

## CLINICAL COURSE II: PATHOLOGY

GENERAL INFORMATION	
Course coordinator	Assoc. Prof. Ksenija Marjanović, MD, PhD
Assistant/Associate	Assoc. Prof. Martina Mihalj, MD, PhD Assoc. Prof. Milanka Mrčela, MD, PhD Asst. Prof. Jasmina Rajc, MD, PhD Andrej Kovačević, MD Sandra Nekić, MD Marina Bakula, MMed.Lab.Diagn. Monika Galić Krnjajić, MMed.Lab.Diagn.
Study Programme	Undergraduate University Study of Medical Laboratory Diagnostics
Status of the course	mandatory
Year of study, semester	2 <sup>nd</sup> ; 3 <sup>rd</sup> semester
ECTS credits	<b>3</b>
Form of instruction (hours)	Lectures: 5; Seminars: 5; Exercises: 30
Expected number of students	30-35
COURSE DESCRIPTION	
Course objectives	
Familiarize students with the basic principles of tissue processing and preparation of histopathological slides, histopathological staining techniques, immunohistochemical methods in pathology, flow cytometry and in situ hybridization techniques.	
Course requirements and required competences	
There are no specific requirements for this course except those defined in the study program curriculum.	
Learning outcomes relevant to the study program	
<b>1.2, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 3.1, 3.2</b>	
Expected learning outcomes at the course level	
After attending lectures and exercises, self-learning and successfully passing the exam, the students will be able to:	
<ol style="list-style-type: none"> <li>1. properly process a sample for histopathological analysis.</li> <li>2. prepare a histopathological slide for microscopic analysis.</li> <li>3. prepare a frozen histological section for microscopic analysis.</li> <li>4. apply immunohistochemical methods in the analysis of tumor samples of unknown histogenetic origin, hormone receptors and tumor growth factors.</li> <li>5. apply a flow cytometry method in the analysis.</li> <li>6. apply molecular pathology methods in sample processing and analysis.</li> </ol>	
Course content	
<p><b>Lectures and seminars:</b> Simple and special staining methods in pathology. Electronic microscopy in pathology. Immunohistochemistry. Molecular pathology. Flow cytometry.</p> <p><b>Exercises:</b> Acquiring fundamental skills in a histopathology laboratory: Reception of bioptic material; Processing of bioptic material; Preparing histopathological slides; Preparing frozen sections of fresh material; Special staining methods in pathology; Emergency biopsies. Working in an EM laboratory. FISH; DISH; Immunohistochemistry in pathology; Applying flow cytometry in pathology.</p>	
Form of instruction	
Lectures; seminars; exercises.	

**Student obligations**

Attending all forms of instruction is mandatory, and the student must sit for all exams. A student can be excused from 30% of every form of instruction. Missed exercises must be compensated by sitting for an exam.

**Monitoring student learning (Interconnectedness of learning outcomes, teaching methods and grading)**

Type of exam: written exam.

Curricular activities	ECTS	Learning outcome	Student participation	Assessment methods	Points	
					Min.	Max.
Attendance: lectures and seminars, exercises	0.25	1-3	Class attendance, Active participation in seminars; Completed exercise and an accepted paper	Records	1	5
	1.25	4-6			4	15
				Paper	15	30
Final exam	1.5	1-6	Preparation for the final exam	Written exam	30	50
<b>Total</b>	<b>3</b>				<b>50</b>	<b>100</b>

*Evaluation of the written part of the final exam*

Percentage of correctly solved tasks (%)	Points
60.00-64.99	30
65.00-69.99	33
70.00-74.99	36
75.00-79.99	39
80.00-84.99	41
85.00-89.99	43
90.00-94.99	47
95.00-100	50

*Formulation of the final grade:*

Points achieved in class are combined with points achieved on the final exam. The grading shall be carried out by using absolute distribution, i.e. shall be based on the final achievement and compared to the numerical system as follows:

A – excellent (5): 80-100 points; B – very good (4): 70-79.99 points; C – good (3): 60-69.99 points; D – sufficient (2): 50-59.99 points.

**Mandatory reading (available in the library or in other mediums)**

Title	Number of copies in the library	Availability in other mediums
Damjanov I., Seiwert S., Jukić S., Nola M. (eds.): Patologija [Pathology], 5th ed. Zagreb: Medicinska naklada, 2018	15	

**Additional reading**

1. Robbins SL, Cotran, RS., Robbins Pathologic Basis of Disease. 9<sup>th</sup> ed. Saunders Company, Philadelphia, 2014

**Quality monitoring methods ensuring the acquisition of competences upon completion**

An anonymous, quantitative, standardized student survey on the course and the work of professors conducted by the Quality Assurance Office of the Faculty of Medicine Osijek.