

POLYMER SCIENCE AND ENGINEERING (POLY)

POLY 5098. Variable Topics in Polymer Science. (1-3 Credits)

May be repeated for a total of 12 credits

View Classes (<https://catalog.uconn.edu/course-search/?details&code=POLY%205098>)

POLY 5351. Polymer Physics. (3 Credits)

Modern concepts relating to glassy, rubbery and organized states of bulk polymers. Considers rubber elasticity, glass-to-rubber transitions, networks, elements of crystallization, blends and interfacial phenomena.

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POLY 5352. Polymer Properties. (3 Credits)

(Also offered as CHEG 5352.) Interrelationships between solid state structure, dynamics, and mechanical properties of non-crystalline and semi-crystalline polymers. Considers polymer viscoelasticity, diffusion, failure mechanism, and elementary polymer rheology.

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POLY 5367. Polymer Rheology. (3 Credits)

(Also offered as CHEG 5367.) Analysis of the deformation and flow of polymeric materials. Topics include non-Newtonian flow, viscoelastic behavior and melt fracture with application to polymer processing.

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POLY 5380. Polymer Synthesis. (3 Credits)

(Also offered as CHEM 5380.) Chemistry of the formation of high polymers, including kinetics, mechanisms, and stereochemistry of step growth and addition polymerization. Recent advances in polymer synthesis.

Enrollment Requirements: Not open for credit to students who have passed CHEM 5380. (RG5494)

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POLY 5381. Polymer Physical Chemistry. (3 Credits)

(Also offered as CHEM 5381.) A molecular description of the fundamental physico-chemical aspects of polymer solutions and solids. Considers thermodynamics, chain statistics, dynamics, and structure of polymer molecules.

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POLY 5382. Polymer Characterization I. (3 Credits)

(Also offered as CHEM 5382.) Experimental techniques for characterizing polymers on a molecular level, with emphasis on the provision of a working knowledge of instrumental analysis. Experiments include dilute solution viscosity, vapor pressure osmometry, gel permeation chromatography, chemical and spectroscopic analysis.

Enrollment Requirements: Not open for credit to students who have passed CHEM 5382. (RG5495)

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POLY 5384. Polymer Characterization II. (3 Credits)

(Also offered as CHEM 5384.) Experimental techniques for characterizing polymers on a macroscopic scale, with emphasis on provision of a working knowledge of instrumental analysis. Experiments include calorimetry, mechanical analysis, surface characterization, and structure determination.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=POLY%205384>)

POLY 5395. Biopolymers. (3 Credits)

Thermodynamics and kinetics of biopolymers (carbohydrates, proteins, DNA/RNA, lipids/biomembranes). Properties, applications, and connections to current research.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=POLY%205395>)

POLY 5396. Polymer Processing. (3 Credits)

Various polymer processing techniques: extrusion; injection molding; film and sheet processing; blow molding; thermoforming; fiber spinning; processing of thermosets and special polymers.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=POLY%205396>)

POLY 5397. Nanostructural Characterization. (3 Credits)

Various types of scattering techniques (diffraction, small angle scattering, reflectometry) to investigate global structure of polymeric or other soft materials ranging from Å to submicron using different probes (X-ray, neutron, light).

View Classes (<https://catalog.uconn.edu/course-search/?details&code=POLY%205397>)

POLY 6001. Seminar in Polymer Science and Engineering. (1 Credit)

Presentations by invited guest speakers on topics of current interest in various areas of Polymer Science and Engineering.

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