



UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet:	Toksikologija s farmacevtskim zdravljenjem
Course title:	Toxicology of the pharmaceutical treatment

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
BIOMEDICINSKA TEHNOLOGIJA BIOMEDICAL TECHNOLOGY		2	3 ali 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
15	20	-	10	-	105	5

Nosilec predmeta / Lecturer:

doc. dr. Uroš Maver

Sonosilci predmeta / Lecturer:

izr. prof. dr. Sebastjan Bevc

Jeziki /

Predavanja / Lectures:

Slovenščina/Slovene

Languages:

Vaje / Tutorial:

Slovenščina/Slovene

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

Kandidat mora doseči 300 ECTS na predhodnem študiju.

Prerequisites:

Graduate degree 300 ECTS.

Vsebina:

- osnovni principi v toksikologiji
- klasifikacija strupov
- biokemijski mehanizmi toksičnih učinkov
- biotransformacija ksneobiotikov
- toksičnost snovi brez vpliva na organske sisteme
- toksičnost snovi na organske sisteme
- primeri glavnih skupin toksičnih snovi
- antidoti in zdravljenje zastrupitev
- bioanalitika v identifikaciji strupov

Content (Syllabus outline):

- general principles of toxicology
- classification of poisons
- biochemical mechanisms of toxicity
- biotransformation of xenobiotics
- non-organ directed toxicity
- target organ toxicity
- main groups of toxic agents
- antidotes and treatment of poisoning
- bioanalytics in toxic agent identification

Temeljni literatura in viri / Readings:

1. Casarett & Doull's Toxicology, ed. C. D. Klaassen, 8th ed., McGraw-Hill Education, New York, 2013
2. J. Timbrell: Introduction to Toxicology, 3rd ed., CRS Press, 2001

Cilji in kompetence:

- poznavanje glavnih principov toksikologije
- klasifikacija strupov po izvoru in načinu delovanja,
- mehanizmi delovanja strupov na organizem
- toksikoinetika in toksikodinamika
- načini razstrupljanja in antidoti

Objectives and competences:

- knowledge about general principles in toxicology
- classification of toxic agents according to their origin activity
- mechanisms of toxic agent activity on the organism
- toxicokinetic and toxicodynamics
- detoxification principles and antidotes

Predvideni študijski rezultati:

Znanje in razumevanje:

- vzroki in posledice izpostavitve škodljivim snovem za žive organizme

Knowledge and understanding:

- causes and consequences of organism exposure to toxic agents

- antidoti in načini razstrupljanja Prenesljive/ključne spretnosti in drugi atributi: • uporaba pri zdravljenju zastrupitev • opozarjanje bolnikov na možne neželene oz. potencialno toksične učinke različnih snovi, vključno z zdravilnimi učinkovinami	- antidotes and methods of detoxification Transferable/Key Skills and other attributes: • treatment of toxicity • raising awareness in patients regarding possible unwanted and toxic effects of different materials, including medicines
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Metode poučevanja in učenja:**Learning and teaching methods:**

Predavanja, seminarji, vaje	Lectures, tutorial/seminar, practical work
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Načini ocenjevanja:

Delež (v %) /

Weight (in %)

Assessment:

pisni izpit, seminarska naloga (pisna in predstavitev)	60% 40%	written examination, seminars (written and presented)
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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. ORTHABER, Kristijan, 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.
3. VELNAR, Tomaž, **MAVER, Uroš**, GRADIŠNIK, Lidija. Oligodendrogliomas and their molecular markers. International journal of cancer prevention, ISSN 1554-1134, 2016, vol. 9, no. 1, str. 107-117.
4. **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, Jun. 2016, vol. 80, str. 96-111.
5. MAVER, Tina, **MAVER, Uroš**, STANA-KLEINSCHKE, Karin, SMRKE, Dragica, KREFT, Samo. A review of herbal medicines in wound healing. International journal of dermatology, ISSN 0011-9059. [Print ed.], Jul. 2015, vol. 54, iss. 7, str. 740-751.
6. HOJS, Nina, **BEVC, Sebastjan**, PEČOVNIK-BALON, Breda, HOJS, Radovan, EKART, Robert. Paricalcitol reduces proteinuria in non-dialysis chronic kidney disease patients. *Therap. apher. dial.* 2013 (Online), str. 368-372.
7. BAKRIS, George L., PITT, Bertram, WEIR, Matthew R., FREEMAN, Mason W., MAYO, Martha R., GARZA, Dahlia, STASIV, Yuri, ZAWADZKI, Rezi, BERMAN, Lance, BUSHINSKY, David A., **BEVC, Sebastjan** (sodelavec pri raziskavi), ŽURAN, Ivan (sodelavec pri raziskavi), VUJKOVAC, Bojan (sodelavec pri raziskavi), LAINŠČAK, Mitja (sodelavec pri raziskavi), KLANČIČ, Dimitrij (sodelavec pri raziskavi), RUS, Igor (sodelavec pri raziskavi), et al. Effect of patiromer on serum potassium level in patients with hyperkalemia and diabetic kidney disease: the AMETHYST-DN randomized clinical trial. JAMA, 2015, vol. 314, no. 2, str. 151-161, ilustr.
8. **BEVC, Sebastjan**. Aldosteron, zaviralci aldosteronskih receptorjev in kronična ledvična bolezen = Aldosterone, aldosterone receptor blockers and chronic kidney disease. *Zdrav Vestn (Tisk. izd.)*. [Tiskana izd.], nov. 2011, letn. 80, št. 11, str. 838-844.
9. **BEVC, Sebastjan**, EKART, Robert, HOJS, Radovan. Serum creatinine and estimation of kidney function. V: PERKINS, Ivan H. (ur.), CHAPMAN, Catherine M. (ur.). *Creatinine : production, diagnostic uses and role in renal disease*, (Biochemistry research trends). New York: Nova Science, cop. 2012, str. [151]-160.
10. EKART, Robert, **BEVC, Sebastjan**, HOJS, Radovan, HOJS, Nina. Proteinuria and albuminuria during and after paricalcitol treatment in chronic kidney disease patients. *The journal of clinical pharmacology*, 2015 (Online), str. 1-8, ilustr.