

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet:	MODERNE METODE IN TEHNIKE V BIOKEMIJI
Course Title:	MODERN METHODS AND TECHNIQUES IN BIOCHEMISTRY

Študijski program in stopnja Study Programme and Level	Študijska smer Study Field	Letnik Academic Year	Semester Semester
DR Kemijske znanosti, 3. stopnja	/	1.	1. in 2.
Doctoral programme in Chemical Sciences, 3 rd Cycle	/	1 st	1 st and 2 nd

Vrsta predmeta / Course Type: izbirni/Elective

Univerzitetna koda predmeta / University Course Code: KZ312

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje Work	Druge oblike študija	Samost. delo Individual Work	ECTS
15	30	/	/	60	45	5

Nosilec predmeta / Lecturer: prof. dr. Marko Dolinar /Dr. Marko Dolinar, Full Professor

Jeziki / Languages: Predavanja / Lectures: slovenski / Slovenian
Vaje / Tutorial: slovenski / Slovenian

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

Študent oz. kandidat mora imeti predmet opredeljen kot študijsko obveznost.

Prerequisites:

The course has to be assigned to the student.

Vsebina:

- uvodi v vsebinske sklope (predavanja)
- tehnološke novosti v biokemiji (seminarji)
- uvedba nove metode ali predlog izboljšave ene od metod, ki jih študent uporablja pri svojem raziskovalnem delu (individualno delo in seminar)

Content (Syllabus outline):

- Introductions to subject areas (lectures).
- Technology developments in biochemistry (seminars).
- Suggestion for an introduction of a new method or for improving one of the methods used by the student in his/her research (individual assignment and seminar).

Temeljna literatura in viri / Readings:

Nature Methods, Analytical Biochemistry, BioTechniques in druga znanstvena literatura s področja biokemije in molekularne biologije. Vsebine se menjajo vsako leto. / Nature Methods, Analytical Biochemistry, BioTechniques and other scientific literature in the field of biochemistry and molecular biology. Topics vary from one year to another.

Cilji in kompetence:

Podiplomski študenti se bodo naučili spremljati razvoj novih metod in tehnik v biokemiji, kritično ocenjevati prednosti in slabosti izboljšav in uporabnost novih metod.

Objectives and Competences:

Keeping up-to-date with new methods and techniques in the field of biochemistry and molecular biology. Critically assessing the advantages and shortcomings of the improvements and applicability of new methods.

Predvideni študijski rezultati:Znanje in razumevanje

Principi, na katerih temeljijo izbrane nove metode in tehnike.

Uporaba

Uporabnost novih metod in tehnik za reševanje raziskovalnih in razvojnih problemov, predvsem v povezavi z raziskovalnim doktorskim delom.

Refleksija

Zmožnosti novih visokozmogljivih metod v primerjavi s klasičnimi. Tempo preseganja obstoječih mej raziskovanja živega sveta.

Prenosljive spretnosti

Iskanje virov v literaturi, priprava poglobljenih seminarjev, razpravljanje o strokovnih temah in predstavljanje pred publiko.

Intended Learning Outcomes:Knowledge and Comprehension

Underlying principles for selected new methods and techniques.

Application

Usefulness of new methods and techniques for solving research and development problems, mostly connected to PhD research.

Analysis

Capacity of novel high-throughput methods as compared to classical ones. Pace of overcoming present boundaries in exploring the living world.

Skill-transference Ability

Literature mining, preparation of in-depth seminars, discussions on professional topics and presenting to audience.

Metode poučevanja in učenja:

Uvodi v vsebinske sklope kot predavanja. Večina kontaktnih ur bo v obliki seminarja z obsežnimi razpravami. Veliko dela doma pri pripravi projekta in seminarja. Seminarske teme so vsako leto nove.

Learning and Teaching Methods:

Introductions to subject areas as lectures. Most contact hours in the form of seminar with extended discussions. Extensive homework required for the preparation of the project and seminar. Seminar topics change every year.

Delež (v %) /

Načini ocenjevanja:Weight (in %) **Assessment:**

Seminar	25 %	Seminar
Projekt	75 %	Project

Reference nosilca / Lecturer's references:

ŠKRLJ, Nives, VIDRIH, Zlatko, **DOLINAR, Marko**. A universal approach for promoter strength evaluation supported by the web-based tool PromCal. Analytical Biochemistry, ISSN 0003-2697, 2010, vol. 396, no. 1, str. 83-90.

ČELEŠNIK, Helena Sabina, TANŠEK, Anja, TAHIROVIĆ, Aneja, VIŽINTIN, Angelika, MUSTAR, Jernej, VIDMAR, Vita, **DOLINAR, Marko**. Biosafety of biotechnologically important microalgae : intrinsic suicide switch implementation in cyanobacterium Synechocystis sp. PCC 6803. Biology open. 2016, vol. 5, iss. 4, str. 519-528.

JUTERŠEK, Mojca, **DOLINAR, Marko**. A chimeric vector for dual use in cyanobacteria and Escherichia coli, tested with cystatin, a nonfluorescent reporter protein. PeerJ. 3 Nov 2021, vol. 9, str. 1-25.