Statistical physics of soft matter and biomolecules (T/A) - SoftMatter

Course	Statistical physics of soft matter and biomolecules (T/A)
Course No.	SoftMatter

Category	Type	Language	Teaching hours	CP	Semester
Elective	Lecture with exercises	English	4+2	8	ST

Requirements:

Preparation: Advanced statistical mechanics

Form of Testing and Examination: Oral examination

Length of Course: 1 semester

Aims of the Course: Understanding the molecular structure and mesoscopic properties of various types of soft matter systems, in particular with regard to their role in living cells.

Contents of the Course:

Colloids, polymers and amphiphiles

Biopolymers and proteins

Membranes

Physics of the cell

Recommended Literature:

J. K. G. Dhont, An Introduction to Dynamics of Colloids (Elsevier, Amsterdam, 1996).

M. Doi and S. F. Edwards, The Theory of Polymer Dynamics (Clarendon Press, Oxford, 1986).

S. A. Safran, Statistical Thermodynamics of Surfaces, Interfaces, and Membranes (Addison-Wesley, Reading, MA, 1994).

G. Gompper, U. B. Kaupp, J. K. G. Dhont, D. Richter, and R. G. Winkler, eds., Physics meets Biology — From Soft Matter to Cell Biology, vol. 19 of Matter and Materials (FZ Jülich, Jülich, 2004).

D. H. Boal, Mechanics of the Cell (Cambridge University Press, Cambridge, 2002).

PDF version of this page.