

UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Ime predmeta:	Klinična farmakologija
Course title:	Clinical Pharmacology

Študijski program in stopnja Study programme and cycle	Študijska smer Study option	Letnik Year of study	Semester Semester
Splošna medicina, enovit magistrski študijski program		Peti	9.
General medicine, Uniform master's degree study program		Fifth	9th

Vrsta predmeta (obvezni ali izbirni) /
Course type (compulsory or elective)

obvezni
compulsory

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
15	30						45	3
		AV	LV	RV				

Nosilec predmeta / Course coordinator:

izr. prof. dr. Sebastjan Bevc

Jeziki /Languages:

Predavanja / Lectures:

slovenski/slovene

Vaje / Tutorial:

slovenski/slovene

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

Pogoj za opravljanje izpita je tudi opravljen izpit iz Farmakologije s toksikologijo iz 2. letnika.

Prerequisites for enrolling in the course or for performing study obligations:

It is necessary to pass the exam of Pharmacology with toxicology in the 2nd year before entering the examination.

Vsebina (kratek pregled učnega načrta):

- zakon in predpisi v zvezi z zdravili v Sloveniji;
- razvojna pot zdravila in klinične raziskave;
- klinično farmakodinamika in farmakokinetika;
- socialna farmakologija in farmakoekonomika;
- stranski učinki zdravil in interakcije med zdravili;
- racionalna raba antibiotikov;
- zdravila v nosečnosti in med dojenjem;
- farmakoterapija pri otroku in mladostniku;
- posebnosti farmakoterapije v starosti;
- farmakoterapija pri hudih boleznih jeter;
- farmakoterapija pri hudo zmanjšani funkciji jeter in ledvic;
- etika v klinični farmakologiji;

Content (syllabus outline):

- Slovenian law and regulation of drug usage;
- development of drug and clinical research;
- clinical pharmacodynamics and pharmacokinetics;
- social pharmacology and pharmacoeconomics;
- adverse effects of drugs and drug interactions;
- rational use of antibiotics;
- drugs during pregnancy and lactation;
- pharmacotherapy in children and teenagers;
- pharmacotherapy in geriatrics;
- pharmacotherapy in severe liver diseases;
- pharmacotherapy in renal failure
- ethics in pharmacotherapy;
- drug prescription and distribution;

- osnove predpisovanja zdravil, režim hranjenja in izdajanja;
- farmakoterapija arterijske hipertenzije;
- zdravljenje popuščanja srca;
- farmakoterapija bolečine;
- farmakoterapija anksioznosti in depresije;
- preprečevanje bolezni srca in žilja z zdravili;
- farmakoterapija ulkusne in refluksne bolezni;
- farmakoterapija hemostaze in anemij;
- klinični pregled antibiotikov po skupinah;
- farmakoterapija osteoporoze;
- farmakoterapija najpogostejših virusnih infekcij;
- farmakoterapija angine pectoris in miokardnega infarkta;
- farmakoterapija kronične obstruktivne bolezni pljuč;
- antibiotično zdravljenje bakterijskih infekcij na spodnjih dihalih;
- nemedicinska uporaba zdravil in kemijskih učinkovin.

- pharmacotherapy of arterial hypertension;
- management of heart failure;
- pharmacotherapy of pain;
- pharmacotherapy of anxiety and depression;
- prevention of cardiovascular diseases;
- pharmacotherapy of ulcer and reflux diseases;
- pharmacotherapy of coagulation and anemia;
- overview of antibiotic groups;
- pharmacotherapy of osteoporosis;
- pharmacotherapy of viral diseases;
- pharmacotherapy of angina pectoris and myocardial infarction;
- pharmacotherapy of chronic obstructive pulmonary disease;
- antibiotic treatment of lower respiratory tract infections;
- nonmedical use of drugs and chemical substances.

Temeljni literatura in viri / Reading materials:

Temeljna literatura:

- Dipiro JT, et al (eds). Pharmacotherapy, A Pathophysiologic Approach 7th ed. Mc Graw-Hill 2008. (or the latest edition)
- - Rang HP, et al. Pharmacology. 7th ed. Churchill Livingstone; 2012. (or the latest edition)

Dodatna literatura:

- Carruthers SG, et al (eds). Clinical Pharmacology 4th ed. Mc Graw-Hill 2000.
- Bennett PN, Brown MJ (eds). Clinical pharmacology. 10 th ed. Edinburgh: Churchill Livingstone; 2008.
- Francetić I, Vitezić D (eds). Osnove kliničke farmakologije. Zagreb: Medicinska naklada; 2007.
- Brunton LL, et al (eds). The Pharmacological Basis of Therapeutics. 12 th ed. Mc Graw-Hill 2011.
- Zakon o zdravilih. Ur list RS št. 31, 24.3.2006.

Cilji in kompetence:

Poznavanje predpisov farmakoterapije in kliničnega preizkušanja zdravil v Sloveniji. Študentje bodo poznali osnovne principe farmakoterapije najpogostejših bolezni v skladu s principi na izsledkih temelječe farmakoterapije. Znali bodo predpisovati zdravila, skladno s strokovno doktrino in predpisi.

Objectives and competences:

Knowledge of Slovenian regulations on pharmacotherapy and clinical studies with drugs. Students will be able to use principles of pharmacotherapy in most frequent diseases according to evidence-based pharmacotherapy. Students will be able to prescribe drugs in accordance with scientific principles and regulations.

Predvideni študijski rezultati:

Znanje in razumevanje:

Znali bodo uporabljati zdravila pri najpogostejših bolezenskih stanjih v ambulantni in med hospitalizacijo.

Intended learning outcomes:

Knowledge and understanding:

They will be able to use drugs in most frequent diseases among out-patients and during hospitalization. They will understand mechanisms of the drugs and relation between their effectiveness and safety.

Razumeli bodo mehanizme delovanja zdravil in razmerje med njihovo učinkovitostjo in varnostjo. <u>Prenesljive/ključne spretnosti in drugi atributi:</u> Obvladali bodo osnove na izsledkih temelječe farmakoterapije in poznali mednarodne in domače smernice za najpogostejše bolezni.	<u>Transferable/Key skills and other attributes:</u> They will use principles of evidence-based pharmacotherapy and they will know international and Slovene guidelines for the most frequent diseases.
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Metode poučevanja in učenja:

<u>Predavanja:</u> Splošna poglavja z navodili za pripravo seminarjev in individualno delo. <u>Seminarji:</u> Posebna poglavja farmakoterapije v različnih starostnih in življenjskih obdobjih ter ob najpogostejših bolezenskih stanjih. <u>Konzultacije:</u> Priprava seminarjev in drugo. Individualno delo.
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Learning and teaching methods:

Approved seminar Written examination Oral examination REQUIREMENTS FOR ACCESS TO INDIVIDUAL KNOWLEDGE CHECKING: Eligible to enter written examination after completion of seminar. Eligible to enter oral examination after completion of written examination.
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Načini ocenjevanja:	Delež (v %) / Share (in %)	Assessment methods:
Opravljen seminar	25	Approved seminar
Pisni izpit	40	Written examination
Ustni izpit	35	Oral examination
POGOJ ZA PRISTOP K IZPITU: Opravljen seminar je pogoj za pristop k pisnemu izpitu. Opravljen pisni izpit je pogoj za pristop k ustnem izpitu.		REQUIREMENTS FOR ACCESS TO INDIVIDUAL KNOWLEDGE CHECKING: Eligible to enter written examination after completion of seminar. Eligible to enter oral examination after completion of written examination.

Reference nosilca / Course coordinator's references:

BEVC, Sebastjan, EKART, Robert, HOJS, Radovan. Serum creatinine and estimation of kidney function. V: PERKINS, Ivan H. (ur.), CHAPMAN, Catherine M. (ur.). <i>Creatinine : production, diagnostic uses and role in renal disease</i>, (Biochemistry research trends). New York: Nova Science, cop. 2012, str. [151]-160. BEVC, Sebastjan. Aldosteron, zaviralci aldosteronskih receptorjev in kronična ledvična bolezen = Aldosterone, aldosterone receptor blockers and chronic kidney disease. <i>Zdrav Vestn (Tisk. izd.)</i>. [Tiskana izd.], nov. 2011, letn. 80, št. 11, str. 838-844. BEVC, Sebastjan, EKART, Robert. Akutna ledvična okvara povzročena z zdravili = Drug induced acute kidney injury. V: HOJS, Radovan (ur.), KRAJNC, Ivan (ur.), PAHOR, Artur (ur.), SKOK, Pavel (ur.), SKALICKY, Marjan (ur.). 23. srečanje internistov in zdravnikov družinske medicine "Iz prakse za prakso", Maribor, 25. in 26. maj 2012. HOJS, Nina, BEVC, Sebastjan, PEČOVNIK-BALON, Breda, HOJS, Radovan, EKART, Robert. Paricalcitol reduces proteinuria in non-dialysis chronic kidney disease patients. <i>Therap. apher. dial.</i> 2013 (Online), str. 368-372. PURG, Darinka, BEVC, Sebastjan. Akutna okvara ledvic mladega boksarja - pomen uživanja kreatinskih pripravkov, prikaz kliničnega primera = Acute kidney injury in a young boxer - the importance of creatine supplementations, case report. <i>Med. razgl. (Tisk. izd.)</i>. mar. 2013, letn. 52, št. 1, str. 119-125, ilustr. BEVC, Sebastjan, KNEHTL, Maša. Nova antikoagulacijska zdravila pri starostnikih s kronično ledvično boleznijo = Novel anticoagulants in the elderly with chronic kidney disease. V: HOJS, Radovan (ur.), PAHOR, Artur (ur.), SKOK, Pavel (ur.).

[Zbornik predavanj in praktikum], 26. srečanje internistov in zdravnikov družinske medicine Iz prakse za prakso, Maribor, 22. in 23. maj 2015. Maribor: Univerzitetni klinični center. 2015, str. 82-87.

BEVC, Sebastjan, EKART, Robert, HOJS, Radovan. Zdravila in starostnik = Drugs in the elderly. V: HOJS, Radovan (ur.), PAHOR, Artur (ur.), SKOK, Pavel (ur.). [Zbornik predavanj in praktikum], 26. srečanje internistov in zdravnikov družinske medicine Iz prakse za prakso, Maribor, 22. in 23. maj 2015. Maribor: Univerzitetni klinični center. 2015, str. 20-23.

BEVC, Sebastjan. Biološka zdravila v interni medicini = Biologic therapy in internal medicine. V: KRIŽMAN, Igor (ur.). Zbornik predavanj, 29. strokovni sestanek internistov 2017, Ljubljana 13. in 14. oktober 2017. Ljubljana: Združenje internistov SZD. 2017, str. 17-21.

BEVC, Sebastjan, HOJS, Nina, HOJS, Radovan, EKART, Robert, GORENJAK, Maksimiljan, PUKLAVEC, Ludvik. Estimation of glomerular filtration rate in elderly chronic kidney disease patients : comparison of three novel sophisticated equations and simple cystatin C equation. *Therapeutic apheresis and dialysis*, ISSN 1744-9987, Apr. 2017, vol. 21, issue 2, str. 126-132, ilustr.

BEVC, Sebastjan, MOHORKO, Eva, KOLAR, Mitja, BRGLEZ, Polonca, HOLOBAR, Andrej, KNIEPEISS, Daniela, PODBREGAR, Matej, PIKO, Nejc, HOJS, Nina, KNEHTL, Maša, EKART, Robert, HOJS, Radovan. Measurement of breath ammonia for detection of patients with chronic kidney disease. *Clinical nephrology*, ISSN 0301-0430, 2017, vol. 88, suppl. 1, str. S14-S17.

BAKRIS GL, PITT B, WEIR MR, FREEMAN MW, MAYO MR, GARZA D, STASIV Y, ZAWADZKI R, BERMAN L, BUSHINSKY DA; AMETHYST-DN Investigators: Effect of Patiromer on Serum Potassium Level in Patients With Hyperkalemia and Diabetic Kidney Disease: The AMETHYST-DN Randomized Clinical Trial. *JAMA*. 2015 Jul 14; 314(2):151-61.

POTTEL, Hans, DUBOURG, Laurence, SCHAEFFNER, Elke, ERIKSEN, Bjørn Odvar, MELSOM, Toralf, LAMB, Edmund J., RULE, Andrew D., TURNER, Stephen T., GLASSOCK, Richard J., SOUZA, Vandr  a De, SELISTRE, Luciano, GOFFIN, Karolien, PAUWELS, Steven, MARIAT, Christophe, FLAMANT, Martin, BEVC, Sebastjan, DELANAYE, Pierre, EBERT, Natalie. The diagnostic value of rescaled renal biomarkers serum creatinine and serum cystatin C and their relation with measured glomerular filtration rate. *Clinica Chimica Acta*. [Online ed.], 2017, vol. 471, str. 164-170.