



Jones Hall

Chemistry

It's an exciting age to be a chemistry major because scientific developments are happening more quickly and on more horizons than ever before. You will find a rewarding career in chemistry if you enjoy solving important problems, are stimulated by nature, enjoy being curious and creative, and seek to help people improve the quality of life.

Employment Opportunities

If you pursue a career as a chemist, you may:

- search for new materials
- continue to fight to cure disease
- find new ways to produce energy without harming the environment
- continue to remove pollution from the air, water and soil
- devise improved methods of food and drug production

You may join the chemistry graduates from Youngstown State University who are finding careers managing and working in industrial and governmental laboratories, teaching at the high school or university level, and working in medical professions. Some of these career opportunities may also require a graduate degree or other professional training, such as pharmacy.

Other professions that have attracted chemistry graduates include patent law and journalism. Over half of all YSU chemistry graduates have gone on to graduate study.

Degree Options

The Department of Chemistry at YSU is organized into six fields of analytical, biochemical, inorganic, organic, and physical chemistry. Several degree and nondegree programs in chemistry are available to you:

- The Bachelor of Science degree with a chemistry or biochemistry major is appropriate if you are planning a career as a professional chemist or are considering

graduate school, professional schools, or medicine. This degree program is certified by the American Chemical Society.

- The Bachelor of Arts degree with a major in chemistry and a premedical option is appropriate if you are planning to enter medical, dental, or veterinary school.
- Nondegree programs including pre-optometry, pre-pharmacy, and pre-podiatry are available if you are planning to enter specialized schools.
- Graduate work leading to an MS degree is available in the areas of analytical, biochemistry, inorganic, organic, and physical chemistries. This degree program includes a strong research component.
- A combined five-year BS/MS program is available if you wish to gain both fundamentals of undergraduate experience and advanced training at the graduate level.
- For the combined BS/MD program, offered in collaboration with the Northeastern Ohio Universities College of Medicine, YSU's Department of Chemistry offers many specialized courses that are open if you are a qualified student in a chemistry program.

Faculty

All faculty members in the Department of Chemistry at YSU hold Ph.D. degrees. Their first concern is providing you — the undergraduate or graduate student — with the highest quality of teaching. The faculty will also provide you with personal advisement on academic and career matters, as well as opportunities for participation in research and other professional activities.

YSU maintains a faculty-student ratio of 1:19, among the best of state-affiliated universities in Ohio.

Facilities

The Department of Chemistry is located in Ward Beecher Hall, which offers lecture halls, laboratories, and a wide range of specialized instructional facilities.

Instruments available for your hands-on use in undergraduate laboratory courses and research include ultraviolet, visible, atomic-absorption, inductively coupled plasma, infrared, and nuclear magnetic resonance spectrometers (including FTIR and FTNMR); fluorometers; X-ray diffractometers; LC and GC-mass spectrometers; gas and liquid chromatographs; voltammetry units; radiation counting equipment; thermal analyzer; and computers for instrument control and data manipulation.

For extensive calculations, you will have access to the University's computers and online access to Cray supercomputer at the Ohio Supercomputer Center. A wide variety of books and journals in chemistry is available at Maag Library and on-line.

Outside the Classroom

As a chemistry major, you will work with faculty on research projects of mutual interest. You may also participate in a laboratory-assistant program in which you assist in teaching laboratory classes, help prepare and operate a lab, and assist in research. In addition to gaining experience in this program, you also earn income.

If you are interested in medicine, you are encouraged to take part in the Philiatric Society, the student undergraduate medical affiliate.

You can also join the student affiliate chapter of the American Chemical Society, which plans a wide variety of social and academic activities.

Curriculum Overview

Coursework leading to a B.S. degree with a major in chemistry:

Core courses

General Chemistry 1, 2
 Recitation for General Chemistry 1, 2
 Calculus 1, 2, 3
 Organic Chemistry 1, 2
 Organic Chemistry Recitation 1, 2
 Quantitative Analysis
 General Physics 1, 2
 Biophysical Chemistry or Physical Chemistry 1, 2
 Inorganic Chemistry
 Biochemistry

Electives

Chemical Instrumentation
 Intermediate Organic Chemistry
 Advanced Organic Lab
 Intermediate Inorganic Chemistry
 Inorganic Lab
 Solid State Structural Methods
 Chemical Bonding and Structure
 Polymer Science 1, 2
 Enzyme Analysis

Coursework leading to a B.A. degree with a major in chemistry:

Core courses

General Chemistry 1, 2
 Recitation for General Chemistry 1, 2
 Calculus 1, 2
 Organic Chemistry 1, 2
 Organic Chemistry Recitation 1, 2
 General Physics 1, 2
 Quantitative Analysis
 Biophysical or Physical Chemistry
 Capstone course

Electives

Inorganic Chemistry 1
 Physical Chemistry 2
 Chemical Toxicology
 Biochemistry 1, 2
 Chemical Instrumentation
 Intermediate Organic Chemistry
 Advanced Organic Lab
 Intermediate Inorganic Chemistry
 Inorganic Lab
 Solid State Structural Methods
 Chemical Bonding and Structure
 Polymer Science 1, 2
 Enzyme Analysis

For more information about this program, go to

<http://www.as.ysu.edu/~chem/>



To obtain the Undergraduate Admissions and Financial Aid Application and/or a copy of the current Undergraduate Bulletin, please contact the Office of Admissions at:

Telephone: (877) 468-6978 330-941-2000 TDD: 330-941-1564 Fax: 330-941-3674 E-mail: enroll@ysu.edu

The Office of Admissions is open Monday and Thursday, 8:00 a.m. to 6:00 p.m., and Tuesday, Wednesday, and Friday, 8 a.m. to 5 p.m. The Office is also open every other Saturday from 9 a.m. to noon, except on holiday weekends and during term breaks