OSNOVE FARMAKOLOGIJE

UČNI NAČRT PREDMETA/COURSE SYLLABUS

Predmet:	Osnove farmakologije
Course title:	Fundamentals of Pharmacology
Članica nosilka/UL Member:	UL FKKT

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Biokemija, prva stopnja, univerzitetni	Ni členitve (študijski program)	3. letnik		izbirni

Univerzitetna koda predmeta/University course code:	0088096
Koda učne enote na članici/UL Member course code:	BKSI2

Predavanja /Lectures	Seminar /Seminar	Vaje /Tutorials	Klinične vaje /Clinical tutorials	Druge oblike študija /Other forms of study	Samostojno delo /Individual student work	ECTS
30	30	15 LV			75	5

Nosilec predmeta/Lecturer:	izr. prof. dr. Katarina Černe
Vrsta predmeta/Course type:	izbirni strokovni/elective professional

Jeziki/Languages:	Predavanja/Lectures:	Angleščina, Slovenščina
	Vaje/Tutorial:	Angleščina, Slovenščina

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	Prerequisites:
Študent oz. kandidat mora imeti predmet opredeljen kot študijsko obveznost.	The course has to be assigned to the student.

Vsebina:	Content (Syllabus outline):
Opredelitev farmakologije in njenih področij. 1. Osnovni principi delovanja zdravil (tarče in mehanizmi delovanja). 2. Osnove farmakokinetike – kako zdravila pridejo v organizem, kako prehajajo v različne predelke organizma in na kakšen način se jih organizem znebi. 3. Kako pride do neželenih učinkov zdravil. 4. Osnove toksikologije. Pregled izbranih farmakodinamskih skupin zdravil.	Definition of pharmacology and its fields: 1. Basic principles of drug action (targets and mechanisms of action).. 2. Basics of pharmacokinetics - how the drug comes into the body, how to pass through the different compartments of the organism and the main routs of excretion. 3. How comes to adverse drug reactions. 4. Basics of toxicology. Overview of selected pharmacodynamic drug groups.

Temeljna literatura in viri/Readings:

- Rang HP, Dale MM, Ritter JM, Flower RJ, Henderson G: Rang and Dale's Pharmacology,, Churchill Livingstone Elsevier. Zadnja izdaja.

- Černe K, Ferjan I, Kržan M, Lipnik-Štangelj M, Osredkar D, Rajtar-Osredkar S, Stanovnik L. Izbrana poglavja iz farmakologije. Navodila za vaje s protokoli. Elektronska oblika dostopna na spletni strani Inštituta za farmakologijo in eksperimentalno toksikologijo. Zadnja verzija.

Cilji in kompetence:	**Objectives and competences:**
Cilji: Študent spozna, kako zdravila delujejo na organizem in kako organizem vpliva na zdravila; na kakšen način zdravila spremenijo potek bolezenskih procesov in kako lahko povzročijo neželene učinke. Spoznal bo, kako se preskušajo potencialna nova zdravila. Seznanil se bo tudi z glavnimi skupinami zdravil. Kompetence: Sposobnost pokazati znanje in povezovanje bistvenih dejstev in načel pri razvoju in delovanju zdravil. Sposobnost razumevanja farmakokinetike zdravila in njenega pomena na učinek zdravila. Zmožnost razmišljanja in povezovanja interdisciplinarnih znanj. Sposobnost povezovanja temeljnega znanja različnih področij, kemije, biokemije ter elementov fiziologije.	Objectives: Students learn about how drugs act on the body and how the body affects the drug; how medicines alter the course of disease processes and how they can cause adverse effects. They will learn how to test potential new drugs. Students will become acquainted with major categories of drugs. Competencies: Ability to demonstrate knowledge and integration of the essential facts and principles in the development and mechanisms of actions of medicines. The ability to understand the pharmacokinetics and its relevance to the effect of the drug. The ability of thinking and integration of interdisciplinary knowledge. Ability to connect basic knowledge of different areas of chemistry, biochemistry and elements of physiology.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje Študent osvoji osnove delovanja zdravil: mehanizme delovanja, učinke in farmakokinetične lastnosti predstavnikov posameznih farmakodinamičnih skupin zdravil. Pozna indikacijska področja in kontraindikacije za jemanje posameznih zdravil. Predvideti zna možnost nastanka neželenih učinkov zdravil ter pozna ukrepe pri zastrupitvah z zdravili. Uporaba Študij tega predmeta je podlaga za to, da bo študent razumel dejavnike, ki vplivajo na učinke zdravil in mu bo pomagalo pri povezavi s praktičnimi primeri uporabe zdravil ter pri raziskovanju učinkov zdravila. Razumel bo principe raziskav, ki jih bo uporabljal na različnih strokovnih področjih v povezavi z zdravili /ksenobiotiki Pridobljeno znanje mu bo pomagalo pri interpretaciji in evalvaciji dobljenih rezultatov. Refleksija Štident:pridobi občutek za povezovanje teorije in izkušenj v praksi pri procesu nastajanja zdravil ali pri preučevanju mehanizmov delovanja in učinkov zdravil/ksenobiotikov. Pridobi tudi občutek za kritično vrednotenje med teoretičnimi principi in praktičnim eksperimentalnim delom. Pridobi tudi osnovo za boljše razumevanje vpliva režima doziranja zdravil pri posamezni medikamentozni terapiji. Prenosljive spretnosti Izkušnje pri reševanju problemov. Zbiranje in interpretiranje rezultatov ter njihovo kritično vrednotenje. Uporaba domače in tuje literature. Podajanje poročil o opravljenem delu. Izkušnje s predstavitvijo svojega dela in z uporabo pripomočkov pri tem.	Knowledge and Comprehension Students acquire the basics of drug action: mechanism of action, effects and pharmacokinetic properties of representatives of individual pharmacodynamic drug groups. He knows the areas of indication and contraindications for taking certain medicines. Can foresee the possibility of the occurrence of adverse drug reactions and knows measures in poisoning with drugs. Application Study of this object is the basis for that student will understand the factors that influence the effects of medicines and will help him in connection with practical examples of the use of drugs and study the effects of the medicine. Understand the principles of research, which will be used in various professional fields in conjunction with drugs / xenobiotics acquired knowledge, will help him in the interpretation and evaluation of the results obtained. Analysis Students will acquire a feel for the integration of theory and experience in practice in the process of the emergence of medication or when examining mechanisms of action and effects of drugs / xenobiotics. Get a feel for the critical evaluation of the theoretical principles and practical experimental work. Obtain a basis for better understanding the impact of dosage regimen of medicines in individual drug therapy. Skill-transference Ability Experience in problem solving. Collection and interpretation of results and their critical evaluation. The use of domestic and foreign literature. Expression of reports on the work done. Experience

	with the presentation of their work and the use of the devices in this.

Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja, vaje, seminarji, problemsko naravnan študij.	Lectures, seminars, practical training, problem-based study.

Načini ocenjevanja:	**Delež/Weight**	**Assessment:**
Pisni in ustni izpit.		Written and oral examination.
Ocene od 6-10 (pozitivno) oz. 1-5 (negativno).		Grades 6-10 (positive) and. 1-5 (negative).

Reference nosilca/Lecturer's references:

- JAKIMOVSKA, Marina, **ČERNE, Katarina**, VERDENIK, Ivan, KOBAL, Borut. Circulating serum sVCAM-1 concentration in advanced ovarian cancer patients: correlation with concentration in ascites. Radiology and oncology, ISSN 1318-2099, 2013, vol. , no. , str. 9-15, ilustr., doi: 10.2478/raon-2013-0066. [COBISS.SI-ID 30924505]
- **ČERNE, Katarina**, ERMAN, Andreja, VERANIČ, Peter. Analysis of cytotoxicity of melittin on adherent culture of human endothelial cells reveals advantage of fluorescence microscopy over flow cytometry and haemocytometer assay. Protoplasma, 2013, vol. , iss. , str., ilustr., doi: 10.1007/s
- **ČERNE, Katarina**, KOBAL, Borut. Implications of microvesicle and cell surface protein shedding for biomarker studies, cancerogenesis, and therapeutic target discovery in ovarian cancer. V: IGLIČ, Aleš (ur.). Advances in planar lipid bilayers and liposomes. Vol. 16. Oxford [etc.]: Elsevier: Academic Press, 2012, str. 239-274, ilustr., graf. prikazi, doi: 10.1016/B978-0-12-396534-9.00008-8. [COBISS.SI-ID 30079961] 00709-013-0489-8.