

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet:	Farmakologija s toksikologijo
Course title:	Pharmacology with Toxicology

Študijski program in stopnja Study programme and cycle	Študijska smer Study option	Letnik Year of study	Semester Semester
Dentalna medicina/Dental Medicine 2. stopnja/2nd cycle		2	4.

Vrsta predmeta / Course type:

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
40	40	10			90	6

Nosilec predmeta / Lecturer:

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

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:

Prerequisites:

Vsebina:

Osnove splošne farmakologije in toksikologije:

- farmakodinamika/toksikodinamika
- farmakokinetika/toksikokinetika
- področja farmakologije in toksikologije s poudarkom na uporabi v dentalni medicini

Kemijski mediatorji

Specialna farmakologija:

- srce in žilje
- ledvice
- kri in krvotvorni organi
- prebavila
- dihala
- periferni živčni sistem
- osrednji živčni sistem
- zdravila, ki uravnavajo nivo glukoze v krvi
- zdravila z vplivom na hemostazo in trombozo
- zdravila z vplivom na nivo lipidov v krvi
- farmakološko zdravljenje debelosti, farmakologija hipofize, nadledvičnice, ščitnice, reproduktivnega sistema, kosti, endokrinopatij
- protivnetne učinkovine in imunomodulatorji
- osnovni principi kemoterapije, zdravila v terapiji rakavih obolenj

Content (Syllabus outline):

Principles in general pharmacology and toxicology

- pharmacodynamics/toxicodynamics
- pharmacokinetics/toxicokinetics
- areas in pharmacology and toxicology with emphasis on use in dental medicine

Chemical mediators

Special pharmacology of:

- cardiovascular system
- kidneys
- blood and haematopoiesis
- gastrointestinal system
- respiratory system
- peripheral nervous system
- central nervous system
- drugs influencing blood glucose levels
- drugs affecting haemostasis and thrombosis
- drugs affecting blood lipid levels
- pharmacological treatment of obesity, pharmacology of pituitary, adrenal glands, thyroid, reproductive system, bones, endocrinopathies
- antiinflammatory drugs and immunomodulators
- basic principles of chemotherapy, anticancer drugs
- antimicrobial agents: antibacterial, antiviral, antifungal, antiprotozoal and anthelmintic drugs

<ul style="list-style-type: none"> – protimikrobno zdravljenje: protibakterijska zdravila, protivirusna zdravila, antimikotiki, antiprotozoiki, antihelmintiki – antiseptiki, dezinficijensi, insekticidi – zlorabe zdravil, odvisnost od zdravil – osnove toksikologije s poudarkom na toksičnih snovi v zobozdravstvu <p>Zdravilne učinkovine v dentalni medicini</p> <ul style="list-style-type: none"> – Farmakoepidemiološki podatki o predpisovanju zdravil in medicinskih pripomočkov v Sloveniji 	<ul style="list-style-type: none"> – antiseptic, dezinfective and insecticide agents – drug abuse, drug dependence – basics of toxicology with emphasis of toxins used in dental medicine – Pharmacoepidemiological data on prescribing drugs and medical devices in Slovenia
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Temeljni literatura in viri / Readings:**Temeljna literatura:**

1. Rang HP, Dale M, Ritter JM, Flower RJ, Henderson G. Pharmacology. 8th ed. Churchill Livingstone; 2016. (or the latest edition)
2. Goodman LS, Gilman AG, Limbird LE, Hardman JG, Goodman Gilman A. The pharmacological basis of therapeutics. 12th ed. New York: McGraw-Hill; 2011. (or the latest edition)

Dopolnilna literatura:

3. Katzung BG, Masters SB, Trevor AJ. Basic and clinical pharmacology. 11th ed. New York: McGraw-Hill; 2009. (or the latest edition)
4. Klaassen CD. Casarett & Doull's toxicology: The basic science of poisons. 7th ed. New York: McGraw-Hill; 2008. (or the latest edition)
5. Centralna baza zdravil: <http://www.cbz.si>
6. Javna agencija RS za zdravila in medicinske pripomočke: <http://www.jazmp.si/>
7. Evropska agencija za zdravila (EMA): <http://www.ema.europa.eu/ema/>
8. Ferk P, Lipnik-Štangelj M. Navodila za vaje iz farmakologije in toksikologije. Spremenjena in dopolnjena izd. Maribor: Medicinska fakulteta; 2010. (ali kasnejša izdaja)
9. Milojević M, Maver T, Madorran E, Schmidt J, Bevc S, Maver U. Izbrana poglavja iz splošne farmakologije in toksikologije – Navodila za vaje študijskega programa Dentalna medicina (e-gradivo), VAJA 3: Toksikologija, 2023

Cilji in kompetence:

<ul style="list-style-type: none"> – spoznati osnovne mehanizme delovanja zdravil, vpliv zdravil na organizem in vpliv organizma na zdravila – pridobiti pregledno znanje o zdravilih po osnovnih farmakodinamičnih skupinah – pridobivanje sposobnosti za povezovanje pričakovanih učinkov, koristnih in škodljivih – spoznati osnove toksikologije, pridobiti pregledno znanje o prepoznavanju in ukrepanju pri zastrupitvah z zdravili

Objectives and competences:

<ul style="list-style-type: none"> – to acquire knowledge on basic mechanisms of drug actions and the fate of drugs in the human body – to get an overview of the most important pharmacodynamic groups of drugs – to gain the ability for linking the expected effects, useful and harmful – to acquire knowledge on general principles in toxicology as well as on recognizing and acting in drug poisoning

Predvideni študijski rezultati:

<p>Znanje in razumevanje:</p> <ul style="list-style-type: none"> – razumeti osnovne mehanizme delovanja zdravil, vpliv zdravil na organizem in vpliv organizma na zdravila – poznavanje zdravil po osnovnih farmakodinamičnih skupinah – sposobnost za povezovanje pričakovanih učinkov, koristnih in škodljivih – razumevanje interakcij med zdravili in zdravil s hrano – poznavanje osnov toksikologije, primerno znanje o prepoznavanju in ukrepanju pri zastrupitvah z zdravili – sposobnost kritično uporabljati relevantne literaturne vire na področju farmakologije in toksikologije

Intended learning outcomes:

<p>Knowledge and understanding:</p> <ul style="list-style-type: none"> – understanding basic mechanisms of drug actions and the fate of drugs in the human body – knowledge on major pharmacodynamic groups of drugs – the ability for linking the expected effects, useful and harmful – understanding drug-drug and drug-food interactions – understanding general principles in toxicology, appropriate knowledge on recognizing and acting in drug poisoning – the ability of critical usage of relevant literature sources in the field of pharmacology and toxicology

Metode poučevanja in učenja:**Learning and teaching methods:**

Predavanja Seminarji Vaje	Lectures Seminars Tutorial
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Načini ocenjevanja:**Delež (v %) /
Weight (in %)****Assessment:**

<p>Način (pisni izpit, ustno izpraševanje, naloge, projekt)</p> <p>Pogoj za pristop k izpitu so uspešno opravljene vaje in seminarji ter pridobljena pozitivna ocena iz seminarjev.</p> <ul style="list-style-type: none"> – seminar, seminarski kolokvij in oblike sprotnega preverjanja znanja (testi, aktivno sodelovanje, domače naloge) – izpit pisni – izpit ustni <p>ŠTUDIJSKE OBVEZNOSTI ŠTUDENTOV</p> <ul style="list-style-type: none"> – obvezna prisotnost na vajah in seminarjih – opravljene vaje in seminarji – kolokviji iz vaj – kolokviji iz seminarjev – izpit pisni – izpit ustni – samostojno delo <p>POGOJI ZA PRISTOP K POSAMEZNEMU PREVERJANJU ZNANJA</p> <p>Opravljene vaje in seminarji ter opravljeni kolokviji iz vaj in seminarjev so pogoj za pristop k pisnemu izpitu. Pozitivno opravljen pisni izpit je pogoj za pristop k ustnemu izpitu.</p>	<p>20 %</p> <p>40 %</p> <p>40 %</p>	<p>Type (examination, oral, coursework, project): Successfully completed practical work and seminars including positive assessment of the final seminar test are necessary to approach the exam.</p> <ul style="list-style-type: none"> – seminar, seminar test and real-time examinations (tests, active cooperation, homework's) – written examination; – oral examination. <p>ACADEMIC OBLIGATIONS OF STUDENTS:</p> <ul style="list-style-type: none"> – obligatory attendance at laboratory work and coursework – completed laboratory work and coursework – partial exams in laboratory work – partial exams in coursework – written exam – oral exam – independent work <p>REQUIREMENTS FOR ACCESS TO INDIVIDUAL KNOWLEDGE CHECKING: Completed laboratory work, coursework and partial exams in laboratory work and coursework are required for access to the written exam. Positively marked written exam is a requirement for access to the oral exam.</p>
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Reference nosilca / Lecturer's references: UROŠ MAVER

1. KRAVANJA, Katja Andrina, KHANARI, Klodian, KNEZ MAREVCI, Maša, MAVER, Uroš, FINŠGAR, Matjaž. Ketoprofen-loaded PLGA-based bioactive coating prepared by supercritical foaming on a TiAl6V4 substrate for local drug delivery in orthopedic applications. Progress in organic coatings. [Online ed.]. Jan. 2024, vol. 186, [article no.] 108026, 11 str., ilustr. ISSN 1873-331X. DOI: 10.1016/j.porgcoat.2023.108026. [COBISS.SI-ID 168679171]
2. ELVEREN, Beste, KUREČIČ, Manja, MAVER, Tina, MAVER, Uroš. Cell electrospinning: a mini-review of the critical processing parameters and its use in biomedical applications. Advanced biology. March 2023, 10 str. ISSN 2701-0198. DOI: 10.1002/adbi.202300057. [COBISS.SI-ID 146534659]
3. ZIDARIČ, Tanja, MAJER, David, MAVER, Tina, FINŠGAR, Matjaž, MAVER, Uroš. The development of an electropolymerized, molecularly imprinted polymer (MIP) sensor for insulin determination using single-drop analysis. Analyst. [Online ed.]. First published 24 Jan 2023, 14 str. ISSN 1364-5528. Digitalna knjižnica Univerze v Mariboru – DKUM, DOI: 10.1039/D2AN02025D. [COBISS.SI-ID 140143875]
4. BRAČIČ, Matej, POTRČ, Sanja, FINŠGAR, Matjaž, GRADIŠNIK, Lidija, MAVER, Uroš, BUDASHEVA, Hanna, KORTE, Dorota, FRANKO, Mladen, FRAS ZEMLJIČ, Lidija. Amoxicillin doped hyaluronic acid/fucoidan multifunctional coatings for medical grade stainless steel orthopedic implants. Applied Surface Science. [Print ed.]. 2023, vol. 611, part a, str. 1-11, ilustr. ISSN 0169-4332. Repozitorij Univerze v Novi Gorici - RUNG, Digitalna knjižnica Univerze v Mariboru – DKUM, DOI: 10.1016/j.apsusc.2022.155621. [COBISS.SI-ID 130119171]
5. DONKER, Erik M., SPITALERI TIMPONE, Pietro, BRINKMAN, David J., RICHIR, Milan C., PAPAIOANNIDOU, Paraskevi, LIKIC, Robert, SANZ, Emilio J., CHRISTIAENS, Thierry, COSTA, Joao, DE PONTI, Fabrizio, et al., KRŽAN, Mojca (927), BEVC, Sebastjan (927), BRVAR, Miran (927), MAVER, Uroš (927), MAVER, Tina (927), JAKOPIN, Eva

- (927), PETRESKI, Tadej (927), et al., European Association for Clinical Pharmacology and Therapeutics. The European list of key medicines for medical education : a modified delphi study. *Clinical pharmacology and therapeutics*. Dec. 2023, vol. , iss. [ahead of print], [article no.] 3132, str. 1-10, ilustr. ISSN 0009-9236. <https://ascpt.onlinelibrary.wiley.com/doi/10.1002/cpt.3132>, DOI: 10.1002/cpt.3132. [COBISS.SI-ID 179532803]
6. ČINČ ĆURIĆ, Laura, ŠULIGOJ, Maša, IBIC, Maja, MAROVIČ, Nina, VIHAR, Boštjan, VESENJAK, Matej, DOBNIK-DUBROVSKI, Polona, NOVAK, Nejc, STERGAR, Janja, BAN, Irena, MAVER, Uroš, MILOJEVIĆ, Marko, MAVER, Tina, et al. Development of a novel NiCu nanoparticle-loaded polysaccharide-based hydrogel for 3D printing of customizable dressings with promising cytotoxicity against melanoma cells. *Materials today bio*. Oct. 2023, [Article no.] 100770, vol. 22, 12 str. ISSN 2590-0064. DOI: 10.1016/j.mtbio.2023.100770. [COBISS.SI-ID 161487619]
- ZIDARIČ, Tanja, SKOK, Kristijan, ORTHABER, Kristijan, PRISTOVNIK, Matevž, GRADIŠNIK, Lidija, MAVER, Tina, MAVER, Uroš. Multilayer methacrylate-based wound dressing as a therapeutic tool for targeted pain relief. *Materials*. 2023, vol. 16, issue 6, [article no.] 2361, str. 1-21. ISSN 1996-1944. <https://www.mdpi.com/1996-1944/16/6/2361>, DOI: 10.3390/ma16062361. [COBISS.SI-ID 146598147]