



F3E5054 Polymer Physics Including Polyelectrolytes I 6.0 credits

Polymerfysik med polyelektrolyter I

This is a translation of the Swedish, legally binding, course syllabus.

If the course is discontinued, students may request to be examined during the following two academic years

Establishment

Course syllabus for F3E5054 valid from Autumn 2016

Grading scale

Education cycle

Third cycle

Specific prerequisites

Basic courses in polymer technology.

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

The students (graduate students) should after finished course be able to understand and apply theories/working methods in the following areas: conformation state, rubber elasticity, polymer solutions, polyelectrolytes, glassy polymers, part crystalline polymers and oriented polymer systems.

Course contents

- Survey of polymer physics
- Chain conformation
- Rubber elasticity
- Polymer solutions and compounds
- Polyelectrolytes: solutions and gels
- Glassy state of polymers
- Part crystalline polymers
- Oriented polymers

These topics are presented in 35 h lectures

Disposition

Schedule (UWG: Gedde; LW: Wågberg; RR: Rånby room; Ljungberg: Ljungberg room; both rooms are at Teknikringen 56)

1. Overview of polymer physics; UWG 24/10, 13–16 (RR)
2. Chain conformation (Homework 1); UWG 25/10, 9–11 (RR)
25/10, 12–15 (RR)
3. Rubber elasticity; UWG 27/10, 13–16 (RR)
4. Polymer solutions, polymer blends, polyelectrolytes 2/11, 13–16 (UWG; RR)
3/11, 13–16 (LW;RR))
5. Polyelectrolytes: Solutions and gels (Homework 2); LW 7/11, 13–16 (RR)
Polyelectrolytes at interfaces; LW 8/11, 13–16 (Ljungberg)
Polyelectrolyte multilayers; LW 10/11. 13–16 (Ljungberg)
6. Glassy polymers; UWG 9/11, 13–16 (RR)
7. Crystalline polymers (Homework 3); UWG 14/11, 9–12 (Ljungberg)
15/11, 9–12 (Ljungberg)

9. Examination not decided

Examination

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

Other requirements for final grade

Written examination (4 credits)

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.