



Chemistry - B.S.

(Traditional Option)

College of
Arts and Sciences

The Department of Chemistry offers the Bachelor of Science degree for students who intend to become professional chemists or do graduate work in chemistry or a closely related discipline. There are two options in the B.S. program: a traditional version covering all the major areas of chemistry, and an option that emphasizes biochemistry. Both degree options are certified by the American Chemical Society.

120 hours (minimum)

Any student earning a Bachelor of Science (BS) degree must complete a minimum of 60 hours in natural, physical, mathematical, and computer science. A complete description of College requirements for a Bachelor of Science degree, including a specific listing of courses applicable to the 60-hour requirement, can be found on page 106 of the 2008-2009 UK Bulletin.

University Studies Program Requirements

- I. Math (completed by Premajor Requirement)
- II. Foreign Language[^] (placement exam recommended) 0-8
- III. Inference–Logic (completed by Premajor Requirement)
- IV. Written Communication 0-4
- VI. Natural Sciences (completed by Premajor Requirements)
- VII. Social Sciences 6
- VIII. Humanities 6
- IX. Cross-Cultural (choose a Humanities course) 3
- X. Electives (choose a Social Science course) 3

USP hours: 18-30

Graduation Writing Requirement

After attaining sophomore status, students must complete a Graduation Writing Requirement course. See "University Writing Requirement" on page 75 of the 2008-2009 UK Bulletin.

Graduation Writing Requirement Hours: 3

College Requirements

- I. Foreign Language (placement exam recommended) 0-6
- II. Disciplinary Requirements
 - a. Natural Science (completed by Major Requirements)
 - b. Social Science (completed by USP Elective Requirement)
 - c. Humanities (completed by USP Cross-Cultural Requirement)
- III. Laboratory or Field Work (completed by Premajor Requirement)
- IV. Electives 6

College Requirement hours: 6-12

Premajor Requirements

- MA 113 Calculus I 4
- MA 114 Calculus II 4
- CHE 105 General College Chemistry I 3
- CHE 107 General College Chemistry II 3
- CHE 111 Laboratory to Accompany General Chemistry I 1
- CHE 113 Laboratory to Accompany General Chemistry II 2

Premajor hours: 17

Major Requirements

Major Core Requirements

- CHE 226 Analytical Chemistry 3
 - CHE 230 Organic Chemistry I 3
 - CHE 231 Organic Chemistry Laboratory I 2
 - CHE 232 Organic Chemistry II 3
 - CHE 410G Inorganic Chemistry 2
 - CHE 412G Inorganic Chemistry Laboratory 2
 - CHE 441G Physical Chemistry Laboratory 2
 - CHE 442G Thermodynamics and Kinetics 3
 - CHE 522 Instrumental Analysis 4
 - CHE 532 Spectrometric Identification of Organic Compounds 2
 - CHE 533 Qualitative Organic Analysis Laboratory 2
 - CHE 547 Principles of Physical Chemistry I 3
 - CHE 550 Biological Chemistry I
or
CHE 552 Biological Chemistry II 3
 - CHE 572 Communication in Chemistry (2 semesters) 2
- Major Core hours:** 36

Other Course Work Required for the Major

From the Major Department:

- Chemistry Major Field Options 6
- Choose six hours from the following: up to six hours of CHE 395, any CHE 500-level course except for those required (CHE 522/532/533/(550 or 552)/572); BCH 401G or BCH 501; and BCH 502.

From the Mathematics Department

- MA 213 Calculus III 4
- MA 322 Matrix Algebra and its Applications 3

From the Physics Department

- PHY 231/232 General University Physics 8
- PHY 241/242 General University Physics Laboratory 2

Other Major hours: 23

Electives

Electives should be selected by the student to lead to the minimum total of 120 hours required for graduation.

Total Minimum Hours Required for Degree 120

[^]Any language may be used to satisfy the USP and College Foreign Language requirements – German is recommended.

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Curriculum for B.S. in Chemistry – Traditional Option

Freshman Year

First Semester	Hours
CHE 105 General College Chemistry I	3
CHE 111 Laboratory to Accompany General Chemistry I	1
ENG 104 Writing: An Accelerated Foundational Course	4
MA 113 Calculus I	4
University Studies	3
Second Semester	
CHE 107 General College Chemistry II	3
CHE 113 Laboratory to Accompany General Chemistry II	2
MA 114 Calculus II	4
University Studies	6

Sophomore Year

First Semester	Hours
CHE 226 Analytical Chemistry	3
CHE 230 Organic Chemistry I	3
MA 213 Calculus III	4
PHY 231 General University Physics	4
PHY 241 General University Physics Laboratory	1
Second Semester	
CHE 231 Organic Chemistry Laboratory I	2
CHE 232 Organic Chemistry II	3
MA 322 Matrix Algebra and Its Applications	3
PHY 232 General University Physics	4
PHY 242 General University Physics Laboratory	1
ENG 2XX Writing Intensive Course	3

Junior Year

First Semester	Hours
CHE 547 Principles of Physical Chemistry I	3
CHE 532 Spectrometric Identification of Organic Compounds	2
Foreign Language I*	4
University Studies	6
Second Semester	
CHE 410G Inorganic Chemistry	2
CHE 441G Physical Chemistry Laboratory	2
CHE 442G Thermodynamics and Kinetics	3
CHE 533 Qualitative Organic Analysis Laboratory	2
CHE 572 Seminar	1
Foreign Language II*	4

Senior Year

First Semester	Hours
CHE 412G Inorganic Chemistry Laboratory	2
CHE 522 Instrumental Analysis	4
CHE 550 Biological Chemistry I or Major Field Option	3
Major Field Option	3
Foreign Language III*	3
Second Semester	
CHE 572 Seminar	1
Foreign Language IV*	3
CHE 552 Biological Chemistry II or Major Field Option	3
Major Field Option	3
Free Electives	6
University Studies	3

*Any foreign language sequence satisfying the College of Arts and Sciences requirement in foreign languages may be taken. German is recommended.

Certification Requirements

The B.S. degree is certified by the American Chemical Society.