



# Chemistry - B.S.

(Traditional Option)

College of  
Arts and Sciences

**NOTE: Courses listed in parentheses after the course title are Kentucky Community and Technical College courses that have been approved to fulfill the equivalent UK requirement.**

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 pages 103-104 of the 2007-2008 UK Bulletin.

### University Studies Program Requirements

- I. Math (completed by Premajor Requirement)
- II. Foreign Language<sup>^</sup> (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 72 of the 2007-2008 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 (MA 113 or MT 175) ..... 4
- MA 114 Calculus II (MA 114 or MT 185) ..... 4
- CHE 105 General College Chemistry I (CHE 105) ..... 3
- CHE 107 General College Chemistry II (CHE 107) ..... 3
- CHE 111 Laboratory to Accompany General Chemistry I  
(CHM 105 preferred; or CHE 115 which fulfills CHE 111 and 113) ..... 1
- CHE 113 Laboratory to Accompany General Chemistry II  
(CHM 107 preferred; or CHE 115 which fulfills CHE 111 and 113) ..... 2
- Premajor hours:** ..... 17

### Major Requirements

#### Major Core Requirements

- CHE 226 Analytical Chemistry (CHE 226) ..... 3
- CHE 230 Organic Chemistry I (CHE 230) ..... 3
- CHE 231 Organic Chemistry Laboratory I (CHE 231) ..... 2
- CHE 232 Organic Chemistry II (CHE 232) ..... 3
- CHE 441G Physical Chemistry Laboratory ..... 2
- CHE 442G Thermodynamics and Kinetics ..... 3
- CHE 450G Practical Inorganic Chemistry ..... 4
- 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 (MA 213) ..... 4
- MA 322 Matrix Algebra and its Applications ..... 3

#### From the Physics Department

- PHY 231/232 General University Physics (PHY 231/232) ..... 8
- PHY 241/242 General University Physics Laboratory (PHY 241/242) ..... 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

<sup>^</sup>Any language may be used to satisfy the USP and College Foreign Language requirements – German is recommended.

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

## Curriculum for B.S. in Chemistry – Traditional Option

### Freshman Year

First Semester	Hours
CHE 105 General College Chemistry I (CHE 105) .....	3
CHE 111 Laboratory to Accompany General Chemistry I (CHM 105 preferred; or CHE 115 which fulfills CHE 111 and 113) .....	1
ENG 104 Writing: An Accelerated Foundational Course .....	4
MA 113 Calculus I (MA 113 or MT 175) .....	4
University Studies .....	3
<b>Second Semester</b>	
CHE 107 General College Chemistry II (CHE 107) .....	3
CHE 113 Laboratory to Accompany General Chemistry II (CHM 107 preferred; or CHE 115 which fulfills CHE 111 and 113) .....	2
MA 114 Calculus II (MA 114 or MT 185) .....	4
University Studies .....	6

### Sophomore Year

First Semester	Hours
CHE 226 Analytical Chemistry (CHE 226) .....	3
CHE 230 Organic Chemistry I (CHE 230) .....	3
MA 213 Calculus III (MA 213) .....	4
PHY 231 General University Physics (PHY 231) .....	4
PHY 241 General University Physics Laboratory (PHY 241) .....	1
<b>Second Semester</b>	
CHE 231 Organic Chemistry Laboratory I (CHE 231) .....	2
CHE 232 Organic Chemistry II (CHE 232) .....	3
MA 322 Matrix Algebra and Its Applications .....	3
PHY 231 General University Physics (PHY 231) .....	4
PHY 241 General University Physics Laboratory (PHY 241) .....	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
<b>Second Semester</b>	
CHE 441G Physical Chemistry Laboratory .....	2
CHE 442G Thermodynamics and Kinetics .....	3
CHE 533 Qualitative Organic Analysis Laboratory .....	2
CHE 572 Seminar .....	1
Major Field Option .....	3
Foreign Language II* .....	4

### Senior Year

First Semester	Hours
CHE 450G Practical Inorganic Chemistry .....	4
CHE 522 Instrumental Analysis .....	4
CHE 550 Biological Chemistry I or Major Field Option .....	3
Foreign Language III* .....	3
<b>Second Semester</b>	
CHE 572 Seminar .....	1
Foreign Language IV* .....	3
CHE 552 Biological Chemistry II or 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.