

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.

123 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 pages 119-120 of the 2012-2013 *UK Bulletin* at: www.uky.edu/Registrar/bulletinCurrent/a_s.pdf.

UK Core Requirements

See the *UK Core* section of the 2012-2013 *Undergraduate Bulletin* at: www.uky.edu/Registrar/bulletinCurrent/ukc.pdf for the complete UK Core requirements. The courses listed below are (a) recommended by the college, or (b) required courses that also fulfill UK Core areas. Students should work closely with their advisor to complete the UK Core requirements.

I. Intellectual Inquiry in Arts and Creativity

Choose one course from approved list 3

II. Intellectual Inquiry in the Humanities

Choose one course from approved list 3

III. Intellectual Inquiry in the Social Sciences

Choose one course from approved list 3

IV. Intellectual Inquiry in the Natural, Physical, and Mathematical Sciences

CHE 105 General College Chemistry I 4
CHE 111 Laboratory to Accompany General Chemistry I 1

V. Composition and Communication I

CIS/WRD 110 Composition and Communication I 3

VI. Composition and Communication II

CIS/WRD 111 Composition and Communication II 3

VII. Quantitative Foundations

MA 113 Calculus I 4

VIII. Statistical Inferential Reasoning

Choose one course from approved list 3

IX. Community, Culture and Citizenship in the USA

Choose one course from approved list 3

X. Global Dynamics

Choose one course from approved list 3

UK Core Hours **33**

Graduation Writing Requirement

After attaining sophomore status, students must complete a Graduation Writing Requirement course. Please see your academic advisor for courses that meet this requirement.

Graduation Writing Requirement Hours: **3**

College Requirements

I. Foreign Language (*placement exam recommended*) 0-14

II. Disciplinary Requirements

a. Natural Science (*completed by Major Requirements*)

b. Social Science 3

c. Humanities 3

III. Laboratory or Field Work (*completed by Premajor Requirement*)

IV. Electives 6

College Requirement hours: **12-26**

Premajor Requirements

*MA 113 Calculus I 4

MA 114 Calculus II 4

*CHE 105 General College Chemistry I 4

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: **18**

Major Requirements

Major Core Requirements

CHE 226 Analytical Chemistry 3

CHE 230 Organic Chemistry I 3

CHE 231 Organic Chemistry Laboratory I 1

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 Molecules 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 (*two semesters*) 2

Major Core hours: **35**

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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.

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**

Total Minimum Hours

Required for Degree **123**

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

**Course used towards completion of a UK Core Requirement.*

Curriculum for B.S. in Chemistry Traditional Option

Freshman Year

First Semester	Hours
CHE 105 General College Chemistry I	4
CHE 111 Laboratory to Accompany General Chemistry I	1
CIS/WRD 110 Composition and Communication I	3
MA 113 Calculus I	4
UK Core	3
Second Semester	
CHE 107 General College Chemistry II	3
CHE 113 Laboratory to Accompany General Chemistry II	2
MA 114 Calculus II	4
CIS/WRD 111 Composition and Communication II	3
UK Core	3

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	1
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
UK Core	3

Junior Year

First Semester	Hours
CHE 547 Principles of Physical Chemistry I	3
CHE 532 Spectrometric Identification of Organic Molecules	2
Foreign Language I*	4
STA 210 Making Sense of Uncertainty: An Introduction to Statistical Reasoning	3
A&S Humanities/Social Science	3
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 Communication in Chemistry	1
Foreign Language II*	4
A&S Humanities/Social Science	3

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 Communication in Chemistry	1
CHE 552 Biological Chemistry II or Major Field Option	3
UK Core	6

**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.