

# Chemistry - B.S.

(Biochemistry 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.

## 128 hours

Any student earning a Bachelor of Science (BS) degree must complete a minimum of 60 hours in natural, physical, mathematical, and computer science. For a complete description of College requirements for a Bachelor of Science degree, including a specific listing of courses applicable to the 60-hour requirement, see the *Arts and Sciences* section of the 2016-2017 *UK Bulletin*.

### UK Core Requirements

See the *UK Core* section of the 2016-2017 *Undergraduate Bulletin* 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 Composition and Communication Requirement (GCCR)

CHE 372 Communication in Chemistry I ..... 1

CHE 472 Communication in Chemistry II ..... 1

### Graduation Composition and Communication

Requirement hours (GCCR) ..... **2**

### 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

BIO 148 Introductory Biology I ..... 3

†BIO 151 Principles of Biology Laboratory I ..... 2

BIO 152 Principles of Biology II ..... 3

†BIO 153 Principles of Biology Laboratory II ..... 2

**Premajor hours:** ..... **28**

†BIO 155, Laboratory for Introductory Biology I, has replaced BIO 151 and BIO 153 as the premajor BIO lab requirement.

### 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

BIO 304 Principles of Genetics

or

BIO 308 General Microbiology

or

BIO 315 Introduction to Cell Biology ..... 3-4

CHE 372 Communication in Chemistry I ..... 1

CHE 410G Inorganic Chemistry ..... 2

CHE 412 Inorganic Chemistry Laboratory ..... 2

CHE 440G Introductory Physical Chemistry ..... 4

CHE 441 Physical Chemistry Laboratory ..... 2

CHE 454 Biological Chemistry Laboratory ..... 2

CHE 472 Communication in Chemistry II ..... 1

CHE 422 Instrumental Analysis

or

CHE 532/533 Spectrometric Identification of Organic Molecules/Qualitative Organic Analysis Laboratory ..... 4

CHE 550 Biological Chemistry I ..... 3

CHE 552 Biological Chemistry II ..... 3

**Major Core hours:** ..... **37-38**

—CONTINUED—

University of Kentucky is accredited by the Southern Association of Colleges and Schools Commission on Colleges to award associate, baccalaureate, masters, and doctorate degrees. Contact the Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097, call 404-679-4500, or online at [www.sacscoc.org](http://www.sacscoc.org) for questions about the accreditation of University of Kentucky.

# Chemistry (B.S.) – Biochemistry Option • 2

## Other Course Work Required for the Major

### From the Major Department:

Chemistry Major Field Options ..... 4  
Major Field Options must be chosen from the following: CHE 395; or any CHE 500-level course except for those required. CHE 395 is strongly recommended for students having a minimum 3.0 GPA in chemistry courses.

### From the Mathematics Department

MA 213 Calculus III ..... 4

### From the Physics Department

\*PHY 231/232 General University Physics ..... 8

\*PHY 241/242 General University Physics Laboratory ..... 2

**Other Major hours:** ..... **18**

### Electives

Choose electives to lead to the minimum total of 128 hours required for graduation.

### Total Minimum Hours

**Required for Degree** ..... **128**

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

## Curriculum for B.S. in Chemistry Biochemistry Option

### Freshman Year

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

Second Semester	Hours
CHE 107 General College Chemistry II .....	3
CHE 113 Laboratory to Accompany General Chemistry II .....	2
MA 114 Calculus II .....	4
BIO 148 Introductory Biology I .....	3
†BIO 151 Principles of Biology Laboratory I .....	2
CIS/WRD 111 Composition and Communication II .....	3

### Sophomore Year

First Semester	Hours
CHE 230 Organic Chemistry I .....	3
BIO 152 Principles of Biology II .....	3
†BIO 153 Principles of Biology Laboratory II .....	2
MA 213 Calculus III .....	4
PHY 231 General University Physics .....	4
PHY 241 General University Physics Laboratory .....	1

Second Semester	Hours
CHE 231 Organic Chemistry Laboratory I .....	1
CHE 232 Organic Chemistry II .....	3
CHE 226 Analytical Chemistry .....	3
PHY 232 General University Physics .....	4
PHY 242 General University Physics Laboratory .....	1
UK Core .....	3

### Junior Year

First Semester	Hours
*CHE 440G Introductory Physical Chemistry .....	4
CHE 422 Instrumental Analysis .....	4
or	
CHE 532 Spectrometric Identification of Organic Molecules .....	2
CHE 550 Biological Chemistry I .....	3
A&S Humanities/Social Science .....	3
UK Core .....	3
Second Semester	Hours
CHE 410G Inorganic Chemistry .....	2
CHE 454 Biological Chemistry Laboratory .....	2
CHE 533 Qualitative Organic Analysis Laboratory (if CHE 532 taken) .....	2
CHE 552 Biological Chemistry II .....	3
BIO 304 Principles of Genetics	
or	
BIO 308 General Microbiology	
or	
BIO 315 Introduction to Cell Biology .....	3-4
Foreign Language** .....	4

### Senior Year

First Semester	Hours
CHE 412 Inorganic Chemistry Laboratory .....	2
Major Field Option .....	2
CHE 372 Communication in Chemistry I .....	1
A&S Humanities/Social Science .....	3
UK Core .....	3
Foreign Language** .....	4
Second Semester	Hours
CHE 441 Physical Chemistry Laboratory .....	2
Major Field Option .....	2
CHE 472 Communication in Chemistry II .....	1
Foreign Language** .....	3
UK Core .....	3
Elective .....	3

*\*CHE 442G may be substituted for CHE 440G.*

*\*\*Any language may be used to satisfy the College Foreign Language requirements—German is recommended.*

*†BIO 155, Laboratory for Introductory Biology I, has replaced BIO 151 and BIO 153 as the BIO lab requirement.*

### Certification Requirements

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