

**B.S. DEGREE  
CURRICULUM IN CHEMISTRY  
2009-11 Catalog**

**Revised  
2/18/10**

Required Courses

**Freshman Year**

<u>Cr.</u>	<u>Fall</u>	<u>Cr.</u>	<u>Spring</u>
4	General Chemistry – Chem 177 <sup>1,2</sup> OR	3	General Chemistry – Chem 178 <sup>1,2</sup>
5	Advanced General Chemistry – Chem 201 <sup>1,2,F</sup>	1	Cutting Edge Chemistry: Research and Career Opportunities – Chem 110X (strongly recommended)
1	General Chemistry Lab – Chem 177N <sup>2,F</sup> or Chem 201L <sup>2,F</sup>	2	Quantitative Analysis – Chem 211
4	Calculus I – Math 165	2	Quantitative Analysis Lab – Chem 211L
3	Freshman Composition – Engl 150	4	Calculus II – Math 166
1/2	Library – Lib 160		Electives
	Electives		

**Sophomore Year**

<u>Cr.</u>	<u>Fall</u>	<u>Cr.</u>	<u>Spring</u>
3	Organic Chemistry – Chem 331	3	Organic Chemistry – Chem 332
2	Organic Lab – Chem 333L <sup>2,F</sup>	2	Organic Lab – Chem 334L <sup>2,S</sup>
4	Calculus III – Math 265	5	Classical Physics II – Phys 222
5	Classical Physics I – Phys 221	3	Engl 250
	Electives		Electives

**Junior Year**

<u>Cr.</u>	<u>Fall</u>	<u>Cr.</u>	<u>Spring</u>
3	Introductory Quantum Mechanics – Chem 324 <sup>F</sup>	3	Chemical Thermodynamics – Chem 325
2	Instrumental Analysis – Chem 316 <sup>F</sup>	3	Physical Chemistry Lab – Chem 322L <sup>2,S</sup>
2	Instrumental Analysis Lab – Chem 316L <sup>F</sup>	2	Inorganic Chemistry (NonMetals) – Chem 301 <sup>S</sup>
4	Foreign Language <sup>3</sup> – first semester of any foreign language accepted	4	Foreign Language <sup>3</sup> – second semester
	Electives	1	Safety in the Chemical Laboratory – Chem 550 (strongly recommended)
			Electives

**Senior Year**

<u>Cr.</u>	<u>Fall</u>	<u>Cr.</u>	<u>Spring</u>
1	Inorganic Lab – Chem 401L <sup>F</sup>	4-6	Advanced Chemistry <sup>4,5</sup>
3	Inorganic Chemistry (Metals) – Chem 402 <sup>F</sup>		BBMB 301 (strongly recommended)
3	Technical Communication – Engl 314		Chem 399 (strongly recommended)
	Electives		Electives

<sup>1</sup> Advanced high school chemistry and strong algebra skills are necessary for success in Chem 201. Math ACT of 24 or greater is strongly recommended.

<sup>2</sup> Students may substitute the following courses, if necessary.  
Chem 201 for 177 AND 178; Chem 177L for 177N or 201L;  
Chem 331L and 332L for 333L and 334L; however, this substitution may result in a program which is deficient in the laboratory experience recommended by the American Chemical Society.  
Chem 321L for 322L; however, this substitution may result in a program which is deficient in the laboratory experience recommended by the American Chemical Society.

<sup>3</sup> Completion of three years of a foreign language in high school fulfills this requirement.

<sup>4</sup> The completion of two courses (minimum of 2 credits each) are required to meet this requirement. [In addition to advanced Chemistry courses, certain courses in Biochemistry-Biophysics, Chemical Engineering, Computer Science, Mathematics and Materials Science and Engineering are acceptable.] Up to four credits in undergraduate research (Chem 399 and/or 499) can be counted as one of the two advanced chemistry courses. Chem 550 may not be used to satisfy the Advanced Chemistry requirement.

<sup>5</sup> The program as listed above meets the standards for a certified degree of the American Chemical Society's Committee on Professional Training if BBMB 301 or 404 is one of the Advanced Chemistry Courses.

<sup>F</sup> Class offered Fall Semester only.

<sup>S</sup> Class offered Spring Semester only.

(over)

Electives in Required Categories

Group I. Arts and Humanities:\* ..... minimum credits: 12

Group III. Social Sciences:\* ..... minimum credits: 9

\*Lists of approved courses are available from advisers or the Office of the Dean. Required electives include four courses from Group I (Arts and Humanities) and three courses from two different departments in Group III (Social Sciences).

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To fulfill the 120 total credits required for graduation, the program outlined above consists of:

- 84.5-87.5 in required courses: Chemistry 45-48 cr; English 150, 250; Library 160; Math and Physics 22 cr; English 314; Foreign Language 8 cr
- 12 in Group I electives
- 9 in Group III electives
- 11.5-14.5 in freely selected electives

The LAS minimum requirements in Group II (Mathematical Disciplines and Natural Sciences) are more than met by the required courses in these groups listed on the first page.

Students must take 3 credits to fulfill the U.S. Diversity requirement and 3 credits to fulfill the International Perspective requirement; these are university-required courses. These courses may also be used to meet Group Requirements.

The College of Liberal Arts and Sciences requires that all students demonstrate writing proficiency in English prior to graduation. An average grade of C or better in English 150, 250 and 314 or a grade of C- or better in each of English 150, 250 and 314 satisfies this requirement.

A minimum of 45 credits in courses numbered 300 or higher is required by the LAS College. The required courses listed on page 1 contain 37 credits in courses numbered 300 or higher (assuming 5 credits of advanced chemistry). The remaining 8 credits required in courses numbered 300 or higher must be taken in electives.

**To fulfill the requirements for graduation in the College of Liberal Arts and Sciences a major must attain at least 8 credits in chemistry courses taken at Iowa State University that are numbered 300 above and in which the student’s grade is C or higher.**

**In addition, the average grade in all courses listed under major on the degree audit must be 2.00 or higher.**