**Study Programme : BSc in Biology**

Degree level: Bachelor degree

**Course Title: Molecular and cellular physiology**

**Professor: Radmila Kovačević**

**Required**

**Number of ECTS: 7**

**Prerequisites:**

**Course Objective:** Students will examine core systems in molecular & cellular physiology & develop an understanding of how they maintain homeostasis.

**Course Outcome:** After successfully completing of this course student should be able to understand basic mechanisms of cell transport, synaptic transmission and sensory transduction, and to use these knowledge in physiology based courses.

**Course Content:**

*Theoretical part*

Cell membrane and transport physiology, ion pumps, exchangers. Membrane excitability and ion channels. Mitochondrial physiology. Synaptic transmission and sensor transduction. Short review of physiology of different cell types: neuron, muscle cells, sensory receptors, metabolic sensor cells, endocrine cells.

*Other*

Computer simulations; assays

**Литература**


1. N. Sperelakis, Cell Physiology Source Book: A Molecular Approach, Academic Press; 2001. (selected chapters)

2. D.J.Aidley, The Physiology of Excitable cells, Cambridge University Press, 2001. (selected chapters)

3. E.R.Kandel, J.H.Schwartz, T.M.Jessel, Principles of Heural Sciences, Prentice-Hall Int. Inc., 2000. (selected chapters)

4. Rosenzweig M.R., Breedlove S.M. Watson N.V. Biological Psychology, Sinauer Association, 2005. (selected chapters)

5. Kovačević R, Kostić T, Andrić S & Zorić S (2005): Opšta fiziologija životinja-skripta, WUS Austria (selected chapters)


| **Total hours:** | | | | |
|---|---|---|---|---|
| Lectures: 3 | Practicals: | Other: : 2 | Student research work: | |

**Methods of instruction:**

lectures, presentations, assays, computer simulations

**Assessment (maximum number of points 100)**

| **Requirements** | **points** | **Final exam** | **points** |
|---|---|---|---|
| Active participation in lectures | up to 4 | Practical exam | |
| Active participation in practicals | up to 20 | Oral exam | up to 46 |
| Test(s) or | | | |
| Pre-exam testing | | | |
| Assays | up to 30 | | |

**Remark:**