

Biophysics Complex Ph.D. exam

- 1) Biomechanics, transport processes, application of irreversible thermodynamics in life sciences.
- 2) Microfluidics, optical micromanipulation
- 3) Biological forms of energy transduction
- 4) Physics of biomembranes
- 5) Structure and function of biomolecules.
- 6) Transfer of electronic excitation energy and charges (electrons and protons).
- 7) Biophysics of organs and sensory organs.
- 8) Bioelectricity
- 9) Photobiophysics.
- 10) Radiation biophysics and protection against hazardous radiation.
- 11) Modern iconography: microscopy and invasive and non-invasive techniques.

Suggested literature:

Volkenstein M.V.: General Biophysics I. and II., Academic Press, 1983.

Volkenstein M.V.: Molecular Biophysics, Academic Press, 1977.

Volkenstein M.V.: Physics and Biology, Academic Press, 1982.

Sybesma C.: Biophysics, Kluwer, 1989.

Hoppe W., Lohmann W., Marki H. and Zeigler H.: Biophysics, Springer, 1983.

Damask A.C.: Medical Physics I-III., Academic Press, 1978.

Bialek W.: Princeton Lectures on Biophysics, World Scientific, 1992.

Adam G., Lauger P. und Stark G.: Physikalische Chemie und Biophysik, Springer, 1988.

Katz B.: Nerve, Muscle and Synapse, McGraw-Hill, 1966.

Cramer W.A. and Knaff D.B.: Energy Transduction in Biological Membranes, Springer, 1990.

Nicholls D.G. and Ferguson S.J.: Bioenergetics 2., Academic Press, 1992.

Glaser R.: Grundriss der Biomechanik, Akademie-Verlag Berlin, 1989.

Fung Y.C.: Biomechanics, Springer, 1981.

Fung Y.C.: Biodynamics, Springer, 1984.

Nobel P.S.: Introduction to Biophysical Plant Physiology, W.H. Freeman and Co., 1974.

Payne P.A.: Biological and Biomedical Measurement Systems, Pergamon Press, 1991.

Leibovic K.N. (Ed.): Science of Vision, Springer, 1990.

Maróti P. és Laczkó G.: Bevezetés a biofizikába, JATE Press, 1993.

Maróti P. és Tandori J.: Biofizikai példatár, JATE Press, 1996.

Rontó Gy. és Tarján I.: A biofizika alapjai, Medicina, 1991.

Szalay L. és Ringler A.: Biofizika, Tankönyvkiadó, 1986.

Szalay L. és Damjanovich S. (Szerk.): Lumineszcencia a biológiában és az orvostudományban, Akadémiai Kiadó, 1983.