

Everything on this planet is composed of chemicals, some naturally occurring, some of human design. Far from being frightening or mysterious, chemicals have improved our health, our food, our safety, and even our environment. In this degree program, you will master the properties, composition, and structure of matter and the laws that govern the combination of elements and reactions of substances. You'll leave prepared to contribute to improving the environment, advancing chemical knowledge, creating new and improved medicines and materials, and much more.

ADVANTAGE UIS

- **Faculty expertise.** All of our faculty members hold Ph.D.s in their fields of specialization, which include analytical chemistry, biochemistry, organic, inorganic and physical chemistry.
- **We are accredited.** The Department of Chemistry offers a B.S. degree approved by the American Chemical Society's Committee on Professional Training. Many of our graduates take the curriculum leading to certification by the American Chemical Society.
- **Explore.** Chemistry majors conduct an undergraduate research project with a faculty mentor. Areas of interest include green chemistry, nanotechnology, enzymology and molecular biology, environmental chemistry, and natural products.

Wise Words

Emmanuel O. Johnson
Ph.D. student in chemistry
at Purdue University

"I appreciate the fact that the Chemistry Department provided the environment and the opportunity whereby I could unravel my creativity especially through research. Doing undergraduate research at UIS allowed me to apply scientific principles to solve novel problems; this increased my confidence and enabled me to make a better career decision."

R&D. This career path is creating the golden age of chemistry. The population will age, infectious diseases will make a comeback, ecological disasters will occur, and society will demand new research and new products to meet these and other challenges. The U.S. Bureau of Labor Statistics anticipates that job growth will be concentrated in pharmaceutical and medicine manufacturing and in scientific research and development services firms.

Biochemistry concentration. Interested in forensic science or biotechnology? This concentration will place you in courses such as medicinal chemistry, genetics, and biochemical laboratory methods, and prepare you for two of the hottest careers in science. This is also an attractive option for students who plan to attend medical school.

Discovery zone. All of our undergraduate chemistry majors work one-on-one with a faculty member on a research project. You'll develop good lab techniques and reasoning skills, and have the opportunity to present your research at the UIS Science Research Symposium as well as at regional and national meetings. There's no substitute for hands-on.

What can I do with this degree?

You can work in governmental and private laboratories, teach high school chemistry, work as a forensic chemist, R&D chemist, pharmaceutical or instrument company representative, technical writer, or work at a hospital or pharmacy. Many students go on to earn advanced degrees in Chemistry from institutions such as University of Illinois at Urbana-Champaign, Purdue University, and University of Kansas. Some students have enrolled in professional schools including Loyola University School of Medicine and Southern Illinois University School of Dentistry.

Recent employers include:

*Illinois Environmental Protection Agency
Illinois State Police Forensics Laboratory
TMI Analytical Services
Prairie Analytical Systems, Inc.
Tate & Lyle
Archer Daniels Midland Corporation
Continental Cement*

The Chemistry curriculum is designed to prepare students for direct entry into the chemical profession or for further studies in graduate or professional programs. The department is accredited by the American Chemical Society's Committee on Professional Training.

Faculty Harshavardhan Bapat, Keenan E. Dungey, Marc Klingshirn, Yashanad Mhaskar, Gary Trammell

Emeritus faculty William L. Bloemer

Associated faculty Wayne Gade

Degree Requirements

A B.S. degree in chemistry requires 120 semester hours of course work. After completing required general education and program requirements, chemistry majors will have approximately 20 semester hours of general electives that may be taken in any academic program. Some students elect to use these general elective hours to complete a minor in another field of interest. Students wishing to major in chemistry should consult with an academic adviser upon admission to the university to make sure they are taking their required courses in the proper sequence.

Two options are available for the B.S. degree in chemistry — chemistry and chemistry with a biochemistry concentration. The biochemistry concentration may be attractive to students seeking to attend medical school or to find careers in forensic science or biotechnology.

ACS Certification

American Chemical Society certification is optional in both degrees. Students who choose to be certified must take CHE 422 Inorganic Chemistry as a program elective.

Introductory Courses

Capital Scholars Students

CHE 141 Principles of Chemistry	4 Hrs.
CHE 241 Principles of Inorganic Chemistry	4 Hrs.
CHE 367 Fundamental Organic Reactions	3 Hrs.
CHE 368 Experimental Organic Chemistry	1 Hr.
CHE 369 Bio-organic Chemistry	4 Hrs.
Calculus (one year) (MAT 115, 116)	8 Hrs.
Physics (one year) (ASP 201, 202)	8 Hrs.

Transfer Students

General Chemistry I and II	
Organic Chemistry (one year)	
Calculus (one year)	
Physics (one year)	

Students with deficiencies in the introductory courses may enter the program conditionally but will be required to make up the deficiencies during their first year of study. This extra work may mean that some students will require more than four years to complete the B.S. degree.

Intermediate and Advanced Courses

CHE 301 General Seminar or CAP 211 Writing in the Discipline (for Capital Scholars only)	2 Hrs.
CHE 321 Chemical Analysis	3 Hrs.
CHE 322 Laboratory Techniques	1 Hr.
CHE 400 Undergraduate Research	4 Hrs.
CHE 401,402 Physical Chemistry	6 Hrs.
CHE 415 Biochemistry I	4 Hrs.
CHE 421 Instrumental Analysis	4 Hrs.
CHE 441 Integrated Chemistry Laboratory I	1 Hr.
CHE 442 Integrated Chemistry Laboratory II	1 Hr.
Chemistry Electives*	3-10 Hrs.
Total Core	29-37 Hrs.
General Electives	10-18 Hrs.
UIS Requirements	13 Hrs.
Total	60 Hrs.

* Biochemistry Concentration

Students who choose the biochemistry concentration must take 9 credit hours of courses for their electives: 1) CHE 416 Biochemistry II; 2) one advanced biology course from BIO 311 Cell Biology, BIO 345 and 346 General Microbiology with laboratory (both count as one advanced course), or BIO 381 Genetics.

The Minor in Chemistry

To earn a minor in Chemistry, students must complete a minimum of 16 semester hours from the following courses. A minimum of eight hours of upper division course work must be taken at UIS.

Core courses

General chemistry (one year) CHE 141 & CHE 241	
Organic chemistry (CHE 367)	
Laboratory techniques course (CHE 322)	
Total	7-10 Hrs.

Electives

CHE 400 Undergraduate Research	1-4 Hrs.
CHE 480 Special Topics	1-4 Hrs.

Analytical Chemistry

CHE 321 Chemical Analysis	3 Hrs.
CHE 421 Instrumental Analysis	4 Hrs.
CHE 431 Environmental Chemistry	4 Hrs.

Organic and Biochemistry

CHE 369 Bio-Organic Chemistry	4 Hrs.
CHE 415 Biochemistry I	4 Hrs.
CHE 416 Biochemistry II	4 Hrs.
CHE 433 Physiological Chemistry	4 Hrs.

Physical and Inorganic Chemistry

CHE 401 Physical Chemistry I	3 Hrs.
CHE 402 Physical Chemistry II	3 Hrs.
CHE 441 Integrated Laboratory	1 Hr.
CHE 422 Inorganic Chemistry	3 Hrs.

Visit our website for more information on

- Admissions requirements
- Career options
- Financial assistance

To view course descriptions

www.uis.edu/uiscatalog

CONTACT INFORMATION

Chemistry

(217) 206-6589 or che@uis.edu

Website

www.uis.edu/chemistry

Office of Admissions and Records

(217) 206-4847
or Toll free (888) 977-4847
admissions@uis.edu
www.uis.edu/admissions

IMPORTANT — Information effective fall 2009. Subject to change without notice. The information is not to be considered final, nor does it constitute a contract between the student and UIS. See www.uis.edu/uiscatalog for current program requirements.