movement and parts of the cytoskeleton and what are the differences between microfilaments, microtubules, intermediate filaments. Cell cycle. Causes of cell aging, diseases associated with aging and accompanying changes. The role of telomeres in cell aging. Mechanisms of controlled cell death – apoptosis. Basic and advanced techniques of the cell study - microscopy, visualization, differential separation, cell fixation, cell labeling methods, cell counting. Determination of apoptosis as one of the mechanisms of cell death. Preparation and analysis of fresh and permanent slides.

<b>Mode of teaching</b>	<input checked="" type="checkbox"/> lectures	<input type="checkbox"/> independent tasks
	<input type="checkbox"/> seminars and workshops	<input type="checkbox"/> multimedia and network
	<input checked="" type="checkbox"/> exercises	<input type="checkbox"/> laboratory
	<input type="checkbox"/> distance education	<input type="checkbox"/> mentoring work
	<input type="checkbox"/> field teaching	<input type="checkbox"/> other

**Student obligations**

Students are expected to attend all class sessions, as well as to take all the examinations. However, they are allowed for excused absences, totalling 30% of all classes. Absence from exercises must be compensated in arrangement with the subject teacher.

**Monitoring student work**

Attending classes	x	Class activity	x	Seminar work		Experimental work	
Written exam	x	Oral exam		Essay		Research	
Project		Continuous knowledge verification		Paper		Practical work	
Portfolio							

**Grading and evaluation of student work during classes and of the final examination**

Teaching activity	ECTS	Learning outcome	Student activity	Assessment methods	Grade points	
					Min.	Max.
Attending classes	0.15	1-4	Class attendance	Attendance record	5	15
Exercises	0.35	4-5	Performing exercises, keeping work diary	Work diary	15	35
Final exam	0.5	1-5	Studying for the final exam	Written exam	30	50
<b>Total</b>	<b>1</b>				<b>50</b>	<b>100</b>

*Calculation of final grade:*  
Based on the total sum of the points awarded during the course and the final exam, the final grade is determined according to the following distribution:

A – excellent (5): 80-100 grade points; B – very good (4): 70-79,99 grade points; C – good (3): 60-69,99 grade points; D – sufficient (2): 50-59,99 grade points

Percentage of correct answers (%)	Grade points
50.0 – 60.0	30
61.0 – 70.0	35
71.0 – 80.0	40
81.0 – 90.0	45
91.00 – 100.0	50

### Required reading

Graw, J / Übersetzer: Häcker, Bärbel; Horstmann, C. Bruce Alberts, D. Bray, K. Hopkin, A. J. Julian, L. M. Raff, K. Roberts. P. Walter. Wiley VCH Verlag GmbH / Wiley-VCH 2012. Lehrbuch der Molekularen Zellbiologie.

### Additional reading

Working materials from the lectures and exercises.

### Number of copies of required literature in relation to the number of students currently attending classes in the course

Title	Number of copies	Number of students
Graw, Jochen / Übersetzer: Häcker, Bärbel i sur. Wiley VCH Verlag GmbH / Wiley-VCH , 2012. Lehrbuch der Molekularen Zellbiologie.	20	30

### Course evaluation procedures

Anonymous, quantitative, standardized student survey providing feedback on the course as well as on the work of course coordinators and their assistants/associates is being conducted by the QA Office of the Faculty of medicine Osijek.