2022/23

Univerza v Mariboru

Medicinska fakulteta

UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Predmet:	**Izbrane vsebine in novosti v farmakologiji in toksikologiji**
Course title:	**Selected Topics and Novelties in Pharmacology and 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**	**3 ali 4**

Vrsta predmeta / Course type	Izbirni/Elective
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
2	**40**	**3**			**45**	**3**

Nosilec predmeta / Lecturer:	**Izr. prof. dr. Uroš Maver**

Jeziki / Languages:	**Predavanja / Lectures:**	slovenščina/slovene
	Vaje / Tutorial:	slovenščina/slovene

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

Vsebina:	**Content (Syllabus outline):**
– poglobljen študij izbranih farmakodinamičnih skupin zdravil s poudarkom na skupinah zdravil, ki se uporabljajo v zobozdravstvu – novosti na področju farmakološkega zdravljenja izbranih bolezenskih stanj – personilizirana medicina in individualni pristop k farmakološkemu zdravljenju – racionalna raba zdravil – neželeni učinki in toksičnost zdravil, farmakovigilanca – interakcije med zdravili in interakcije zdravil s hrano – učinkovine življenjskega sloga, zlorabe zdravil in drugih učinkovin, učinkovine, ki povzročajo odvisnost, učinkovine v športu, doping – prehranska dopolnila, zdravilne rastline, fitofarmaki – biološka zdravila – elektronske zbirke podatkov o zdravilih – razvoj novega zdravila, regulativa na področju zdravil – raziskovalno delo na področju molekularne farmakologije: aktualno raziskovalno delo, gojenje celičnih kultur oz. celičnih linij, apoptoza, testi viabilnosti, proliferacije, citotoksičnosti, biokompatibilnosti, znotrajcelične signalne poti – raziskovalno delo na področju dentalnih materialov, dostavnih sistemov in tkivnega inženirstva – translacijska medicina in farmakologija: prenos laboratorijskih ugotovitev in znanja v klinično prakso,	– detailed study on selected pharmacodynamic groups of drugs with emphasis on drugs used in dental medicine – advances in pharmacological treatment of selected pathological conditions – personalized medicine and individualized pharmacotherapy – rational use of drugs – adverse drug effects and reactions, toxicity, pharmacovigilance – drug-drug and drug-food interactions – lifestyle drugs, the abuse of drugs and other substances, drug dependence, drugs in sport, doping – food supplements, medicinal plants, phytopharmaceuticals – biological drugs – electronic drug databases – development of new drugs, regulatory procedures – research work in molecular pharmacology: current research projects, growing cell cultures/cell lines, apoptosis, viability, proliferation, cytotoxicity, biocompatibility, intracellular signalling pathways – research work in the field of dental materials, drug delivery systems and tissue engineering – translational medicine and pharmacology: implementation of laboratory findings and knowledge into clinical practice, necessity and

nujnost in smiselnost povezave predklinika-klinika, bazičnih in aplikativnih vidikov znanosti in stroke – terapevtsko spremljanje koncentracij zdravil v plazmi: pomen, metodologija – najpogostejše zastrupitve z zdravili v Sloveniji – toksikologija težkih kovin in druga področja specialne farmakologije	importance of connecting preclinical and clinical knowledge, basic and applied scientific and professional approaches – therapeutic drug monitoring: importance, methodology – the most common drug poisonings in Slovenia – toxicology of heavy metals and other areas of special pharmacology

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 toxycology: 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. Periodične publikacije s področja zobozdravstva:
   a) Peridontology 2000: http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1600-0757/homepage/ProductInformation.html
   b) Journal of dental research: http://journals.sagepub.com/home/jdr
   c) Dental Materials: https://www.journals.elsevier.com/dental-materials/

Clinical Implant Dentistry and Related Research: http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1708-8208

Cilji in kompetence:	**Objectives and competences:**
– podrobneje spoznati farmakološke lastnosti izbranih farmakodinamičnih skupin zdravil – podrobneje spoznati toksikološke lastnosti izbranih snovi – načrtovati optimalno učinkovito in varno farmakoterapijo, prilagojeno posameznemu pacientu – slediti novostim na področju farmakologije in toksikologije v relevantnih literaturnih virih	– to get detailed knowledge on pharmacology of selected pharmacodynamics groups of drugs – to get detailed knowledge on toxicology of selected substances – to plan optimal, effective and safe individualized pharmacotherapy – to follow novelties in the field of pharmacology and toxicology in relevant literature sources

Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: – podrobno poznavanje farmakoloških lastnosti izbranih farmakodinamičnih skupin zdravil – podrobno poznavanje toksikoloških lastnosti izbranih snovi – izbrati optimalno, učinkovito in varno farmakoterapijo, prilagojeno posameznemu pacientu – sledenje novostim na področju farmakologije in toksikologije v relevantnih literaturnih virih Prenesljive/ključne spretnosti in drugi atributi: veščine – spoznati pomen poznavanja farmakoloških lastnosti zdravil za izbiro optimalne posamezniku prilagojene farmakoterapije	Knowledge and understanding: – detailed knowledge on pharmacology of selected pharmacodynamics groups of drugs – detailed knowledge on toxicology of selected substances – select optimal, effective and safe individualized pharmacotherapy – follow novelties in the field of pharmacology and toxicology in relevant literature sources Transferable/Key Skills and other attributes: skills – to realize the importance of understanding pharmacological properties of drugs to select optimal individualized pharmacotherapy

Metode poučevanja in učenja:	Learning and teaching methods:
Predavanja Seminarji Vaje (laboratorijsko raziskovalno delo)	Lectures Seminars Tutorial (laboratory research work)

Načini ocenjevanja:	Delež (v %) / Weight (in %)	Assessment:
Način (pisni izpit, ustno izpraševanje, naloge, projekt) – seminarska naloga – ustni izpit ŠTUDIJSKE OBVEZNOSTI ŠTUDENTOV: – obvezna prisotnost na seminarjih in pri laboratorijskih vajah – priprava in predstavitev seminarske naloge – ustni izpit POGOJI ZA PRISTOP K POSAMEZNEMU PREVERJANJU ZNANJA: Opravljene laboratorijske vaje, domače naloge in opravljena seminarska naloga so pogoji za pristop k ustnemu izpitu.	**50 %** **50 %**	Type (examination, oral, coursework, project): – seminar work – oral examination ACADEMIC OBLIGATIONS OF STUDENTS – obligatory attendance at coursework and laboratory work – preparation and presentation of coursework assignment – oral exam REQUIREMENTS FOR ACCESS TO INDIVIDUAL KNOWLEDGE CHECKING Completed laboratory work, homework's and completed coursework assignment are requirements for access to the oral exam.

Reference nosilca / Lecturer's references:

1. SABOTI, Denis, MAVER, Uroš, CHAN, Hak-Kim, PLANINŠEK, Odon. Novel budesonide particles for dry powder inhalation (DPI) prepared using a microfluidic reactor coupled with ultrasonic spray freeze drying. Journal of pharmaceutical sciences, ISSN 1520-6017, str. 1-8.
2. MAVER, Tina, KUREČIČ, Manja, SMRKE, Dragica, STANA-KLEINSCHEK, Karin, MAVER, Uroš. Electrospun nanofibrous CMC/PEO as a part of an effective pain relieving wound dressing. Journal of sol-gel science and technology, ISSN 0928-0707, September 2016, vol. 79, iss. 3, str. 475-486.
3. FINŠGAR, Matjaž, PERVA-UZUNALIĆ, Amra, STERGAR, Janja, GRADIŠNIK, Lidija, MAVER, Uroš. Novel chitosan/diclofenac coatings on medical grade stainless steel for hip replacement applications. Scientific reports, ISSN 2045-2322, Published online:24 May 2016, vol. 6, art. no. 26653, str. 1-17.
4. MAVER, Tina, MAVER, Uroš, MOSTEGEL, Florian, GRIEßER, Thomas, SPIRK, Stefan, SMRKE, Dragica, STANA-KLEINSCHEK, Karin. Cellulose based thin films as a platform for drug release studies to mimick wound dressing materials. Cellulose, ISSN 0969-0239, Feb. 2015, vol. 22, iss. 1, str. 749-761.
5. NADRAH, Peter, MAVER, Uroš, JEMEC, Anita, TIŠLER, Tatjana, BELE, Marjan, DRAŽIĆ, Goran, BENČINA, Mojca, PINTAR, Albin, PLANINŠEK, Odon, GABERŠČEK, Miran. Hindered disulfide bonds to regulate release rate of model drug from mesoporous silica. ACS applied materials & interfaces, ISSN 1944-8244. [Print ed.], 2013, vol. 5, issue 9, str. 3908-3915.
6. DOVNIK, Andraž, MUJEZINOVIĆ, Faris, TREIBER, Milena, PEČOVNIK-BALON, Breda, GORENJAK, Maksimiljan, MAVER, Uroš, TAKAČ, Iztok. Seasonal variations of vitamin D concentrations in pregnant women and neonates in Slovenia. European Journal of Obstetrics, Gynecology and Reproductive Biology, ISSN 0301-2115. [Print ed.], 2014, vol. 181, str. 6-9.
7. MAVER, Tina, MAVER, Uroš, STANA-KLEINSCHEK, Karin, SMRKE, Dragica, KREFT, Samo. A review of herbal medicines in wound healing. International journal of dermatology, ISSN 0011-9059. [Print ed.], Article first published online: 24 Mar. 2015, vol. , iss. , str. [1-12].
8. MAVER, Uroš, VELNAR, Tomaž, GABERŠČEK, Miran, PLANINŠEK, Odon, FINŠGAR, Matjaž. Recent progressive use of atomic force microscopy in biomedical applications. TrAC, Trends in analytical chemistry, ISSN 0165-9936, Available online 15 March 2016, vol. , str. 1-4, doi: 10.1016/j.trac.2016.03.014.
9. ORTHABER, Kristjan, PRISTOVNIK, Matevž, SKOK, Kristijan, PERIĆ, Barbara, MAVER, Uroš. Skin cancer and its treatment : novel treatment approaches with emphasis on nanotechnology. Journal of Nanomaterials, ISSN 1687-4129, 2017, vol. 2017, str. 1-20.
10. NARANĐA, Jakob, SUŠEC, Maja, MAVER, Uroš, GRADIŠNIK, Lidija, GORENJAK, Mario, VUKASOVIĆ, Andreja, IVKOVIĆ, Alan, RUPNIK, Marjan, VOGRIN, Matjaž, KRAJNC, Peter. Polyester type polyHIPE scaffolds with an interconnected porous structure for cartilage regeneration. Scientific reports, ISSN 2045-2322, Published online: 24 June 2016, vol. 6, art. no. 28695, str. 1-11.

11. NARANĐA, Jakob, GRADIŠNIK Lidija, GORENJAK Mario, VOGRIN Matjaž, MAVER Uroš, Isolation and characterization of human articular chondrocytes from surgical waste after total knee arthroplasty (TKA), PeerJ, 2017.