COURSE DETAIL

POLYMER CHEMISTRY
Country Netherlands
Host Institution Utrecht University
Program(s) Utrecht University
UCEAP Course Level Upper Division
UCEAP Subject Area(s) Chemistry
UCEAP Course Number 140
UCEAP Course Suffix
UCEAP Official Title POLYMER CHEMISTRY
UCEAP Transcript Title POLYMER CHEMISTRY
UCEAP Quarter Units 6.00
UCEAP Semester Units 4.00

Course Description

This course covers the basic tools for polymer synthesis and characterization as well as applications of polymers in various fields. Topics include: Introduction to polymers; Step growth polymerization: linear and non-linear; Chain growth polymerization: (controlled/free) radical and ionic; Polymer solutions/mixing/separation; Physical properties/characterization (GPC, NMR, MALDI-TOF MS, thermal and mechanical properties); Applications of polymers in drug delivery and regenerative medicine; Recycling of polymers and designing polymers for recycling; Practical work on polymer synthesis and characterization. There are 5 pillars of this course are: 1) polymer synthesis; 2) polymer characterization; 3) polymer behavior; 4) applications; 5) recycling and end-of life management of polymers. These pillars provide the tools to understand and design polymers for specific applications, taking into account the desired properties and the end-of-life management of the materials. The course is supplemented by a practical experiment to expose the students to real-case examples. Students are divided into groups, and each group is tasked to polymerize a specific monomer using a specific technique. The second part of the experiment is focused on characterization of the synthesized polymer. The aim of the practical is to further learn through experiment the kinetics of polymerization reactions and the characterization methods. Knowledge on elementary organic chemistry, elementary thermodynamics, elementary physics, elementary reaction kinetics is recommended.

Language(s) of Instruction
English

Host Institution Course Number
SK-B3POCH

Host Institution Course Title
POLYMER CHEMISTRY

Host Institution Course Details
https://osiris-student.uu.nl/onderwijscatalogus/extern/cursus

Host Institution Campus Utrecht University
Host Institution Faculty Faculty of Science
Host Institution Degree
Host Institution Department
Course Last Reviewed 2025-2026

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