Reg No: KEGCM2/20212

Faculty of Health, Science and Technology
Chemistry

Syllabus

Physical Chemistry of Polymers C

Course Code:	KEGCM2
Course Title:	Physical Chemistry of Polymers C *Polymerers fysikaliska kemi C*
Credits:	15
Degree Level:	Undergraduate level
Progressive Specialisation:	First cycle, has at least 60 credits in first-cycle course/s as entry requirements (G2F)

Major Field of Study:
KEA (Chemistry)
KTA (Chemical Engineering)

Course Approval
The syllabus was approved by the Faculty of Health, Science and Technology 2021-01-28, and is valid from the Autumn semester 2021 at Karlstad University.

Prerequisites
Registration on Chemistry 60 ECTS credits, with at least 30 ECTS credits completed, or equivalent.

Learning Outcomes
The aim of the course is for students to acquire basic knowledge of the physical chemistry of macromolecules, including connections to analytical chemistry and biochemistry. The course also gives students opportunities to practice and develop skills in presenting an individual literature project with the help of modern presentation techniques.

Upon completion of the course, students should be able to:
1. give an account of basic theories of the physical chemistry of macromolecules,
2. relate theories to explanations of macromolecular phenomena,

3. study macromolecular phenomena in a project completed within given time limits,
4. independently identify and formulate research questions for a project,
5. give an account of current issues in the physical chemistry of macromolecules,
6. use scientific literature in the evaluation of experimental results, and
7. give an account of and discuss information, problems, and solutions in dialogue with different groups, orally and in writing.

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

Theory
Instruction is in the form of lectures and seminars. The course content is presented in lectures and students are given the opportunity to practice and discuss it in the seminars. The course deals with the basic theories of the physical chemistry of macromolecules, diluted and concentrated solutions, interactions, phase transitions, solubility and ion strength effects, basic and applied thermodynamics, a 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 carry out a project based on studies derived from the scientific literature, complete a literature study, and are introduced to software and technology that can be used to present a so-called poster or other type of graphic presentation. The project is an individual assignment. Field trips to companies, research institutes and so on can be included and may entail extra costs which are paid in part or in full by the students.

Reading List
See separate document.

Examination
The theory component is assessed on the basis of a take-home exam in the form of hand-in essay assignments.
The project component is assessed on the basis of a graphic presentation and an oral presentation.
All examinations are individual.

If students have a decision from Karlstad University entitling them to Targeted Study Support due to a documented disability, the examiner has the right to give such students an adapted examination or to examine them in a different manner.

Grades
One of the grades Fail (U), Pass (G), or Distinction (VG) is awarded in the examination of the course. For Engineering students, one of the grades Fail (U), 3 (Pass), 4 (Pass with some Distinction), or 5 (Pass with Distinction) is awarded in the examination of the course.

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 evaluation is partly based on student views and experiences obtained in accordance with current regulations and partly on other data and documentation. Students will be informed of the result of the evaluation and of any measures to be taken.

Course Certificate
A course certificate will be provided upon request.

Additional information
The course KEGCM2 cannot be included in the same degree programme as the courses KEGCM0, KEADM0, KEGCM1, KEADM1 or KEADM2.

The course KEGCM2 is only offered as a distance course.

Students may be requested to meet the cost of a possible study visit, in full or in part.

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