Faculty of Technology and Science
Chemistry

Syllabus

Course Approval
The syllabus was approved by the Faculty Board of Technology and Science on 27 March 2012 , and is valid from the Autumn semester of 2012 at Karlstad University.

Course Code: KEADM0
Physical Chemistry of Macromolecules, 15 ECTS Credits
(Makromolekylers fysikaliska kemi, 15 Swedish credit points)
Degree Level: Master
Progressive Specialisation: A1N (Second cycle, has only first-cycle course/s as entry requirements)

Language of Instruction
Swedish or English

Prerequisites
Chemistry 90 ECTS cr, including completed courses in the 1-60 credit interval, or equivalent. Qualifications in related subjects can be assessed as equivalent.

Major Field of Study
KEA (Chemistry)

Learning Outcomes

The aim of the course is to provide basic knowledge in the physical chemistry of macromolecules. The course also gives students opportunities to develop skills in presenting a completed laboratory project with the help of modern presentation techniques.

Upon completion of the course, students should be able to:
- give an account of basic theories of the physical chemistry of macromolecules,
- use theories to explain macromolecular phenomena,
- estimate physical parametres using the theories of macromolecular systems presented,
- study macromolecular phenomena experimentally in a project,
- give an account of and explain current isues in the physical chemistry of macromolecules,
- use and evaluate science literature in the evaluation of experimental results.

Content and Form of Instruction

The course consists of two components: theory and project. The theory component has a duration of about eight weeks of full-time study, while the project component corresponds to about two weeks of full-time study. The components run parallel and are partly integrated.

Theory
Instruction is in the form of lectures and exercises. Course content is presented in the lectures and in the exercises students are supported in the practical application of the presented theories.

The course deals with the basic theories of the physical chemistry of macromolecules, diluted and concentrated solutions, basic and applied thermodynamics, amorphous and crystalline states, floating crystals, phase transitions and elasticity, polymer surface and interface, survey of current research areas in the physical chemistry of macromolecules and experimental methods. The course requires a high degree of individual study.

Project
Students individually carry out a laboratory component exemplified in the literature and relate it to a relevant literature study. They are introduced to and apply a software technique for presenting a poster. Field trips to companies, research institutes etc can be required and may entail extra costs for students.

Reading List

See separate document.

Examination

The theory component is assessed on the basis of hand-in assignments in the form of essays and calculation assignments. The project component is assessed on the basis a poster and an oral presentation.

Grades

One of the grades Fail (U), Pass (G), or Distinction (VG) is awarded in the examination of the course, alternatively a grade on the scale Fail (U), 3 (Pass), 4 (Pass not without Distinction) 5 (Pass with Distinction). All components must be successfully completed for a Pass grade.

Quality Assurance

Follow-up relating to learning conditions and goal-fulfilment takes place both during and upon completion of the course in order to ensure continuous improvement. Course assessment is based on student views and experiences as reported in written course evaluations and/or group discussions. Students will be informed of the result of the evaluation and of the measures to be taken.

Course Certificate

A course certificate will be provided upon request.

Additional Information

Students who enrolled before 1 July 2007 will complete their studies in accordance with the requirements of the earlier admission. Upon completion students may request degree and course certificates to be issued under the current ordinance if they meet its requirements.

The course KEADM0 cannot be included in the same degree programme as the course KEGCM0.

The local regulations for studies at the Bachelor's and Master's levels at Karlstad University stipulate the obligations and rights of students and staff.

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