

2026/2027

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet:	Splošna farmakologija
Course title:	General Pharmacology

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Farmacija, 2. stopnja		2.	4.
Pharmacy, 2. level		2.	4.

Vrsta predmeta / Course type obvezni/obligatory

Univerzitetna koda predmeta / University course code:

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje Clinical training	Druge oblike študija Other forms of study	Samost. delo Individual work	ECTS
35	15	25			105	6

Nosilec predmeta / Lecturer: doc. dr. Marko Milojević

Jeziki / Languages: Predavanja / Lectures: slovenski/slovene
Vaje / Tutorial: slovenski/slovene

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti: / **Prerequisites:** /

Vsebina:

Osnove splošne farmakologije

- farmakodinamika
- farmakokinetika
- molekularna farmakologija

Kemijski mediatorji

Kako zdravila delujejo?

- splošni principi
- molekularni vidiki
- celični vidiki
- celični obrambni mehanizmi

Celična proliferacija, apoptoza, staranje/senesenca

Variacije med posamezniki in personalizirana medicina

Posebne skupine zdravil

- protimikrobno zdravljenje
- biološka zdravila
- osnovni principi kemoterapije

Zlorabe zdravil, odvisnost od zdravil

Content (Syllabus outline):

Principles in general pharmacology

- pharmacodynamics
- pharmacokinetics
- molecular pharmacology

Chemical mediators

How drugs act?

- general principles
- molecular aspects
- cellular aspects
- cellular defence mechanisms

Cell proliferation, apoptosis, ageing/senescence

Inter-individual variation and personalised medicine

Special groups of drugs

- antimicrobial therapy
- biological drugs
- basic principles of chemotherapy

Drug abuse, drug dependence

Temeljni literatura in viri / Readings:

TEMELJNA LITERATURA:

1. Rang HP, Dale M, Ritter JM, Moore PK. Pharmacology. 8th edition (ali novejša). Edinburgh: Churchill Livingstone; 2016, strani 1-270 in 649-755.

2026/2027

2. Lüllmann H, Hein L, Mohr K. Color Atlas of Pharmacology, 5th edition (ali novejša): Thieme, Stuttgart/New York; 2017, strani 1-175.

DODATNA LITERATURA:

1. Goodman LS, Gilman AG, Limbird LE, Hardman JG, Goodman Gilman A, eds. The pharmacological basis of therapeutics. 13th edition (ali novejša). New York: McGraw-Hill; 2018.

Cilji in kompetence:

- spoznati osnovne mehanizme delovanja zdravil na molekularnem in celičnem nivoju, vpliv zdravil na organizem (farmakodinamika) in vpliv organizma na zdravila (farmakokinetika)
- pridobiti pregledno znanje o kemijskih mediatorjih in kako lahko nanje delujemo z zdravilnimi učinkovinami
- razumeti pomen personalizirane terapije
- pridobiti pregledno znanje kemoterapevtikov
- osvojiti sposobnost za povezovanje pričakovanih učinkov zdravil, koristnih in škodljivih

Objectives and competences:

- to learn the basic mechanisms of action of drugs at the molecular and cellular level, the effect of drugs on the organism (pharmacodynamics) and the effect of the organism on drugs (pharmacokinetics)
- to gain an overview of chemical mediators and how they can be acted upon by active pharmaceutical ingredients (API)
- understand the importance of personalised therapy
- to gain an overview of chemotherapeutic agents
- acquire the ability to relate the expected effects of drugs, both beneficial and harmful

Predvideni študijski rezultati:

Znanje in razumevanje: Študent

- zna opisati osnovne mehanizme delovanja zdravil, pojasniti vpliv zdravil na organizem in vpliv organizma na zdravila
- našteje in razume učinke zdravil na molekularnem in celičnem nivoju
- razume smisel personalizirane medicine
- pridobi pregledno znanje o delovanju kemoterapevtikov
- zna kritično uporabljati relevantne literaturne vire na področju farmakologije in toksikologije

Prenesljive/ključne spretnosti in drugi atributi:

- študent zna pojasniti osnove delovanja zdravil

Intended learning outcomes:

Knowledge and understanding: The student

- be able to describe the basic mechanisms of action of medicines, explain the effect of medicines on the body and the effect of the body on medicines
- list and understand the effects of drugs at the molecular and cellular level
- understands the meaning of personalised medicine
- gain an overview of the actions of chemotherapeutic agents
- be able to critically apply relevant literature sources in pharmacology and toxicology

Transferable/Key Skills and other attributes:

- the student can explain the basics of how drugs work

Metode poučevanja in učenja:

Predavanja
Seminarji
Vaje

V okviru seminarjev se bodo obravnavale aktualne teme s področja predmeta

Learning and teaching methods:

Lectures
Seminars
Tutorial (practical work)

The seminars will cover trending topics in the subject area

Načini ocenjevanja:

Način (pisni izpit, ustno izpraševanje, naloge, projekt)

- pisni izpit.

ŠTUDIJSKE OBVEZNOSTI ŠTUDENTOV

Delež (v %) /

Weight (in %) /

Assessment:

100%

Type (examination, oral, coursework, project):

- written exam.

STUDENTS' STUDY COMMITMENTS

2026/2027

<p>80% prisotnost na vajah in seminarjih</p> <p>POGOJ ZA PRISTOP K IZPITU Opravljene vaje in 80% prisotnost na seminarjih so pogoj za pristop k izpitu.</p>		<p>80% attendance at tutorials and seminars</p> <p>ENTRANCE TO THE EXAMINATION Completion of the tutorials and 80% attendance at seminars are prerequisite for taking the examination.</p>
---	--	--

Reference nosilca / Lecturer's references:

1. MILOJEVIĆ, Marko, HARIH, Gregor, VIHAR, Boštjan, VAJDA, Jernej, GRADIŠNIK, Lidija, ZIDARIČ, Tanja, STANKLEINSCHKEK, Karin, MAVER, Uroš, MAVER, Tina. Hybrid 3D printing of advanced hydrogel-based wound dressings with tailorable properties. *Pharmaceutics*. [Online ed.]. 2021, vol. 13, iss. 4, str. 1-24, ilustr. ISSN 1999-4923. <https://www.mdpi.com/1999-4923/13/4/564>, DOI: 10.3390/pharmaceutics13040564. [COBISS.SI-ID 60048899]
2. MILOJEVIĆ, Marko, ROŽANC, Jan, VAJDA, Jernej, ČINČ ĆURIĆ, Laura, PARADIŽ, Eva, STOŽER, Andraž, MAVER, Uroš, VIHAR, Boštjan. In vitro disease models of the endocrine pancreas. *Biomedicines*. [Online ed.]. 2021, vol. 9, iss. 10, str. 1-34, ilustr. ISSN 2227-9059. <https://www.mdpi.com/2227-9059/9/10/1415>, DOI: 10.3390/biomedicines9101415. [COBISS.SI-ID 81293571]
3. VAJDA, Jernej, VIHAR, Boštjan, ČINČ ĆURIĆ, Laura, MAVER, Uroš, VESENJAK, Matej, DOBNIK-DUBROVSKI, Polona, MILOJEVIĆ, Marko. Sr²⁺ vs Ca²⁺ as post-processing ionic crosslinkers: implications for 3D bioprinting of polysaccharide hydrogels in tissue engineering. *Journal of materials research and technology*. [Spletna izd.]. March-April 2023, vol. 23, str. 1805-1820, ilustr. ISSN 2214-0697. <https://www.sciencedirect.com/science/article/pii/S223878542300145X>, DOI: /10.1016/j.jmrt.2023.01.149. [COBISS.SI-ID 144037891]