Chemistry

HARTWICK COLLEGE
Know the Facts.

The Hartwick Difference

Hartwick's Department of Chemistry fosters students' intellectual creativity and independence, while developing their fundamental knowledge of modern chemistry. With individual attention from faculty and direct access to state-of-the-art chemical instrumentation, students gain hands-on knowledge of theoretical principles through chemical experimentation and independent research projects. Hartwick chemistry faculty believe strongly that experimental work and research are central to the development of productive scientists. To facilitate such study, modern equipment and instruments are used by all students beginning in their first year and continuing throughout their college careers. Personal attention, research opportunities, and a dedicated faculty provide chemistry, biochemistry, and environmental chemistry majors with excellent preparation for advanced study in the field and for a wide variety of careers.

Three-Year Program

Ready to move faster? Get the full Hartwick chemistry experience in three-quarters the time at three-quarters the cost. Learn more at **www.hartwick.edu/threeyeardegree**.

Major Components

Approved by the American Chemical Society's Committee on Professional Training, Hartwick offers a bachelor of arts in chemistry, a bachelor of science in chemistry, a bachelor of science in biochemistry, and a bachelor of science in environmental chemistry.

The **bachelor of arts in chemistry** offers a broad general education and is recommended for students anticipating careers in areas where chemistry knowledge is useful but not the main focus, such as secondary education, health professions, and law.

The **bachelor of science in chemistry, biochemistry, or environmental chemistry** is recommended for students anticipating pursuing graduate study in chemistry or careers in industrial chemistry. These tracks usually are taken for departmental certification to the American Chemical Society.

www.hartwick.edu/catalog

Course Highlights

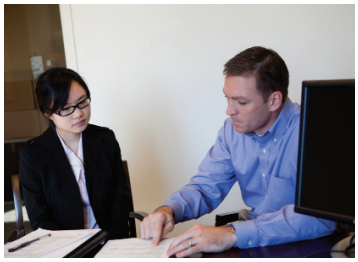
For the full online course catalog and requirements, visit **www.hartwick.edu/catalog**.

All **chemistry-major** tracks provide students with a broad base in chemistry through required courses in analytical, inorganic, organic, and physical chemistries and biochemistry. Courses in mathematics and physics are required, as well. A true composite of biology and chemistry, the **biochemistry major** includes required courses in chemistry, biology, and biochemistry, along with courses in mathematics and physics. Special biochemistry topics include recombinant DNA technology, membrane chemistry and biochemical signaling, and hormone biochemistry. **Environmental chemistry** is interdisciplinary, requiring courses in chemistry, biology, and geology. Topics covered include air and water pollution, hazardous waste disposal and treatment, natural air and water composition, and green chemistry.

SMALL CLASSES

PERSONAL ATTENTION

STUDY ABROAD



NETWORK THROUGH INTERNSHIPS

Find your place.

HARTWICK COLLEGE

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www.hartwick.edu/chemistry

For more information, contact
the Office of Admissions
at 607-431-4150 or
888-HARTWICK (888-427-8942).

For specific inquiries, contact
Dr. Susan Young, Department Chair,
at 607-431-4756 or
youngs@hartwick.edu.

Upper-level courses, including an original research project, enable students to probe more deeply into specific areas. Recent senior thesis research projects by Chemistry and Biochemistry majors include *Changes Between Hormone Levels on a Low-Carbohydrate Diet and a Low-Fat Diet*, *Evaluation of Stationary Phases for GC Identification of Accelerants in Arson Investigations*, and *Synthesis of Vinyl Thiophene Monomer as Potential Precursor of Electrically Conductive Polymer*.

Beyond the Classroom

To promote the development of research skills, students are encouraged to participate as early as possible in ongoing faculty research projects and to design their own projects as their abilities increase. For example, students have worked with faculty on projects that involved developing an inexpensive, portable chromatograph and synthesizing electrically conductive polymers. In addition, opportunities for collaborative research and internships are available in nearby university, hospital, and industrial laboratories. Majors also may take advantage of internships in a variety of career fields that require knowledge of chemistry. Recent chemistry and biochemistry majors have completed internships at Fox Hospital Laboratory, Maine Medical Research Institute, and Bassett Medical Center.

Students have opportunities for hands-on experience with a large suite of state-of-the-art equipment and instrumentation, including spectrometers (FT-NMR, FT-IR, GC-MS, AA, UV-Vis), chromatographs (HPLC, GC, LC, IC), ultracentrifuges, and gel electrophoresis and imaging systems.

Putting Chemistry and Biochemistry to Work

Chemistry, biochemistry, and environmental chemistry majors have a wide range of career options available to them. Bachelor of science majors may opt directly for careers in chemical analysis, pollution control, research and development in manufacturing, and product quality control. Hartwick alumni work for the Department of Environmental Protection, Environmental Protection Agency, Earth Tech Environmental Services, Merck Pharmaceuticals, Roche Pharmaceuticals, Rochester General Hospital, and Johns Hopkins. Many also go on to advanced study in graduate school, which prepares them for a wide range of careers in research, college teaching, and industrial management. Recent graduates have been accepted to the University of Virginia, University of Wisconsin at Madison, Duke University, University of Massachusetts-Amherst, University of Vermont, University of Michigan-Ann Arbor, Cal Tech, University of North Carolina-Chapel Hill, and the medical schools at Johns Hopkins and Harvard universities.

Majors with either the B.S. or B.A. degree may choose such careers as environmental analysis, industrial sales, business administration, geochemistry, secondary-school teaching, art conservation, and political consulting. Many graduates also pursue professional studies in optometry, dentistry, medicine, engineering, and law.

Faculty

Zsuzsanna Balogh-Brunstad, Assistant Professor; Ph.D., Washington State University. Areas of focus: environmental chemistry, the chemical and biological weathering of minerals, microbe-mineral-water interactions, biofilm processes, water quality and contamination, bioremediation, base cation nutrient cycles, and watershed-based hydrochemistry.

Richard Benner, Associate Professor; M.S., Washington State University; Ph.D., University of Denver. Areas of focus: analytical chemistry, development of chemical instrumentation for use in environmental chemistry, forensic chemistry, the petrochemical industry, and the food and flavor industries.

John Dudek, Associate Professor; Ph.D., Princeton University. Areas of focus: environmental chemistry, physical chemistry, molecular spectroscopy, cavity ring-down spectroscopy.

Mark S. Erickson, Associate Professor; Ph.D., Louisiana State University. Areas of focus: organic and green chemistry, and research in organic and organometallic conducting polymers, polycyclic aromatic compounds, and the synthesis of retinoids as anticancer drugs.

Andrew J. Piefer, Assistant Professor; Ph.D., New Mexico State University. Areas of focus: biochemistry and virology, biomolecular interactions (especially related to viral and host cell proteins and nucleic acids), tissue culture techniques, recombinant protein expression and purification, virus assembly and budding.

Susan M. Young, Professor, Ph.D., University of Colorado at Boulder. Areas of focus: inorganic chemistry, research in synthesis and reactivity studies of main-group inorganic compounds, design and use of educational technology.