[Medicinski fakultet u Rijeci]

Curriculum
2022/2023

[Za kolegij]

Pathology

Study program:	**Medical Studies in English (R)** [Sveučilišni integrirani prijediplomski i diplomski studij]
Department:	**[Zavod za opću patologiju i patološku anatomiju]**
Course coordinator:	**izv. prof. dr. sc. Babarović Emina, dr. med.**
Year of study:	**3**
ECTS:	**16**
Incentive ECTS:	**0 (0.00%)**
Foreign language:	**Possibility of teaching in a foreign language**

Course information:

Pathology is a mandatory course in the third year of the Integrated Undergraduate and Graduate Study in Medicine and consists of 27 hours of lectures, 81 hours of seminars and 102 hours of practicals; valued 16 ECTS credits. The course is held on the premises of the Department of Pathology, Faculty of Medicine, University of Rijeka, and in an online environment within the "Merlin" e-learning system and Microsoft Teams. Student Carnet password received upon acquiring student status is used for entering in "Merlin" e-learning system.

Course objectives and planned outcome

The aim of the Pathology course is to teach the students of mechanisms of cellular injury and various tissue and organ damage. Further goal is to provide the students with the knowledge of morphological changes in the human body during various diseaseses. The task of the course is to enable students to recognize morphological changes in organs, tissues, and cells by gaining theoretical knowledge in lectures and seminars and by gaining their own experience during practicals through reviewing gross specimens and microscopic slides.

Learning outcomes

I. Cognitive Domain – Knowledge

1. List the etiological factors of cell injury, define the pathogenesis or mechanisms of their action, and classify and describe the types of cell adaptation and injury.

2. Define and describe inflammation, tell the difference between acute and chronic inflammation, and compare them with morphological patterns; define and describe tissue repair and relate different patterns of inflammation with clinical presentation.

3. Define certain hemodynamic disorders, describe their morphological characteristics, and compare them with clinical presentation.

4. Define and describe diseases of the immune system, explain their different morphological characteristics, and relate them to clincal presentation.

5. Define and classify neoplasms, describe the biology of tumor growth, list the epidemiology of neoplasms, enumerate carcinogens, describe carcinogenesis, tumor immunity and define the clinical characteristics of tumors.

6. List and describe genetic diseases, the frequency, and types of the most common chromosomopathies. Give an example of cytogenetic test in prenatal diagnosis. List and describe the most common pediatric diseaseses.

7. Within individual organ systems, define the etiopathogenetic factors that lead to tissue and organ damage, then classify (define) individual diseases, describe the morphological features, and ultimately relate them to the clinical picture.

8. Describe the methods (techniques) of work in pathology laboratories and distinguish between methods and possibilities of their application in diagnostics.

II. Psychomotor domain - skills

1. Recognize and describe the macroscopic changes of individual tissues and organs and based on that, determine which disease is underlying (provide possible differential diagnosis with explanation).

2. Recognize and describe the microscopic findings of individual tissues and cells and based on that, determine which disease is underlying (provide possible differential diagnosis with explanation).

3. Distinguish between individual diseases based on morphological changes of the tissues.

4. Compare gross and microscopic patterns of the most common diseases and recognize the crucial differences

5. Link morphological changes with the clinical presentation of the disease state.

6. To identify specific conditions in which, in addition to routine pathohistological assessment, additional diagnostic methods are required for accurate diagnosis and individual treatment of the patient.

Course content

The pathology course consists of a general and a systemic section. In the general pathology part of the course the students are introduced to the principles, pathophysiologic mechanisms and gross and microscopic changes of the Cell as a Unit of Health and Disease, Inflammation and Repair, Hemodynamic Disorders, Thromboembolism, and Shock, Diseases of the Immune System, Neoplasia, Genetic and Pediatric Diseases, Environmental and Nutritional Diseases and General Pathology of Infectious Diseases. In the systemic part of pathology, etiopathogenetic factors, pathophysiologic

List of assigned reading:

1. Robbins Basic Pathology 10th Edition Authors: Vinay Kumar Abul K. Abbas and Jon C. Aster Elsevier 2017, ISBN: 9780323353175
2. http://mikromed.uniri.hr: Laboratory for virtual microscopy, Faculty of medicine Rijeka (Virtual pathology and Atlas of Pathology)
3. All teaching materials provided in "Merlin" e-learning system.

List of optional reading:

1. GPS – General Pathology Synopsis (Pathology Self-Assessment question's Handbook)
2. SPS – Systemic Pathology Synopsis (Systemic Pathology Self-assessment question's Handbook).
3. Patologija. I. Damjanov, S. Seiwerth, S. Jukić, M. Nola. Peto, prerađeno i dopunjeno izdanje, Medicinska naklada, Zagreb 2018.
4. Atlas of the museum of the Department of Pathology. S. Štifter. University of Rijeka, Faculty of medicine Rijeka, Rijeka 2020.
5. Obdukcijska dijagnostika, M. Belicza i D. Tomas. Medicinska naklada, Zagreb 2012.

Curriculum:

Student obligations:

All forms of teaching are mandatory and student attendance at lectures, seminars and exercises will be conducted accordingly. Student has not fulfilled his / her obligations prescribed by the study program if he / she did not attend more than 30% of teaching hours of all forms of teaching (lectures, seminars or exercises) according to the Rulebook on Student Assessment at the Faculty of Medicine in Rijeka, class: 003-05/18-02/07, reg 2170-24-01-18-1.

Exam (exam taking, description of the written/oral/practical part of the exam, point distribution, grading criteria):

Students' performance will be evaluated during class and at the final exam. Out of a total of 100% of marks, during the class the student can achieve a maximum of 70% of marks, and at the final exam a maximum of 30% of marks.

I. Achievement during the class (maximum 70% of marks):

Students' knowledge will be continuously monitored and graded during the course, as well as upon completion of certain units in the form of two written checks (tests: part I and part II) and one student seminar.

A. Acquired knowledge with two written examinations (maximum 66% of marks) as follows in the tables:

Part I	
Correct Answers Points	**Points**
58 – 60	23
56 – 57	22,5
54 – 55	22
52 – 53	21
50 – 51	20
47 – 49	19
44 – 46	18
42 – 43	17
40 – 41	16
38 – 39	15
36 - 37	14

Part II	
Correct Answers Points	**Points**
120	43
119	42,5
118	42
116 – 117	41
114 – 115	40
112 – 113	39
110 – 111	38
108 – 109	37
106 – 107	36
104 – 105	35
102 – 103	34
100 – 101	33
97 – 99	32
94 – 96	31
91 – 93	30
89 – 90	29
87 – 88	28

85 – 86	27
83 – 84	26
81 – 82	25
79 – 80	24
77 – 78	23
75 – 76	22
74	21
73	20,5
72	20

Tests in general pathology (60 questions), part I, can achieve a maximum of overall 23% of assessment points, and test in systemic pathology (120 questions), part II, a maximum of 43% of assessment points.

Part I includes teaching content: L1 – L8, S1 – S8 and E1- E8, it will take place 25/11/2024.

Remedial test, part I: 27/01/2025.

Part II includes teaching content: L9 – L27, S9 – S27 and E9 – E34, it will take place 27/5/2025

Remedial test, part II: 10/6/2025.

Additional remedial test, part I or II: 24/6/2025.

B. Student seminar, with a maximum score of 4%, ie a minimum of 1% according to the table:

Rating Points	**Points**
5	**4**
4	**3**
3	**2**
2	**1**

The grade is determined according to the student grading rule based on final success.

In addition to regular proficiency tests, remedial tests will be organized for each test (part I and part II) for those students who have failed to earn points (insufficient academic achievement or failure to attend the exam for justified reasons) and students who want to improve the number of points gained by passing regular partial courses, in which case the number of points earned on the remedial will be counted as the final result.

Students will have the option of additional written correction

II. Final exam in Pathology (maximum 30% of marks):

Only students who have fulfilled the following requirements can take the final exam:

1. have duly completed the course

2. have achieved a **minimum of 35% mark**, ie 50% or more mark, out of the maximum 70% mark that could be obtained during the course through continuous monitoring and evaluation of students.

Students who have earned a total of 0 to 49.9% of grades during the course of all forms of knowledge assessment, which could be obtained during the course through continuous monitoring and evaluation of students, are graded F (unsuccessful), cannot earn ECTS credits and must re-enroll in the course.

The final exam is conducted in oral form and includes the examination of theoretical knowledge in general and systemic pathology and the recognition of micro and macro preparations.

Oral exam is divided into 3 parts

1st theoretical part: 2 questions general pathology and 3 questions from systemic pathology - the student must answer all 5 questions for sufficient grade (definition, classification and basics).

2nd part virtual microscopy - slides - the same principle - 2 slides from general pathology and 3 slides from systemic. Once again student need to know all 5 slides at least for grade 2 (sufficient), to be able to go further.

3rd atlas specimens: 2 images from general pathology and 3 images from systemic - same principle, all 5 images should be recognized, and student should know the theory behind that at least for grade 2 (sufficient).

Each of the three parts of the final exam (theory, macro, micro) can achieve a minimum of 5 to a maximum of 10 points.

Exam score	Points
4,6 – 5,0	**10**
4,1 – 4,5	**9**
3,6 – 4,0	**8**
3,1 – 3,5	**7**
2,5 – 3,0	**6**
2,0 – 2,4	**5**

Students who do not pass the final oral exam must re-enroll in the pathology course, and if they have achieved a total of 50 or more points, they do not have to re-take the entire pathology course (attendance at lectures, seminars and exercises is not mandatory), but it is recommended that they do so. The points they collected in the written exams and the seminar are not transferred to the new academic year. This means that students that re-enroll in pathology course will have to take both written exams in order to earn points for the oral exam.

The final grade from the course is determined on the basis of the final success according to the table:

Total points	Final grade
90 - 100% (A)	**Excellent (5)**
75 - 89,9 % (B)	**Very good (4)**
60 - 74,9% (C)	**Good (3)**

50 - 59,9% (D)	**Sufficient (2)**

Other notes (related to the course) important for students:

The course contents and all course related information are available on the student web portals, Departments of General Pathology and Pathological Anatomy and Merlin 2021/2022 (srce.hr).

COURSE HOURS 2022/2023
Pathology

List of lectures, seminars and practicals:

EXAM DATES (final exam):
