



Univerza v Mariboru
University of Maribor

Medicinska fakulteta
Faculty of Medicine



UČNI NAČRT PREDMETA / SUBJECT SPECIFICATION

Predmet:	Biologija celice
Subject Title:	Cell Biology

Študijski program Study programme	Študijska smer Study field	Letnik Year	Semester Semester
Splošna medicina General medicine - EMŠP		1	1

Univerzitetna koda predmeta / University subject code:

Predavanja Lectures	Seminar Seminar	Sem. vaje Tutorial	Lab. vaje Labor work	Teren. vaje Field work	Samost. delo Individ. work	ECTS
45	30		45		90	7

Nosilec predmeta / Lecturer: Doc. dr. Saša Lipovšek

Jeziki / Languages: Predavanja / Lecture: slovenski / Slovene
Vaje / Tutorial: slovenski / Slovene

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

Prerequisites:

Vsebina:

Razumevanje biologije celice je temeljno za razumevanje drugih področij biologije in medicine. Pri predmetu se študenti seznajajo s sodobnimi raziskovalnimi metodami. Študenti spoznajo kemijsko sestavo celic, značilnosti prokariotskih in evkariotskih celic. Poudarek je na študiju struktur in organelov evkariotskih celic ter njihovih funkcijah.

Kratek povzetek vsebin:

1. Organizacija evkariotske in prokariotske celice; celice kot eksperimentalni modeli
2. Molekularna sestava celic
3. Metode proučevanja celic
4. Celične membrane in transport snovi
Receptorji

Content (Syllabus outline):

Understanding of the cell biology is an area of research that is fundamental to all of the biological and medical sciences. This subject provides an introduction to the methods for studying cells. It focuses on the chemical structure of the cells, main characteristics of the prokaryotic and the eukaryotic cells, especially structures and organelles of the eukaryotic cells and their function.

Short abstract of contents:

1. Organisation of eukaryotic and prokaryotic cell; cells as experimental models
2. The molecular composition of cells
3. Tools of cell biology
4. Cell membranes and membrane transport

5. Ekstracelularni matriks 6. Mitochondriji in mehanizem oksidativne fosforilacije 7. Endoplazemski retikulum in Golgijev aparat 8. Lizosomi in peroksisomi 9. Citoskelet in gibanje celice 10. Jedro, kromatin in kromosomi 11. Celični ciklus, mitotična in mejoza 12. Medcelične komunikacije 13. Apoptotična in nekroza 14. Celice imunskega sistema 15. Maligno transformirane celice 16. Razmnoževanje in razvoj	5. Receptors 6. Extracellular matrix 7. Mitochondria and the mechanism of oxidative phosphorylation 8. Endoplasmic reticulum and Golgi Complex 9. Lysosomes and peroxisomes 10. The cytoskeleton and cell movement 11. The nucleus, chromatin and chromosomes 12. Cell cycle, mitosis and meiosis 13. Cell to cell interaction 14. Apoptosis and necrosis 15. Cells of the immune system 16. Malignant transformation 17. Reproduction and development
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Temeljni literatura in viri / Textbooks:

- Alberts, B., Johnson, A., Lewis, J., Raff, M., Roberts, K., Walter, P., 2004: Molecular Biology of the Cell (5th Ed.). Garland Science, Taylor & Francis Group, New York.
- Becker, M. W., Kleinsmith, L. J., Hardin, J., 2004: The World of the Cell (5th Ed.). The Benjamin/Cummings Publishing Company, San Francisco.
- Cooper, G. M., R. F. Hausman, 2004: The Cell: a molecular approach (3rd Ed.). ASM Press, Washington, D. C.
- Junqueira, L. C. and Carneiro, J., 1996: Histologie - Zytologie, Histologie und mikroskopische Anatomie des Menschen. Springer-Verlag Berlin, Heidelberg.
- Lodish, H., Berk, A., Matsudaira, P., Kaiser, C. A., Krieger, M., Scott, M. P., Zipursky, S. L., Darnell, J., 2004: Molecular Cell Biology (5th Ed.). W. H. Freeman and Company, New York.

Cilji:

- Študenti razumejo strukturo, funkcijo in molekularno organizacijo celice.
- Pridobijo poglobljena znanja na specifičnih področjih biologije celice.

Objectives:

- Students understand the structure, the function and the molecular organisation of the cell.
- Students acquire advanced knowledge in specific fields in cell biology.

Predvideni študijski rezultati:

Znanje in razumevanje:

- Študenti razumejo dosežke s področja biologije celice, ki so nujno potrebni na drugih področjih biologije in medicine.
- Študenti spoznajo nekatera področja medicine, kjer uporabljamo znanja biologije celice.

Intended learning outcomes:

Knowledge and Understanding:

- Students understand achievements in cell biology which is essential for other fields of biology and medicine.
- Students get acquainted with the areas of medicine in which cell biology is applied.

Prenesljive/ključne spretnosti in drugi atributi: • Študenti pridobijo izkušnje in laboratorijske spretnosti, ki so nujno potrebne pri samostojnem laboratorijskem delu. • Znajo uporabljati znanstvene prispevke in zahtevnejšo študijsko literaturo.	Transferable/Key Skills and other attributes: • Students acquire experience and laboratory skills which are essential for an autonomous laboratory work. • They understand articles in scientific journals and advanced text-books.								
Metode poučevanja in učenja:	Learning and teaching methods:								
• Predavanja • Laboratorijske vaje • Seminar	• Lectures • Laboratory excersises • Seminar								
Načini ocenjevanja:	Delež (v %) / Assessment: Weight (in %)								
Način (pisni izpit, ustno izpraševanje, naloge, projekt) Pisni praktični kolokvij Seminar Pisni izpit	<table> <tr> <td></td><td>Type (examination, oral, coursework, project):</td></tr> <tr> <td>30 %</td><td>Written practical examination</td></tr> <tr> <td>10%</td><td>Seminar</td></tr> <tr> <td>60 %</td><td>Written final examination</td></tr> </table>		Type (examination, oral, coursework, project):	30 %	Written practical examination	10%	Seminar	60 %	Written final examination
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