

**Title of the course:** Bulk and surface interaction between macromolecules and surfactants

Kvvn9569

**Credits:** 2

**Coordinator:** Mészáros, Róbert

**Department:** Department of Physical Chemistry

**Pre-requisites:** Basic knowledge in physical and/or colloid chemistry

**Topics covered by the course:**

*Interaction between neutral polymers and amphiphile molecules*

Description of surfactant self assemblies. Thermodynamic models of polymer/surfactant complexes. The effect of different parameters (such as the surfactant concentration as well as the structure, size and chemistry of macromolecules) on the nature of the polymer/surfactant complexes.

*Interfacial layers of macromolecules and surfactants*

Adsorbed layers formed from the solutions of polymers and surfactants. Surface modification of polymer coated solid surfaces in the presence of surfactant solutions. The interrelation between the structure of interfacial macromolecule/surfactant complexes and the nature of bulk polymer/surfactant aggregates.

**Literature**

*Compulsory:*

Notes on the internet in progress

*Suggested:*

- Goddard, E. D.: Interactions of Surfactants with Polymers and Proteins;, Ananthapadmanabhan, K. P., Eds.; CRC Press: Boca Raton, FL, 1993
- Kwak, J.C.T. Polymer-Surfactant Systems;, Ed.; Surfactant Sci. Ser.; Marcel Dekker: New York, 1998
- K, Holmberg, B. Jönsson, B. Kronberg, Lindman B.: Surfactants and Polymers in Aqueous Solution John Wiley & Sons; 2.ed., 2002
- Hansson, P.; Lindman, B.: "Surfactant-polymer interactions" Curr. Opin. Colloid Interface Sci. 1, 604-613, 1996
- Mészáros R., Varga I., Gilányi T.: Effect of Polymer Molecular Weight on the Polymer/Surfactant Interaction, J. Phys. Chem. B. 2005, 109, 13538-13544