

College of Arts & Sciences Chemistry

Overview

The chemistry department at Kansas State University is an excellent choice for students who are curious about how the world around us works. Through chemistry, we synthesize compounds that can treat illness, harness solar energy or monitor our environment. Chemistry has allowed us to manufacture durable materials, bio-implants and nanoscale devices. Our quality of life is intimately linked to sensible developments of new materials and to a better understanding of all biological processes.

A degree in chemistry will give you insight into areas that are central to biology, geology, materials science, medicine, environmental science and many branches of engineering. It will give you practical skills through extensive hands-on experience with state-of-the-art equipment and will provide you with a genuinely scientific approach to problem-solving, data analysis and interpretation.

Professional options

Careers

Many of our chemistry graduates continue their studies in such areas as medicine, pharmacology, agriculture, chemical engineering, journalism, law, forensic science and biochemistry. Many graduates decide to continue their education after their first degree, and more than half of our graduates attend medical or graduate school. Students who plan to become high school teachers may choose to earn dual degrees in chemistry and education.

Employers

The chemistry program at K-State has a history of academic excellence, and we continue to produce graduates who are sought after by chemical industries, governmental laboratories and educational institutions.

Points of pride

The chemistry department maintains a weekly seminar program that brings distinguished scientists, including Nobel Laureates, to present seminars on their research and interact informally with our faculty and students. In the past six years, six of our students have received prestigious National Science Foundation Graduate Fellowships.

Academics

Degree options

The chemistry program is the preferred program for students who are preparing for graduate study in chemistry or who want to be employed as chemists. This program leads to a professional degree in chemistry as approved by the American Chemical Society.

The chemical science program serves students who want a strong background in chemistry but who do not require as much specialization as provided by the chemistry program.

Faculty

Our faculty is committed to providing the best possible education for our students. Several of our faculty members have received prestigious teaching awards in recognition of their efforts. In addition to their teaching duties, our professors are extensively involved in research programs that cover all areas of modern chemistry.

Facilities

The Department of Chemistry is located in two adjacent buildings, the Chemistry/Biochemistry Building and the H.H. King Chemical Laboratory. Teaching and research in chemistry are conducted in modern laboratories equipped with state-of-the-art instrumentation, allowing students to gain experience that is crucial to their future careers. Lecture rooms are equipped with the latest teaching technologies for instruction using a variety of media. To further support our students, the department provides a staffed help room dedicated exclusively to undergraduate students in chemistry.

Activities

Clubs

Most of our undergraduate students choose to participate in many different activities arranged by the local section of the American Chemical Society and by Alpha Chi Sigma, a professional fraternity that organizes chemistry magic shows and other outreach programs. Our students also are involved in activities that take place in the local community during National Chemistry Week and the All-University Open House.

Research

We strive to provide all of our undergraduates the opportunity to participate in ongoing research projects, which gives our students tangible advantages when seeking employment or admission to graduate programs. Undergraduates conducting research work closely with K-State professors and internationally known scientists, and can present their work at conferences where there are opportunities for networking and interactions with other scientists.

Financial assistance

Scholarships

The Department of Chemistry at K-State is fortunate to have a substantial number of awards available for undergraduate students. Funds for these scholarships have been made possible by generous contributions from K-State chemistry alumni.

Chemistry majors also have received a number of prestigious national scholarships. For example, the chemistry department has had 16 Goldwater, one Rhodes, one Udall, one Truman, two Phi Kappa Phi and two Fulbright scholars.

Financial aid

The department provides financial assistance to well-qualified students whose primary major is chemistry. Contact the student financial assistance office at 785-532-6420 or finaid@k-state.edu for scholarship information.

Suggested course work

Chemistry program

Chemistry (39–41 hours)

Hrs. Courses

0 CHM 200 Frontiers in Chemistry

Either:

5 CHM 220 Honors Chemistry I
and

5 CHM 250 Honors Chemistry II

or

4 CHM 210 Chemistry I

and

4 CHM 230 Chemistry II

and

4 CHM 371 Chemical Analysis

3 CHM 531 Organic Chemistry I

2 CHM 532 Organic Chemistry Lab

3 CHM 550 Organic Chemistry II

3 CHM 585 Physical Chemistry I

3 CHM 595 Physical Chemistry II

3 CHM 566 Instrumental Methods of Analysis

2 CHM 596 Physical Methods Lab

2 CHM 657 Inorganic Techniques*

3 CHM 711 Inorganic Chemistry I*

3 CHM 712 Inorganic Chemistry II*

2 CHM 599 Senior Thesis Research

Mathematics (12 hours)

Hrs. Courses

4 MATH 220 Analytic Geometry and Calculus I

4 MATH 221 Analytic Geometry and Calculus II

4 MATH 222 Analytic Geometry and
Calculus III

Biochemistry (3 hours)

Hrs. Courses

3 BIOCH 521 General Biochemistry

or

BIOCH 755 Biochemistry I

Physics (10 hours)

Hrs. Courses

5 PHYS 213 Engineering Physics I

5 PHYS 214 Engineering Physics II

*CHM 711 or 712 may be replaced with CHM 752 (Advanced Organic Chemistry, three hours). Alternatively, CHM 711 or 712 may be replaced with BIOCH 755, 756 and 765 (Biochemistry I, Biochemistry I Lab and Biochemistry II, eight hours), in which case, CHM 657 may be taken for one or two hours.

Chemical science program

Chemistry (25–27 hours)

Hrs. Courses

0 CHM 200 Frontiers in Chemistry

3 CHM 531 Organic Chemistry I

2 CHM 532 Organic Chemistry Lab

3 CHM 550 Organic Chemistry II

Choose from the following:

5 CHM 220 Honors Chemistry I

5 CHM 250 Honors Chemistry II

or

4 CHM 210 Chemistry I

and

4 CHM 230 Chemistry II

and

4 CHM 371 Chemical Analysis

Choose from the following:

3 CHM 315 Environmental Science: A
Chemistry Perspective

and

1 CHM 316 Environmental Science: A
Chemistry Perspective Laboratory

or

3 CHM 566 Instrumental Methods of Analysis

and

1-2 CHM 596 Physical Methods Laboratory

Choose from the following:

3 CHM 500 General Physical Chemistry

or

3 CHM 585 Physical Chemistry I

Biochemistry (5 hours)

Hrs. Courses

3 BIOCH 521 General Biochemistry

2 BIOCH 522 General Biochemistry Lab

Mathematics (8 hours)

Hrs. Courses

4 MATH 220 Analytic Geometry and Calculus I

4 MATH 221 Analytic Geometry and Calculus II

Physics (8 hours)

Hrs. Courses

4 PHYS 113 General Physics I

4 PHYS 114 General Physics II

Chemistry minor (18–20 hours)

Hrs. Courses

4 CHM 210 Chemistry I**

4 CHM 230 Chemistry II**

4 CHM 371 Chemical Analysis**

Either:

3 CHM 350 General Organic Chemistry
or

3 CHM 531 Organic Chemistry I

Either:

2 CHM 351 General Organic Chemistry Lab

or

2 CHM 532 Organic Chemistry Lab

Either:

3 CHM 500 General Physical Chemistry

or

3 CHM 585 Physical Chemistry I

or

3 CHM 595 Physical Chemistry II

**CHM 220 (Honors Chemistry I, five hours) and CHM 250 (Honors Chemistry II, five hours) may replace CHM 210, CHM 230 and CHM 371.

For more information about chemistry, contact:

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785-532-6665
chemdept@k-state.edu
k-state.edu/chem

For more information about Kansas State University, contact:

Office of Admissions
Kansas State University
119 Anderson Hall
Manhattan, KS 66506-0102
1-800-432-8270 (toll free) or
785-532-6250
k-state@k-state.edu
k-state.edu/admissions

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