2016/2017

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 level	Študijska smer Study field	Letnik Academic year	Semester Semester
EMŠ Splošna medicina General medicine		**2**	**4**

Vrsta predmeta / Course type

Univerzitetna koda predmeta / University course code:

Predavanja Lectures	Seminar Seminar	Sem. vaje Tutorial	Lab. vaje Laboratory work	Teren. vaje Field work	Samost. delo Individ. work	ECTS
2	40		3		45	3

Nosilec predmeta / Lecturer: Izr. prof. dr. Sebastajan Bevc

Jeziki / Languages:	**Predavanja / Lectures:**	Slovenski/Slovene
	Vaje / Tutorial:	Slovenski/Slovene

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

Prerequisits:

Vsebina:

- poglobljen študij izbranih farmakodinamičnih skupin zdravil
- novosti na področju farmakološkega zdravljenja izbranih bolezenskih stanj (kemoterapija raka ...)
- osebna medicina in osebni 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
- farmakoepidemiološki podatki o predpisovanju zdravil in medicinskih pripomočkov v Sloveniji
- raziskovalno delo na področju molekularne farmakologije: aktualno raziskovalno delo, gojenje celičnih kultur oz. celičnih linij,

Content (Syllabus outline):

- detailed study on selected pharmacodynamic groups of drugs
- advances in pharmacological treatment of selected pathological conditions (cancer chemotherapy ...)
- 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
- pharmacoepidemiological data on prescribing drugs and medical devices in Slovenia
- research work in molecular pharmacology: current research projects, growing cell cultures/cell lines, apoptosis, viability,

apoptoza, testi viabilnosti, proliferacije, citotoksičnosti, biokompatibilnosti, znotrajcelične signalne poti • raziskovalno delo na področju farmakogenetike in farmakogenomike • translacijska medicina in farmakologija: prenos laboratorijskih ugotovitev in znanja v klinično prakso, 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 • sodobna farmakoterapija in farmakoterapija prihodnosti (gensko zdravljenje ...)	proliferation, cytotoxicity, biocompatibility, intracellular signaling pathways • research work in pharmacogenetics and pharmacogenomics • translational medicine and pharmacology: implementation of laboratory findings and knowledge into clinical practice, necessity and 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 • up to-date pharmacotherapy and future aspects of pharmacological treatment (gene therapy ...)

Temeljni literatura in viri / Readings:

- Rang HP, Dale M, Ritter JM, Flower RJ, Henderson G. Pharmacology. 7th ed. Churchill Livingstone; 2012. (or the latest edition)
- Katzung BG, Masters SB, Trevor AJ. Basic and clinical pharmacology. 11th ed. New York: McGraw-Hill; 2009. (or the latest edition)
- Goodman LS, Gilman AG, Limbird LE, Hardman JG, Goodman Gilman A. The pharmacological basis of therapeutics. 10th ed. New York: McGraw-Hill; 2001. (or the latest edition)
- Klaassen CD. Casarett & Doull's toxycology: The basic science of poisons. 7th ed. New York: McGraw-Hill; 2008. (or the latest edition)
- Centralna baza zdravil: http://www.cbz.si
- Javna agencija RS za zdravila in medicinske pripomočke: http://www.jazmp.si/
- Evropska agencija za zdravila (EMA): http://www.ema.europa.eu/ema/
- Štrukelj B, Kos J. Biološka zdravila: od gena do učinkovine. 1. izd. Ljubljana: Slovensko farmacevtsko društvo; 2007. (ali kasnejša izdaja)
- Cohen N. Methods in pharmacology and toxicology: Pharmacogenomics and personalized medicine. 1st ed. Totowa: Humana Press; 2008. (or the latest edition)

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 pharmacodynamic 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 pocientu • sledenje novostim na področju farmakologije in toksikologije v relevantnih literaturnih virih Prenesljive/ključne spretnosti in drugi atributi: veščine	Knowledge and understanding: • detailed knowledge on pharmacology of selected pharmacodynamic 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

• spoznati pomen poznavanja farmakoloških lastnosti zdravil za izbiro optimalne posamezniku prilagojene farmakoterapije	• 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 • laboratorijsko raziskovalno delo • problemsko naravnan pouk • samostojno delo	• lectures • seminars • laboratory research work • problem-based learning • individual work

Načini ocenjevanja:	Delež (v %) / Weight (in %)	**Assessment:**
Način (pisni izpit, ustno izpraševanje, naloge, projekt) • domače naloge, aktivno sodelovanje • seminarska naloga • ustni izpit ŠTUDIJSKE OBVEZNOSTI ŠTUDENTOV: • obvezna prisotnost na seminarjih in pri laboratorijskih vajah • domače naloge • 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.	**20 %** **30 %** **50 %**	Type (examination, oral, coursework, project): • homeworks, active cooperation • seminar work • oral examination ACADEMIC OBLIGATIONS OF STUDENTS • obligatory attendance at coursework and laboratory work • homeworks • preparation and presentation of coursework assignment • oral exam REQUIREMENTS FOR ACCESS TO INDIVIDUAL KNOWLEDGE CHECKING Completed laboratory work, homeworks and completed coursework assignment are requirements for access to the oral exam.

Reference nosilca / Lecturer's references:

FERK, Polonca, TERAN, Nataša, GERŠAK, Ksenija. The (TAAAA)n microsatellite polymorphism in the SHBG gene influences serum SHBG levels in women with polycystic ovary syndrome. Hum. reprod. (Oxf.), 2007, letn. 22, št. 4, str. 1031-1036. [COBISS.SI-ID 22198489]

FERK, Polonca, POHAR PERME, Maja, GERŠAK, Ksenija. Insulin gene polymorphism in women with polycystic ovary syndrome. J. int. med. res., 2008, letn. 36, št. 6, str. 1180-1187. [COBISS.SI-ID 25007833]

ČERNE, Jasmina Živa, **FERK, Polonca**, LESKOŠEK, Branimir, GERŠAK, Ksenija. Hormone replacement therapy and some risk factors for breast cancer among Slovenian postmenopausal women. Climacteric (Carnforth), 2011, vol. 14, issue 4, str. 458-463, doi: 10.3109/13697137.2010.541307. [COBISS.SI-ID 28234457]

PAL, Marjetka, LESKOŠEK, Branimir, **FERK, Polonca**. Poraba antihipertenzivnih zdravil v Sloveniji in primerjava z Norveško = Consumption of antihypertensives in Slovenia and comparison with Norway. Zdrav Vestn (Tisk. izd.). [Tiskana izd.], maj 2011, letn. 80, št. 5, str. 386-394, ilustr. http://szd.si/user_files/vsebina/Zdravniski_Vestnik/2011/maj/386-94.pdf. [COBISS.SI-ID 28446937]

ČERNE, Jasmina Živa, **FERK, Polonca**, FRKOVIĆ-GRAZIO, Snježana, LESKOŠEK, Branimir, GERŠAK, Ksenija. Risk factors for HR- and HER2-defined breast cancer in Slovenian postmenopausal women. Climacteric (Carnforth), 2012, vol. 15, issue 1, str. 68-74, doi: 10.3109/13697137.2011.609286. [COBISS.SI-ID 29099993]

SKRGATIC, L., PAVIČIĆ BALDANI, Dinka, ČERNE, Jasmina Živa, **FERK, Polonca**, GERŠAK, Ksenija. CAG repeat polymorphism in androgen receptor gene is not directly associated with polycystic ovary syndrome but influences

serum testosterone levels. J Steroid Biochem Mol Biol. [Print ed.], 2012, vol. 128, issue 3/5, str. 107-112, graf. prikazi, doi: 10.1016/j.jsbmb.2011.11.006. [COBISS.SI-ID 29115865]

PAL, Marjetka, **FERK, Polonca**. Interakcije zdravil z zaviralci angiotenzinske konvertaze = Drug interactions with angiotensin-converting enzyme inhibitors. Acta medico-biotechnica, 2012, vol. 5, no. 1, str. 15-23. http://www.actamedbio.mf.uni-mb.si/article/Interakcije+zdravil+z+zaviralci+angiotenzinske+konvertaze_414. [COBISS.SI-ID 512188728]

FERK, Polonca, LIPNIK-ŠTANGELJ, Metoda. Navodila za vaje iz farmakologije in toksikologije. Spremenjena in dopolnjena izd. Maribor: Medicinska fakulteta, 2010. 41 str., ilustr. ISBN 978-961-6739-12-2. [COBISS.SI-ID 64958721]