[Medicinski fakultet u Rijeci]

Curriculum
2022/2023

[Za kolegij]

Pharmacology

Study program:	**Medical Studies in English (R)** [Sveučilišni integrirani prijediplomski i diplomski studij]
Department:	**[Zavod za temeljnu i kliničku farmakologiju s toksikologijom]**
Course coordinator:	**prof. dr. sc. Pilipović Kristina, dr. med.**
Year of study:	**3**
ECTS:	**10**
Incentive ECTS:	**0 (0.00%)**
Foreign language:	**Possibility of teaching in a foreign language**

Course information:

Pharmacology is a compulsory course in the third year of the Integrated Undergraduate and Graduate University Study of Medicine in English. It consists of 30 hours of lectures, 85 hours of seminars, and 15 hours of practicals - 130 hours (10 ECTS).

Course objective

The main aim of the Pharmacology course is to provide the acquisition of necessary knowledge in the area of basic and special pharmacology, as well as in the area of pharmacotoxicology and rational pharmacotherapy.
The objective of the course is for the students to acquire knowledge on the mechanisms of drug actions, their therapeutic and adverse effects, routes of drug administration as well as the indications and contraindications for the use of the most important groups of drugs. The students should also at the end of the course understand the pharmacological characteristics of "prototype" drugs for each pharmacotherapeutic class. Additionally, each student must obtain the skill of prescribing different drug formulations and the ability to use relevant sources of pharmacology literature as a critical approach concerning the quality of each drug.

Course content:

Basic pharmacology: basic pharmacological terms, pharmacology disciplines, drug nomenclature, mechanisms of drug action, pharmacokinetics, factors affecting drug effects

Special pharmacology: pharmacodynamics, pharmacokinetics, indications, contraindications, and adverse effects of the most important pharmacological drug groups and particular drugs

Toxicology: drug toxicology

General principles of clinical pharmacology: drug discovery and development, preclinical and clinical trials

Pharmacography: legal regulations and rules of prescribing different drug formulations

Course learning outcomes

I. Cognitive domain – knowledge

After having passed the Pharmacology course, students should be able to:

1. describe and explain the general principles of pharmacodynamics and pharmacokinetics,
2. list and describe different factors that modify drug effects,
3. define and explain the types and mechanisms of drug interactions,
4. classify drugs into different groups/subgroups,
5. define, describe, and explain the routes of administration, the mechanisms of action at the molecular and cellular level, pharmacological effects on different organ systems, the main therapeutic indications and contraindications, the most important adverse effects and toxicity of particular drugs that are illustrative examples of pharmacotherapeutic groups and subgroups they belong to,
6. analyze pharmacological effects, pharmacokinetic profile, adverse effects, indications, and contraindications between the drugs that belong to different subgroups within the same drug groups and then compare them,
7. describe the symptoms and therapy of clinically the most important drug poisonings,
8. list clinically important drug interactions, and
9. describe and explain the process of new drug discovery and development.

II. Psychomotor domain - skills

After passing the pharmacology course, students should acquire the skills of prescribing different drug formulations.

List of assigned reading:

1. Katzung BG, Edit., Basic & Clinical Pharmacology, 14th Edition, McGraw-Hill Education, New York, USA, 2018.

2. Bradamante V, Klarica M, Šalković-Petrišić M, Edits. Pharmacology Manual, 1st Edition in English, Medicinska naklada, Zagreb, 2010.

List of optional reading:

1. Ritter J., Flower R, Henderson G, Rang H. Rang & Dale's Pharmacology, 8th Edition, Elsevier, Churchill Livingstone, London, UK, 2015.

Curriculum:

Student obligations:

Students are obligated to regularly attend and actively participate in classes. Students are allowed to be absent at a maximum of 30 % of the course. It is compulsory to follow and act in accordance with notifications and rules regarding attendance, absence, partial exams, corrections of partial exams, final exam, etc., which will be presented at the first lecture. Additional information and rules will be announced regularly and on time on the Merlin e-learning platform.

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

During Pharmacology course, a student can achieve a maximum of 50 % (**50 points**) of their final grade, while the remaining 50 % (**50 points**) of the grade is obtained at the final exam. Points distribution is as follows

Partial exam I	20 points
Partial exam II	15 points
Partial exam III	15 points
Total (classes)	50 points
Pre-exam colloquium in pharmacography and final exam	50 points
Total (course)	100 points

A. Partial exams

Partial exam I includes the topics covered at **L1-L10 and S1-S3**. It consists of a written test (Test I). Test I will be held on **January 15, 2025**.

Partial exam II includes the topics covered at **S4-S10 and SP1**. It consists of a written test (Test II). Test II will be held on **March 27, 2025**.

Partial exam III includes the topics covered at **S11-S17** and the theoretical part of practicals P1 and P2. Test III will be held on **May 22, 2025**.

The exact time and the venues for the tests will be announced beforehand.

Tests are evaluated according to the scheme:

Test I			**Test II**		
Number of correct answers	**Number of points**		**Number of correct answers**	**Number of points**	
49-50	20		49-50	15	
47-48	19		43-48	14	
43-46	18		37-42	13	
39-42	17		33-36	12	
35-38	16		30-32	11	

33-34	15		28-29	10	
31-32	14		26-27	9	
29-30	13		25	8	
27-28	12		0-24	0	
26	11				
25	10				
0-24	0				

Corrections of the partial exams

Students can access the corrections for the partial exams if they do not pass them or are not satisfied with the points they obtained. If a student retakes a partial exam because they are unsatisfied with the obtained grade points, only the grade points obtained at the retaken partial exam(s) will be considered valid. Students will have the opportunity to correct partial exams only once.

Correction of the tests I, II, and III will be organized on June 25-27, 2025. Exact times and venues will be announced on time.

Students are obligated to apply for the correction(s) of the partial exams. The applications will be received until June 21, 2025, by 12 noon. Suppose students apply for the correction(s) of the partial exams and subsequently decide that they will not be able to access it. In that case, they must personally cancel it at the latest until one workday before the term of the partial exams, **until 12 noon.** If a student does not personally cancel the application for the correction/s of the midterm exams, their final score will be 0 points.

Exceptionally, corrections of the midterm exams will also be organized for the students who are absent from the partial exams due to a justified reason. In that case, they must submit a written explanation and appropriate documentation. The materials have to be addressed to Prof Kristina Pilipović and submitted to the Office of the Department, by June 19, 2025, at 3 p.m.

B. Pre-exam Colloquium in Pharmacography

The **pre-exam colloquium in Pharmacography** includes material covered during P1-2 and consists of a written part. On the written test, the task will be to correctly prescribe five prescriptions. For each correctly prescribed recipe, the student will receive 1 point (maximum 5 points).

Pre-exam colloquia in Pharmacography will be held on: **June 13, 2025, June 27, 2025, July 11, 2025, September 2, 2025, and September 16, 2025**. The exact times and the venues of these colloquia will be announced on time.

C. Final exam

Only students who have achieved at least 25 points during the course and have passed the Pharmacography colloquium can take the final exam in Pharmacology. Students with less than 25 credits earned during the course must enroll in the Pharmacology course again in the next academic year.

The final exam consists of an **oral exam**. The maximum number of points that can be obtained at the oral exam is 45 (range 23-45). For the grade 2 (sufficient), the student obtains 23 points; for the grade 3 (good), the student obtains 30 points; for the grade 4 (very good), the student obtains 38; for the grade 5 (excellent), the student obtains 15 points.

The **final grade** is formed based on the results obtained during the course and the grade obtained on the final exam, according to the following scheme:

Percent/credits for the acquired knowledge, skills and competences (course + final exam)	Numerical grading system	ECTS system
90 - 100%	5 (excellent)	A
75 - 89,9%	4 (very good)	B
60 – 74,9%	3 (good)	C
50 - 59,9%	2 (sufficient)	D
0 - 49,9%	1 (unsufficient)	F

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

Academic honesty

It is expected that all students and teachers follow the code of academic honesty by the Code of Ethics for the students of the Faculty of Medicine at the University of Rijeka. Please read the policy regarding academic honesty at: http://medical-studies-in-english.com/wp-content/uploads/2016/12/CODEOF-ETHICS.pdf

Contact information

For all questions and concerns, students are encouraged to contact us by e-mail or personally.

COURSE HOURS 2022/2023

Pharmacology

List of lectures, seminars and practicals:

EXAM DATES (final exam):
