

POLYMER CHEMISTRY

<http://www.rit.edu/cos/chemistry>

PROGRAM OVERVIEW FOR EMPLOYERS

One of only a handful of Bachelor of Science programs of its kind, the Polymer Chemistry program at RIT provides its students with a practical education in polymer synthesis, characterization and application. A strong background in the traditional areas of chemistry (general, analytical, organic, physical and inorganic), supplemented with advanced courses and intensive laboratory experience in polymer science. Students are urged to take chemistry research courses as electives. The program provides the background and important for success in many industrial research areas and for pursuit of graduate education.

Degree(s) Awarded

Bachelor of Science
BS/MS dual degrees (Polymer Chemistry/Chemistry)

Enrollment

Approximately 6 students

Cooperative Education Component

All students have the option (recommended) of participating in quarter(s) of co-op employment any quarter following completion of 1st year courses.

Salary Information (Avg/Range)

Co-op: Insufficient data
*BS: \$37,090 \$28,000 - \$45,000

*Statistics from the Nat'l Assn. Of Colleges & Employers (NACE) for 2009-2010 graduates

Equipment & Facilities

- Synthesis and Instrumentation Labs with polymerization reactors, TGA, DSC, DMA, FTIR, NMR, UV/Vis, GPC, Viscometry, Fluorimetry, and Microscopy capabilities.
- Polymer Chemistry majors can also utilize the extensive equipment provided for general Chemistry majors.

Accreditation

Approved by the Committee on Professional Training of the American Chemical Society.

Student Skills & Capabilities

- In a technician capacity, students are able to perform many general chemistry and analytical chemistry laboratory tasks, with minimal supervision, even after their first year of coursework. They continue to enhance their lab skills in upper level courses to increase their ability to eventually contribute to research initiatives independently.

After second and third years:

- Able to perform many of the traditional tasks conducted by chemists in the laboratory.

During fourth/fifth years most polymer chemistry courses are taken, enabling students to:

- Perform step-growth and addition polymerization using bulk, solution, emulsion and suspension techniques.
- Characterize polymers to investigate chemical structure, molecular weight, thermal stability, morphology, thermo-mechanical and surface properties.

Polymer Chemistry

First and Second Years:

Chemical Safety
General Chemistry I & II (with labs)
Quantitative Analysis I & II (with labs)
Calculus I-III
Liberal Arts Courses (24 cr hr)
Instrumental Analysis (with lab)
Separations Techniques (with lab)
Calculus I-III
Multivariate Calculus
Organic Chemistry I
Preparative Organic Chemistry I and II Labs
Organic III
Systematic ID of Organic Compounds
Cooperative Education (optional; after first year)*

BS/MS: (additional/replacement courses)

Advanced Instrumental Analysis & Lab
Preparative Polymer Chemistry
Biochemistry (graduate level)
Properties of Bulk Materials (graduate level)
Research & Thesis

Course Sequence BS degree

(ACS Certified)

Third and Fourth or Fifth Years*:

Polymer Chemistry specific [mostly in 4th/5th years]:

Introduction to Polymer Technology
Organic Chemistry of Polymers
Synthesis of High Polymers Lab
Chains & Solutions
Properties of Bulk Materials
Characterization of High Polymers lab

Differential Equations
University Physics I-III (with labs)
Chemical Literature
Chemical Thermodynamics (with lab)
Quantum Chemistry (with lab)
Chemical Kinetics (with lab)
Inorganic Chemistry I
Preparative Inorganic Chem Lab
Biochemistry (undergraduate level)
Institute-wide Electives and/or Chemistry Research
Chemistry Electives (2)
Liberal Arts Courses (12 cr hr)
Cooperative Education (optional)*

*For a student electing to participate in co-op, the sequence may vary and/or some courses may need to be taken during a fifth year.

Employers of Polymer Chemistry Co-op and Graduating Students:

Case Western Reserve University, Amgen, Eastman Kodak, Xerox Corporation, Bausch & Lomb, University of Akron, RIT Center for Integrated Manufacturing Studies, RIT Sustainability Institute

Contact Us:

We appreciate your interest in hiring RIT co-op, graduating students or alumni. We will make every effort to make your recruiting endeavor a success. Call our office and ask to speak with Charles Dispenza, the program coordinator who works with the Polymer Chemistry program. For your convenience, you can access information and services through our web site at <http://www.rit.edu/recruit>.

Charles W. Dispenza

Program Coordinator

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