UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Predmet:	Osnove ekologije in ekotoksikologije
Course title:	Basic Ecology and Ecotoxicology

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Ekotehnologije, 2. stopnja		1	1
Ecotechnologies, 2nd cycle		1	1

Vrsta predmeta / Course type Izbirni / Elective

Univerzitetna koda predmeta / University course code: EKO2-734

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje work	Druge oblike študija	Samost. delo Individ. work	ECTS
30	**30**			**30**	**210**	**10**

**Navedena porazdelitev ur velja, če je vpisanih vsaj 15 študentov. Drugače se obseg izvedbe kontaktnih ur sorazmerno zmanjša in prenese v samostojno delo. / This distribution of hours is valid if at least 15 students are enrolled. Otherwise the contact hours are linearly reduced and transfered to individual work.*

Nosilec predmeta / Lecturer: Prof. dr. Janez Ščančar

Jeziki / Languages:	**Predavanja / Lectures:**	Slovenščina / English
	Vaje / Tutorial:	

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	**Prerequisits:**
Zaključena 1. stopnja bolonjskega študija naravoslovne ali tehniške smeri z ustreznim osnovnim znanjem biologije in kemije.	Completed Bologna first level of education with adequate knowledge of biology and chemistry.

Vsebina:	**Content (Syllabus outline):**
Namen predmeta je študentom z različnim osnovnim predznanjem podati splošni uvod v ekologijo in ekotoksikologijo, s ciljem pridobitve širšega razumevanja odnosov v ekosistemu in nalog ekotoksikologije. - V prvem delu študent spozna osnovne nivoje biološke hierarhije s poudarkom na ekosistemu. V drugem se seznani z najpomembnejšimi skupinami onesnažil v okolju, med njimi organskimi in anorganskimi kemikalijami, produkti nanotehnologij, strupenimi kovinami, itd. - Spozna poti njihovega kroženja v okolju preko interakcije z živimi organizmi. - Pridobi osnovno znanje o mehanizmih strupenega delovanja različnih tipov ksenobiotikov, spoznal bo	The main goal of this course is to introduce basis of ecology and ecotoxicology to students of different backgrounds in order to allow them to understand the complexity of relations in ecosystem and tasks of ecotoxicology. - For this, in the first part of the course, student will get knowledge on levels of biological organization with emphasis on populations, communities and ecosystems. Different types of ecosystems with their main characteristics will be also presented. - In the second part, the pollution of the ecosystem will be discussed. Here different groups of pollutants will be discussed. - The cycling of pollutants in the environment will be presented for selected types of pollutants

osnove toksikokinetike, biotransformacije in odnosa med odmerkom in učinkom na različnih tipih organizmov.	- Attention will be given to dose-response relationship between pollutants and different groups of organisms

Temeljni literatura in viri / Readings:

M-H. Yu, ***Environmental Toxicology***, CRC Press 2004
J. A Timbrell, ***Principles of Biomedical Toxicology***, Taylor&Francis, 2003
W.G.Landis, R.M.Sofield, M-H. Yu, ***Introduction to Environmental Toxicology***, CRC Press 4th edition, 2011
C.H. Walker; S.P. Hopkin; R.M. Sibly; D.B. Peakall, ***Principles of Ecotoxicology***, Taylor&Francis 2nd edition, 2001
C.J. van Leeuwen; T.G. Vermeire ***Risk Assessment of Chemicals: An Introduction***, Springer 2nd edition, 2007
I. Williams, ***Environmental Chemistry***, Wiley and Sons, 2001
J.R. Freeland; H. Kirk; S. Petersen, ***Molecular Ecology***, Wiley-Blackwell, 2nd edition, 2011

Cilji in kompetence:	**Objectives and competences:**
Splošni cilji in kompetence: Po končanem študiju bo študent poznal in razumel načine ugotavljanja izpostavljenosti škodljivim snovem. Predmetno-specifične kompetence: Predmet pripravi študenta za delo v skupinah, ki sodelujejo pri posegih v okolju in pri pripravi ocene tveganja za okolje.	General Competences and Aims: After finishing of the course, a student will be able to understand methods for measuring and interpretation of effects of pollutants of different kinds (chemicals, products of nanotechnologies, radioactive compounds). Course Specific Competences: A course trains a student how to work in a team of experts from different fields.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Študent osvoji osnovno znanje o ekosistemu in njegovih sestavnih delih, spozna najpogostejše skupine ksenobiotikov, ki se pojavljajo v okolju, ter pridobi osnovno znanje o mehanizmih njihovega škodljivega delovanja. S pomočjo pridobljenega znanja lahko študent oceni stopnjo onesnaženosti okolja ter tveganje za ekosistem in človeka. Z uporabo ustrezne literature s področja predmeta ter sposobnostjo zbiranja in interpretacije podatkov se je študent sposoben vključiti v interdisciplinarno raziskovalno in strokovno delo s področja onesnaženja okolja in ocen tveganj.	The student will get knowledge on structure and function of ecosystems together with the basic understanding on cycling and effects of pollutants in different ecosystems will be provided. Use of knowledge: A student will be qualified to assess a level of environmental pollution on the basis of biological indicators. Reflection: A student will be qualified for a team work on environmental risk assessment. Skills: Using scientific literature and other publications related to environmental pollution and effects. Interpretation of data related to that field.

Metode poučevanja in učenja:	**Learning and teaching methods:**
predavanja seminarji konzultacije	lectures seminar work consultations

Načini ocenjevanja:	Delež (v %) / Weight (in %)	Assessment:
pisni izpit, projekt	50 %	examination, project
ustni izpit	50 %	oral exam

Reference nosilca / Lecturer's references:

NOVOTNIK, Breda, ZULIANI, Tea, ŠČANČAR, Janez, MILAČIČ, Radmila. Content of trace elements and chromium speciation in Neem powder and tea infusions. Journal of trace elements in medicine and biology, ISSN 0946-672X, 2015, vol. 31, str. 98-106, doi: 10.1016/j.jtemb.2015.04.003. [COBISS.SI-ID 28531239]

NOVOTNIK, Breda, ZULIANI, Tea, ŠČANČAR, Janez, MILAČIČ, Radmila. Inhibition of the nitrification process in activated sludge by trivalent and hexavalent chromium, and partitioning of hexavalent chromium between sludge compartments. Chemosphere, ISSN 0045-6535. [Print ed.], 2014, vol. 105, str. 87-94, doi: 10.1016/j.chemosphere.2013.12.096. [COBISS.SI-ID 27432487]

PEETERS, Kelly, ZULIANI, Tea, ŠČANČAR, Janez, MILAČIČ, Radmila. The use of isotopically enriched tin tracers to follow the transformation of organotin compounds in landfill leachate. Water research, ISSN 0043-1354. [Print ed.], 2014, vol. 53, str. 297-309, doi: 10.1016/j.watres.2014.01.034. [COBISS.SI-ID 27462695]

ŠČANČAR, Janez, ZULIANI, Tea, MILAČIČ, Radmila. Study of nickel content in Ni-rich food products in Slovenia. Journal of food composition and analysis, ISSN 0889-1575, 2013, vol. 32, no. 1, str. 83-89, doi: 10.1016/j.jfca.2013.06.011. [COBISS.SI-ID 27095591]

MARTINČIČ, Anže, ČEMAŽAR, Maja, SERŠA, Gregor, KOVAČ, Viljem, MILAČIČ, Radmila, ŠČANČAR, Janez. A novel method for speciation of Pt in human serum incubated with cisplatin, oxaliplatin and carboplatin by conjoint liquid chromatography on monolithic disks with UV and ICP-MS detection. Talanta, ISSN 0039-9140. [Print ed.], 2013, vol. 116, str.141-148, doi: 10.1016/j.talanta.2013.05.016. [COBISS.SI-ID 26734631]