

CYTODIAGNOSTICS	
GENERAL INFORMATION	
Course teacher	Assoc. Prof. Biljana Pauzar, MD, PhD
Associates	Asst. Prof. Branka Lončar, MD, PhD Assoc. Prof. Valerija Miličić, MD, PhD Asst. Prof. Marija Perić, MD, PhD
Study programme	Graduate University Study of Medical Laboratory Diagnostics
Course status	mandatory
Year of study, semester	1 st year, 1 st semester
ECTS credits	5
Form of teaching (number of classes)	Lectures: 30; Seminars: 30
Expected number of students attending the course	20
COURSE DESCRIPTION	
Course objectives	
To train the student to be able, based on modern knowledge in cytodiagnostics, to critically evaluate and choose an appropriate search in diagnosing diseases, solving differential diagnostic problems, following therapeutic protocols and scientific research work.	
Course entry requirements and competencies needed for the course	
Completed courses at the Undergraduate Study Programme of Medical Laboratory Diagnostics or equivalent bachelor's degree (baccalaureate)	
Learning outcomes at study programme level	
1.1, 1.2, 2.1, 2.2, 2.3, 2.5, 2.6, 2.7, 3.1, 3.2	
Expected learning outcomes at course level	
After attending lectures, seminars, independent study, and passing the exam, students will be able to: <ol style="list-style-type: none"> 1. organize work in the cytodiagnostics laboratory. 2. choose the appropriate cytochemical tests (in gynaecologic cytology, urine cytology, gastroenterological cytodiagnostics, pulmonary diagnostics, tumour diagnostics, cytodiagnostics of the head and neck, skin, synovial fluid, locomotor system, thyroid gland, in ophthalmology). 3. apply in practice the principles of cytochemical tests and implement them in practice. 4. estimate the significance of molecular markers in cytodiagnostics 5. particularize the principles of diagnostics in the interpretation of cytology samples (substrate, cell arrangement, characteristics of the nucleus and cytoplasm, malignancy criteria, final report, and diagnosis). 6. distinguish cellular from non-cellular elements in cytologic smears. 	
Course content	
Lectures: Principles of cytochemical tests and their practical application. Methods in cytogenetics, which can be applied in the cytology laboratory. Complementary technologies - principles of cytochemical tests and their practical application. Complementary technologies - molecular markers in cytodiagnostics. Clinical application of cytodiagnostics: in gynecology, pulmonology, hematology, urology, gastroenterology, endocrinology, infectious disease, otorhinolaryngology, pediatrics, neurology, ophthalmology and dermatovenerology. Cytodiagnosis of effusion, punctate, joint fluid. Changes in bones, muscles and other soft tissues. Cytological diagnosis of inflammation caused by certain microorganisms using routine and special technical methods. Diagnostic	

principles in the interpretation of cytological samples. Basic principles of cytological smear analysis and classification of findings. The value of differential cytological diagnosis.

Seminars: Organization of work in the cytology laboratory. Methods of preparing cytological preparations. Automation in the cytology laboratory. Storage of preparations and results of analyses/findings. Control of work in the cytology laboratory with special reference to the control of the technical processing of samples. Cerebrospinal fluid cytodiagnosis. Cytological diagnosis of various tumors. New technologies for taking, processing and analyzing cytological smears of the cervix. Other screening methods. Advantages and disadvantages of cytological analysis of urine. The diagnostic value of urine cytology in the detection of low grade and high grade rotel tumors. New technologies in the diagnosis of urotract tumors. Standard approach to laboratory diagnosis of acute leukemias, cytochemistry, immunocytochemistry.

Forms of teaching

Lectures and seminars

Students' responsibilities

Attendance is obligatory throughout all course forms, and the student has to attend all the exams. Student absence of up to 30% is considered acceptable in each teaching form. Seminars that were not completed have to be taken in the form of colloquiums.

Monitoring students' work (*Connecting learning outcomes, teaching methods and evaluation*)

Attendance, Seminar paper, written and oral exam

Teaching activity	ECTS	Learning outcome	Student activity	Evaluation methods	Grade points	
					Min.	Max.
Attending classes Lectures	1.5	1-6	Attendance,	Attendance records	1	5
Seminars			Seminar paper	Writing and presenting seminar paper	10	20
Final exam	3.5	1-6	Studying for final exam	Written exam	20	45
				Oral exam	19	30
Total	5				50	100

Evaluation of written part of final exam

Percentage of correct answers (%)	Grade	Grade points
60% - 70%	Sufficient (2)	20
71% - 80%	Good (3)	25
81% -90%	Very good (4)	35
91% - 100%	Excellent (5)	45

Formulating the final grade:

Grade points achieved in classes are combined with points achieved in the final exam. Grading system involves absolute grading and represents one's final achievement. Grades are numerically expressed as follows: 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

Assigned reading (available in the library and in other media)

Title	Number of copies in the library	Availability in other media
Audy-Jurković S. Ginekološka citologija. In: Šimunić V at al. Ciglar	10	

V, Suchanek E, Editors, Ginekologija. Zagreb: Naklada Ljevak; 2001, str. 151-9.		
Cibas ES., Ducatman BS. Cytology: Diagnostic Principles and Clinical Correlates. 3 rd ed. Saunders Elsevier, 2009.	4	
Selected scientific and professional papers		On line
Further reading		
<ol style="list-style-type: none"> 1. Marshall A. Lichtman, William Joseph Williams: Williams hematology, 6th edition, McGraw-Hill, Medical Pub. Division, 2006 2. Orell SR., Sterrett GF, Whitaker D. Fine Needle Aspiration Cytology. Elsevier Churchill Livingstone, 2005. 3. Seili-Bekafigo I, Vrdoljak-Mozetič D. Uloga citologije u urologiji. Medicina, 2004;42(40):142-146. 		
Quality assurance methods that ensure the acquisition of exit competencies		
Anonymous, quantitative, standardised students' opinion survey on the course and teacher's work, carried out by the Quality Assurance Office of the Faculty of Medicine in Osijek.		