

Freshman YearCr. Fall

- 4 General Chemistry - Chem 177² OR
 5 Advanced General Chemistry - Chem 201^{1,2,F}
 1 General Chemistry Laboratory - Chem 177N^{2,F} or
 201L^{2,F}
 1 Orientation to the Chemistry Learning -
 Chem 101A³
 4 Calculus I – Math 165
 3 Freshman Composition – Engl 150
 1 Library – Lib 160
 Electives

Cr. Spring

- 3 General Chemistry – Chem 178²
 2 Quantitative & Environmental Analysis
 – Chem 211
 2 Quantitative & Environmental Analysis Analysis
 Lab – Chem 211L
 1 Orientation to the Chemistry Learning Community
 –Chem 101B³
 4 Calculus II – Math 166
 Electives

Sophomore YearCr. Fall

- 3 Organic Chemistry – Chem 331 for majors
 2 Organic Chemistry Lab – Chem 333L^{2,F}
 1 Cutting Edge Chemistry: Research and
 Career Opportunities – Chem 110^F
 (strongly recommended)
 4 Calculus III – Math 265
 5 Classical Physics I – Phys 221
 Electives

Cr. Spring

- 3 Organic Chemistry – Chem 332 for majors
 2 Organic Chemistry Lab – Chem 334L^{2,S}
 5 Classical Physics II – Phys 222
 3 Engl 250
 Electives

Junior YearCr. Fall

- 3 Chemical Thermodynamics – Chem 325 OR
 Introductory Quantum Mechanics – Chem 324
 2 Instrumental Methods of Chemical Analysis –
 Chem 316^F
 2 Instrumental Analysis Lab – Chem 316L^F
 4 Foreign Language⁴ – first semester of any
 foreign language accepted
 Electives

Cr. Spring

- 3 Introductory Quantum Mechanics – Chem 324 OR
 Chemical Thermodynamics – Chem 325
 3 Physical Chemistry Lab – Chem 322L^S
 2 Inorganic Chemistry – Chem 301^S
 4 Foreign Language⁴ – second semester
 1 Safety in the Chemical Laboratory – Chem 550^S
 (strongly recommended)
 Electives

Senior YearCr. Fall

- 3 Inorganic Chemistry (Metals) – Chem 402^F
 3 Technical Communication – Engl 314
 Electives

Cr. Spring

- 1 Inorganic Lab – Chem 401L^S
 4-6 Advanced Chemistry^{5,6}
 Survey of Biochemistry - BBMB 301
 (strongly recommended)
 3+ Chem 399 (strongly recommended)

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

² 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;

³ Required of Chemistry Learning Community Members.

⁴ Completion of three years of a foreign language in high school fulfills this requirement.

⁵ The completion of two courses (minimum of 2 credits each) are required to meet this requirement. In addition to advanced Chemistry courses, specific courses in Biochemistry-Biophysics, Chemical Engineering, Computer Science, Mathematics and Materials Science

and Engineering are acceptable. Up to four credits in undergraduate research (Chem 399/499/490) can be counted as one of the two advanced chemistry courses. Chem 550 and 555 may not be used to satisfy the Advanced Chemistry requirement.

⁶The program as listed above meets the standards for a certified degree of the American Chemical Society's Committee on Professional Training if BBMB 301, 316, or 404 is one of the Advanced Chemistry Courses.

^fClass offered Fall Semester only.

⁵Class offered Spring Semester only.

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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All students who complete the requirements for a B.S. in chemistry AND who take biochemistry 301, 316, or 404 and 405 will also earn an American Chemical Society (ACS) Certified Degree.

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

85-88	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
11-14	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.