

Examples of Four-Year Plans for Chemistry Majors at Lewis & Clark

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1. Standard plans:

(a) Early start in Science

Year	Fall Semester	Spring Semester
1	General Chemistry I (CHEM 110) ¹ Calculus I (MATH 131) Words or Numbers (CORE 120 or 121) Elective	General Chemistry II (CHEM 120) ¹ Calculus II (MATH 132) Words or Numbers (CORE 120 or 121) Elective
2	Organic Chemistry I (CHEM 210) ¹ General Physics I (PHYS 141 or 151) ^{1,2} Elective Elective	Organic Chemistry II (CHEM 220) ¹ General Physics II (PHYS 142) ^{1,2} Elective Elective
3	Physical Chemistry (CHEM 320) Inorganic Chemistry Lab (CHEM 366) Elective Elective	Physical Chemistry (CHEM 310) Physical & Analytical Chemistry Lab (CHEM 365) Elective Elective
4	Chemistry Seminar (CHEM 405) Research (CHEM 480 or 499; optional) Chemistry Elective ³ Elective	Advanced Inorganic Chemistry (CHEM 420) Chemistry Elective ³ Research (CHEM 480 or 499; optional) Elective

(b) Later start in Science

Year	Fall Semester	Spring Semester
1	Foundations in Quantitative Reasoning (QR 101) ⁴ Words or Numbers (CORE 120 or 121) Elective Elective	Elementary Functions (MATH 115) ⁴ Words or Numbers (CORE 120 or 121) Elective Elective
2	General Chemistry I (CHEM 110) ¹ Calculus I (MATH 131) Elective Elective	General Chemistry II (CHEM 120) ¹ Calculus II (MATH 132) Elective Elective
3	Organic Chemistry I (CHEM 210) ¹ General Physics I (PHYS 141 or 151) ^{1,2} Elective Elective	Organic Chemistry II (CHEM 220) ¹ General Physics II (PHYS 142) ^{1,2} Elective Elective
4	Inorganic Chemistry Lab (CHEM 366) Physical Chemistry (CHEM 320) Chemistry Seminar (CHEM 405) Chemistry Elective ³	Physical Chemistry (CHEM 310) Physical & Analytical Chemistry Lab (CHEM 365) Advanced Inorganic Chemistry (CHEM 420) Chemistry Elective ³

¹ This course includes a laboratory that meets once a week.

² If taking the alternative PHYS 151/152 sequence, then PHYS 251, a Fall course, is also required.

³ Chemistry electives may be taken in the third or fourth years, either as a single four-credit course or as two two-credit courses. Please see the College Catalog for a list of eligible courses.

⁴ The sequence QR 101/MATH 115 is needed if ALEKS scores are not sufficiently high for placement in CHEM 110, PHYS 141 (or 151), and MATH 131.

2. Plans for pre-health students:

(a) Early start in Science

Year	Fall Semester	Spring Semester
1	General Chemistry I (CHEM 110) ¹ Calculus I (MATH 131) Words or Numbers (CORE 120 or 121) Elective	General Chemistry II (CHEM 120) ¹ Calculus II (MATH 132) Biological Investigations (BIO 110) ⁵ Words or Numbers (CORE 120 or 121)
2	Organic Chemistry I (CHEM 210) ¹ General Physics I (PHYS 141 or 151) ^{1,2} Biological Core Concepts: Mechanism (BIO 202) ⁶ Elective	Organic Chemistry II (CHEM 220) ¹ General Physics II (PHYS 142) ^{1,2} Biology Elective ⁷ Elective
3	Physical Chemistry (CHEM 320) Inorganic Chemistry Lab (CHEM 366) Structural Biochemistry (CHEM 330) ⁸ Elective	Physical Chemistry (CHEM 310) Physical & Analytical Chemistry Lab (CHEM 365) Elective Elective
4	Chemistry Seminar (CHEM 405) Research (CHEM 480 or 499; optional) Chemistry Elective ^{3,9} Elective	Advanced Inorganic Chemistry (CHEM 420) Chemistry Elective ³ Research (CHEM 480 or 499; optional) Chemistry Elective ^{3,9}

(b) Later start in Science

Year	Fall Semester	Spring Semester
1	Foundations in Quantitative Reasoning (QR 101) ⁴ Words or Numbers (CORE 120 or 121) Elective Elective	Biological Investigations (BIO 110) Elementary Functions (MATH 115) ⁴ Words or Numbers (CORE 120 or 121) Elective
2	General Chemistry (Chem 110) ¹ Calculus I (Math 131) Biological Core Concepts: Mechanism (BIO 202) ⁶ Elective	General Chemistry (Chem 120) ¹ Calculus II (Math 132) Biology Elective ⁷ Elective
3	Organic Chemistry I (CHEM 210) ¹ General Physics I (PHYS 141 or 151) ^{1,2} Elective Elective	Organic Chemistry II (CHEM 220) ¹ General Physics II (PHYS 142) ^{1,2} Elective Elective
4	Inorganic Chemistry Lab (CHEM 366) Physical Chemistry (CHEM 320) Chemistry Seminar (CHEM 405) Structural Biochemistry (CHEM 330) ⁸	Advanced Inorganic Chemistry (CHEM 420) Chemistry Elective ³ Research (CHEM 480 or 499; optional) Chemistry Elective ^{3,9}

⁵ Can also be taken in the Fall semester

⁶ Can also be taken in the Spring semester

⁷ A second 200 level or higher biology elective is required by some medical programs; contact the pre-health advisor for more details

⁸ A Biochemistry course provides a good foundation for the MCAT. Metabolic Biochemistry (CHEM 335), a Spring course, is also an option.

⁹ If Structural or Metabolic Biochemistry is taken, this counts as the chemistry elective

3. Plans with overseas programs:

(a) Spring overseas program

Year	Fall Semester	Spring Semester
1	General Chemistry I (CHEM 110) ¹ Calculus I (MATH 131) Words or Numbers (CORE 120 or 121) Elective	General Chemistry II (CHEM 120) ¹ Calculus II (MATH 132) Words or Numbers (CORE 120 or 121) Elective
2	Organic Chemistry I (CHEM 210) ¹ General Physics I (PHYS 141 or 151) ^{1,2} Elective Elective	Organic Chemistry II (CHEM 220) ¹ General Physics II (PHYS 142) ^{1,2} Elective Elective
3	Physical Chemistry (CHEM 320) Inorganic Chemistry Lab (CHEM 366) Chemistry Elective ³ Elective	Overseas Program
4	Chemistry Seminar (CHEM 405) Research (CHEM 480 or 499; optional) Chemistry Elective ³ Elective	Physical Chemistry (CHEM 310) Physical & Analytical Chemistry Lab (CHEM 365) Advanced Inorganic Chemistry (CHEM 420) Research (CHEM 480 or 499; optional)

(b) Fall overseas program

Year	Fall Semester	Spring Semester
1	General Chemistry I (CHEM 110) ¹ Calculus I (MATH 131) Words or Numbers (CORE 120 or 121) Elective	General Chemistry II (CHEM 120) ¹ Calculus II (MATH 132) Words or Numbers (CORE 120 or 121) Elective
2	Organic Chemistry I (CHEM 210) ¹ General Physics I (PHYS 141 or 151) ^{1,2} Elective Elective	Organic Chemistry II (CHEM 220) ¹ General Physics II (PHYS 142) ^{1,2} Elective Elective
3	Overseas Program	Physical Chemistry (CHEM 310) Chemistry Elective ³ Elective Elective
4	Inorganic Chemistry Lab (CHEM 366) Physical Chemistry (CHEM 320) Chemistry Seminar (CHEM 405) Chemistry Elective ³	Physical & Analytical Chemistry Lab (CHEM 365) Advanced Inorganic Chemistry (CHEM 420) Research (CHEM 480 or 499; optional) Elective

4. Plan for an American Chemical Society certified major

Year	Fall Semester	Spring Semester
1	General Chemistry (Chem 110) ¹ Calculus I (Math 131) Words or Numbers (CORE 120 or 121) Elective	General Chemistry (Chem 120) ¹ Calculus II (Math 132) Words or Numbers (CORE 120 or 121) Elective
2	Organic Chemistry I (CHEM 210) ¹ General Physics I (PHYS 141 or 151) ^{1,2} Elective Elective	Organic Chemistry II (CHEM 220) ¹ General Physics II (PHYS 142) ^{1,2} Elective Elective
3	Physical Chemistry (CHEM 320) Inorganic Chemistry Lab (CHEM 366) Chemistry Elective ³ Elective	Physical Chemistry (CHEM 310) Physical & Analytical Chemistry Lab (CHEM 365) Experimental Methods (PHYS 201) Elective
4	Chemistry Seminar (CHEM 405) Structural Biochemistry (CHEM 330) ¹⁰ Research (CHEM 480 or 499) ¹¹ Elective	Advanced Inorganic Chemistry (CHEM 420) Research (CHEM 480 or 499) ¹¹ Chemistry elective ³ Elective

¹⁰ Metabolic Biochemistry (CHEM 335), a Spring course, is also an option

¹¹ Students must complete at least 4 credits of research; this can be completed in the Fall and/or Spring semester or through a summer internship