

**Bachelor of Science in Chemistry
 Pre-Med of Pre-Pharmacy Track
 Four Year Curriculum Plan**

The following is a suggested four year plan of study for freshmen entering LMU during the 2017 academic year. Transfer students should contact the department chair to determine how their credits will apply. This plan is to be used in conjunction with the university catalog & advice of the faculty advisor. Courses on the plan may be taken in semesters other than those listed based upon availability & course placement. This plan meets LMU's Liberal Art Common Core requirements, major requirements & 300/400 level course requirements. For more information refer to the Undergraduate Course Catalog or your advisor.

First Year

Fall

ENGL 101 Composition 1	3
CHEM 111 General Chemistry I & Lab	4
BIOL 111 General Biology I & Lab	4
UACT 100 Strategies for College Success	2
MATH 150 Calculus I	4

TOTAL 17

Spring

ENGL 102 Composition 2	3
CHEM 112 General Chemistry II & Lab	4
BIOL 112 General Biology II & Lab	4
LNCN 100 Lincoln's Life & Legacy	1
MATH 250 Calculus II	5

TOTAL 17

Second Year

Fall

PHYS 211 General Physics I & Lab	4
CHEM 221 Organic Chemistry I & Lab	4
BIOL 315 Molecular Genetics	4
History Sequence Requirement (121 or 131)	3

TOTAL 15

Spring

BIOL 336 General Microbiology	4
PHYS 212 General Physics II & Lab	4
CHEM 222 Organic Chemistry II & Lab	4
History Sequence Req. Part II (122 or 132)	3
ISYS 100 Computer Literacy	2

TOTAL 17

Third Year

Fall

CHEM 331 Quantitative & Instrumental Analy.	4
BIOL 311 Int. Vertebrate A&P I & Lab	4
ENGL 240, 250, or 260	3
BIOL 441 Biochemistry I	4
CHEM 397 Junior Science Seminar	1

TOTAL 16

Spring

CHEM 310 Math. Methods in Chemistry	3
BIOL 312 Int. Vertebrate A&P II & Lab	4
COMM 200 Fund. of Speech Communication	3
CHEM 332 Quant. & Instrumental Analy. II	4

TOTAL 14

Fourth Year

Fall

CHEM 451 Physical Chemistry I	4
CHEM 497 Senior Science Seminar	1
MATH 270 Probability & Statistics	3
LNCN 300 American Citizenship	1
Fine Art, Humanities or Ethics Requirement	3
Social/Behavioral Science Requirement	3

TOTAL 15

Spring

CHEM 452 Physical Chemistry II	4
CHEM 460 Inorganic Chemistry	3
Fine Arts Requirement	3
Social/Behavioral Science Requirement	3
Free Elective	3

TOTAL 16

Note: pre-pharmacy student may need to take BIOL 261-262. Check the pharmacy school you are applying to for specific requirements.

CHEM 111 General Chemistry I & Lab (4 cr hrs)

Study of atoms and molecules. Emphasis on the bonding, chemistry, and thermodynamics of relatively simple substances. Prerequisite for CHEM 111 is (1) Math ACT of 21 or higher or (2) successful (C- or better) grade in Math 105. Prerequisite for enrollment in CHEM 112 is successful completion of CHEM 111 with a grade of C- or better. FALL.

CHEM 112 General Chemistry II & Lab (4 cr hrs)

Study of atoms and molecules. Emphasis on the bonding, chemistry, and thermodynamics of relatively simple substances. Prerequisite for enrollment in CHEM 112 is successful completion of CHEM 111 with a grade of C- or better. SPRING.

CHEM 221 Organic Chemistry I & Lab (4 cr hrs)

Study of the compounds of carbon. The common organic functional groups with emphasis on structure, properties reactions, synthesis, and mechanism. Co-requisite: CHEM 221 lab, 1 credit hour. Prerequisite for enrollment in CHEM 221 is successful completion of CHEM 112 with a grade C- or better. FALL.

ENGL 101 Composition 1 ENGL 102 Composition 2

CHEM 222 Organic Chemistry II & Lab (4 cr hrs)

Study of the compounds of carbon. The common organic functional groups with emphasis on structure, properties reactions, synthesis, and mechanism. Co-requisite: CHEM 222 lab, 1 credit hour. Prerequisite for enrollment in CHEM 222 is successful completion of CHEM 221 with a grade C- or better. SPRING.

CHEM 331 Quantitative & Instrumental Analy. (3 cr hrs)

Basic theory and practice of quantitative and instrumental chemical analysis and chemical equilibrium.

Laboratory work covering gravimetric, instrumental, and volumetric analyses. Prerequisite for enrollment in CHEM 331 is successful completion of CHEM 221 with a grade of C- or better. Co-requisite: CHEM 331 lab 1 cr. Hr. FALL ALTERNATE YEARS.

CHEM 310 Math. Methods in Chemistry (4 cr hrs)

A course designed to give the student sufficient background in mathematical methods required for completion of the analytical, physical, and inorganic chemistry sequences. Course discussion will include review of transcendental functions, differential and integral calculus, numerical methods, linear algebra, differential equations, and functions of several variables. (This course may also be taken as MATH 310).

Prerequisite: MATH 150,250. Highly recommended: MATH 255. FALL.

ENGL 240, 250, or 260

Energy relationships in chemical reactions; elementary quantum mechanics of chemical systems; elementary chemical kinetics. Prerequisite for enrollment in CHEM 451 is successful completion of CHEM 112 with a grade of C- or better. Co-requisite: CHEM 451 lab. 1 credit hour. FALL.

CHEM 497 Senior Science Seminar(1 cr hr)

Methods of literature search and sources of information in the sciences. Requires a research paper on a topic in chemical science. Prerequisite: completion of all 300 level program requirements. SPRING and FALL.

CHEM 452 Physical Chemistry II (4 cr hrs)

Energy relationships in chemical reactions; elementary quantum mechanics of chemical reactions; elementary quantum mechanics of chemical systems; elementary chemical kinetics. Prerequisite for enrollment in CHEM 451 is successful completion of CHEM 112 with a grade of C- or better. Co-requisite: CHEM 451 lab, 1 credit hour. FALL.

CHEM 460 Inorganic Chemistry (3 cr hrs)

Use the periodic table to show variation of physical and chemical properties of the elements. Elements studied as families. Properties such as acid-base, redox, and coordination compounds are related to the position of the element in the periodic table. Prerequisite: CHEM 111, 112 with labs. Highly recommended: CHEM 310, 451-452. SPRING.