Module P 203: Advanced Methods in the Physical Chemistry of Polymers

Learning objectives:

The students will be introduced to theoretical and practical knowledge of advanced microscopic tools.

Course units and temporal allocation:

Module P 203 ‚Advanced Methods in the Physical Chemistry of Polymers' is comprised of the following course units:

	HPW	Semester
Lecture	2	SS
Laboratory Course	8	SS

This module will be offered by lecturers of Physical Chemistry

Course content:

The ***lecture*** will present new complex experimental techniques, which can be used in the study of soft matter such as Cryo-transmission electron microscopy, scanning electron microscopy, AFM-force spectroscopy, surface force apparatus (SFA), total internal reflection microscopy (TIRM), fluorescence microscopy techniques (e.g. fluorescence correlation spectroscopy), scattering methods (e.g. neutron spin echo techniques (NSE), grazing incidence small angle x-ray scattering (GISAXS)) and x-ray photon correlation spectroscopy (X-PCS).

The associated ***laboratory course*** will be done in the physical chemistry research groups and will introduce to the use of advanced scattering and microscopy equipment.

Entrance requirements:

Participation in P102 (Physical Chemistry of Polymers) is recommended.

Assessment:

An oral (or written) examination on the contents of the lecture after the second semester. This examination will amount to 50 % of the grade. The laboratory course will be evaluated by the average of three independent grades: Practical performance, written report, and a seminar and amount to 50 % of the grade.

Work load:

In addition to the 2 HPW for the lecture 2 hours are planned for individual studies. Accordingly, 4 additional hours are necessary for the preparation of the experiments and the protocol of the 8 HPW laboratory course. Given 15 weeks per semester this adds up to 240 hours. Together with 30 hours for the preparation of the final examination a work load of 270 hours for the whole semester is calculated.

***ECTS Credit Points**:* 9