Univerza v Mariboru

Fakulteta za naravoslovje
in matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Predmet:	**Citološki praktikum**
Course title:	**Practicum of citology**

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Enovit magistrski študijski program druge stopnje Predmetni učitelj	**/**	**2**	**3**
Five-year master's degree program Subject Teacher	**/**		

Vrsta predmeta / Course type	Obvezni / Obligatory
Univerzitetna koda predmeta / University course code:	

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Lab. vaje Laboratory work	Terenske vaje Field work	Samost. delo Individ. work	ECTS
15			**30**		**45**	**3**

Nosilec predmeta / Lecturer:	Saška Lipovšek

Jeziki / Languages:	**Predavanja / Lectures:**	slovenski / slovene
	Vaje / Tutorial:	slovenski / slovene

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	**Prerequisits:**
Jih ni.	No.

Vsebina:

Razumevanje biologije celice je temeljno za razumevanje drugih področij biologije. Študenti se seznanijo z raziskovalnimi metodami, ki se uporabljajo v moderni biologiji celice. Študenti spoznajo celične strukture, njihove funkcije.
Povzetek vsebin:

- Metode proučevanja celic
- Celični kompartimenti
- Mitoza, mejoza
- Apoptoza, nekroza

Content (Syllabus outline):

Understanding the biology of the cell is fundamental for understanding of other biological sciences. This subject provides an introduction to the basic methods for studying cells. It focuses on different cell structures and their functions.
Abstract of contents:

- Tools of cell biology
- Cell compartiments
- Mitosis, meiosis
- Apoptosis, necrosis

Temeljni literatura in viri / Readings:

Alberts B. s sod. (2014) Molecular biology of the cell, 6th Ed. Garland Science, New York.
Jezernik K., Veranič P., Sterle M. (2012) Celična biologija. Učbenik za študente Medicinske fakultete. DZS, Ljubljana.
Alberts B. s sod. (2009) Essential cell biology. Garland Science, New York.
Karp G. (2013) Cell and Molecular Biology. Concepts and Experiments. John Wiley & Sons, Inc., New York.
Kühnel W. (2003) Color atlas of cytology, histology and microscopic anatomy. Thieme, New York.
Jezernik K., Veranič P., Sterle M. (2012) Celična biologija. Učbenik za študente Medicinske fakultete. DZS, Ljubljana.
Veranič P., Romih R., Pšeničnik M. (2009) Praktični pouk celične biologije. Tehniška založba Slovenije, Ljubljana.

Cilji in kompetence:

Razumevanje metod, ki se uporabljajo v moderni biologiji celice.
Poznavanje struktur in razumevanje osnovnih procesov v celicah.

Objectives and competences:

Understanding of basic methods used in modern cell biological research.
Knowledge of cell structures and understanding of basic cell processes.

Predvideni študijski rezultati:

Znanje in razumevanje:
Študent bo:

- znal samostojno načrtovati laboratorijsko delo in pripraviti material za izvedbo dela;
- pridobil izkušnje in spretnosti, ki so nujno potrebne pri samostojnem laboratorijskem delu;
- razumel kemijske lastnosti makromolekul v celici in na osnovi znanja bo predvideval o strukturnih značilnostih celičnih organelov;
- sposoben uporabiti znanje o strukturnih značilnostih različnih tipov evkariotskih celic in posledično bo pravilno predvideval o njihovih funkcijah;
- na osnovi novega znanja znal ovrednotiti pomen kompleksne povezanosti celic v tkivih;

Intended learning outcomes:

Knowledge and understanding:
Student will be able to:

- plan the laboratory work and the material independently;
- acquire experience and skills that are essential for individual laboratory work;
- understand chemical characteristics of different macromolecules in the cell, consequently he will be able to predict structural characteristics of the cell organelles;
- use the knowledge about structural characteristics of different types of eukaryotic cells, and consequently, he will be able to make important conclusions about their functions;
- evaluate the importance of complex connectivity of different types of cells in the tissue;

Metode poučevanja in učenja:

- Predavanja
- Laboratorijske vaje

Learning and teaching methods:

- Lectures
- Laboratory exercises

Načini ocenjevanja: Delež (v %) / Weight (in %) **Assessment:**

- Kolokvij - Pisni izpit	(30%) (70%)	- Grade in laboratory work (30%) - Written exam (70%)

Reference nosilca / Lecturer's references:

LIPOVŠEK DELAKORDA, Saška, NOVAK, Tone. Autophagy in the fat body cells of the cave cricket *Troglophilus neglectus* Krauss, 1878 (Rhaphidophoridae, Saltatoria) during overwintering. *Protoplasma*, ISSN 0033-183X, 2016, vol. 253, iss. 2, str. 457-466, ilustr., doi: 10.1007/s00709-015-0824-3.

LIPOVŠEK DELAKORDA, Saška, JANŽEKOVIČ, Franc, NOVAK, Tone. Ultrastructure of fat body cells and Malpighian tubule cells in overwintering *Scoliopteryx libatrix* (Noctuoidea). *Protoplasma*, ISSN 0033-183X, 2017, vol. 254, iss. 6, str. 2189-2199, ilustr., doi: 10.1007/s00709-017-1110-3.

LIPOVŠEK DELAKORDA, Saška, LEITINGER, Gerd, NOVAK, Tone, JANŽEKOVIČ, Franc, GORGOŃ, Szymon, KAMIŃSKA, Karolina, ROST-ROSZKOWSKA, Magdalena. Changes in the midgut cells in the European cave spider, *Meta menardi*, during starvation in spring and autumn. *Histochemistry and cell biology*, ISSN 0948-6143, Mar. 2018, vol. 149, iss. 3, str. 245-260, ilustr. https://link.springer.com/article/10.1007%2Fs00418-017-1623-z, doi: 10.1007/s00418-017-1623-z.

LIPOVŠEK DELAKORDA, Saška, LEITINGER, Gerd, NOVAK, Tone, JANŽEKOVIČ, Franc, GORGOŃ, Szymon, KAMIŃSKA, Karolina, ROST-ROSZKOWSKA, Magdalena. Changes in the midgut cells in the European cave spider, *Meta menardi*, during starvation in spring and autumn. *Histochemistry and cell biology*, ISSN 0948-6143, Mar. 2018, vol. 149, iss. 3, str. 245-260, ilustr. https://link.springer.com/article/10.1007%2Fs00418-017-1623-z, doi: 10.1007/s00418-017-1623-z.

SERDINŠEK, Tamara, LIPOVŠEK DELAKORDA, Saška, LEITINGER, Gerd, BUT, Igor, STOŽER, Andraž, DOLENŠEK, Jurij. A novel in situ approach to studying detrusor smooth muscle cells in mice. *Scientific reports*, ISSN 2045-2322, 2020, vol. 10, art. no. 2685, 1-12 str., ilustr. https://www.nature.com/articles/s41598-020-59337-0#citeas, doi: 10.1038/s41598-020-59337-0.