

General Information			
Course name	Cell Biophysics	ECTS Credits	5
		Semester	S
Aims			
<ul style="list-style-type: none"> <li>❖ To introduce students to basic principles and mechanisms underlying cell physiology and biophysics in the nervous, cardiovascular, respiratory, endocrine, reproductive, gastrointestinal, and excretory system of human body.</li> <li>❖ <b><u>Emphasis on molecular mechanisms.</u></b> Examples of mammalian diseases used to illustrate key concepts.</li> <li>❖ Lectures and problem based learning approach.</li> </ul>			
Content			
<p><b>Brief outline of the course:</b>            Chemical components of cell.            Cell metabolism and bioenergetics.            Interactions between cells and the extracellular environment.            Cell structure and function.            Cell membrane – function, membrane transport. Role of proteins in membrane transport.            Excitable cells – membrane potential, action potential.            Intercellular and intracellular communication.            Cell organelles and their functions – Compartmentalization and protein transport within cell; intracellular transport of vesicles.            Mitochondria and cell death.            Cell cycle &amp; apoptosis, signaling pathways.</p>			
Assessment Methods and Criteria			
Participation in problem based solution exercises (PBL). Participation at the lectures. Exam.			
<p><b>Grading Scale (in %):</b>            A: 91% - 100%            B: 81% - 90%            C: 71% - 80%            D: 61% - 70%            E: 51% - 60%            F: 0% - 50%</p>			

**Grading System:**

The University recognises the following six degrees for the evaluation of the study results:

- a) A – excellent (excellent results) (numerical value 1)
- b) B – very good (above average results) (1.5)
- c) C – good (average results) (2)
- d) D – satisfactory (acceptable results) (2.5)
- e) E – sufficient (results meet the minimum criteria) (3)
- f) FX – failed (requires further work) (4)

**Bibliography**

- B. Alberts, A. Johnson, J. Lewis, M. Raff, K. Roberts, P. Walter: Molecular Biology of the Cell, Garland Science 2002
- D.U. Silverthorn: Human Physiology – An Integrated Approach, Pearson/Benjamin Cummings 2010
- R.M.J. Cotterill: Biophysics – An Introduction, J.Wiley & Sons,Ltd. 2002
- G. Krauss: Biochemistry of Signal Transduction and Regulation, Wiley/VCH 2003
- M.B. Jackson: Molecular and Cellular Biophysics, Cambridge Univ. Press 2006

