

Modules:

physics700 **Elective Advanced Lectures**
 physics720 **Applied Physics**
 physics730 **Theoretical Physics**

Course:

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

Course No.:

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).