LMU
School of Mathematics & Sciences
LINCOLN MEMORIAL UNIVERSITY

Bachelor of Science in Biology
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.

First Year

Fall

BIOL 111 General Biology I & Lab	4
CHEM 111 General Chemistry I & Lab	4
MATH 120 Trigonometry	3
ENGL 101 - Composition 1	3
UACT 100 Strategies for College Success	2
TOTAL	**16**

Spring

BIOL 112 General Biology II & Lab	4
CHEM 112 General Chemistry II & Lab	4
MATH 150 Diffential Calculus	4
ENGL 102 - Composition 2	3
LNCN 100 Lincoln's Life & Legacy	1
TOTAL	**16**

Second Year

Fall

CHEM 221 Organic Chemistry I & Lab	4
PHYS 211 General Physics I & Lab	4
BIOL 370 Ecology & Lab	4
History Requirement	3
ISYS 100 Computer Literacy	2
TOTAL	**17**

Spring

CHEM 222 Organic Chemistry II & Lab	4
PHYS 212 General Physics II & Lab	4
BIOL 336 General Microbiology	4
History Requirement	3
TOTAL	**15**

Fall

BIOL 311 Int. Vertebrate A&P I & Lab	4
BIOL 320 Principles of Botany	4
BIOL 315 Molecular Genetics	4
MATH 270 Probability & Statistics	3
TOTAL	**15**

Spring

BIOL/CBIO Elective	4
BIOL 380 Research Design & Analysis	3
COMM 200 Fund. of Speech Communication	3
ENGL 240, 250, or 260	3
Fine Arts Requirement	3
BIOL 397 Junior Science Seminar	1
TOTAL	**17**

Fourth Year

Fall

BIOL 340 Invertebrate Zoology	4
Arts, Humanities, Ethics Elective	3
Behavioral or Social Sciences Elective	3
Elective 300-400 Level	3
BIOL 483 Research in Biology	3
TOTAL	**16**

Spring

300/400 Level Elective	3
BIOL 497 Senior Science Seminar	1
BIOL 410 Evolution (Odd Years)	3
SOCI/BEHAV Elective	3
Elective	3
LNCN 300 Americal Citizenship	1
BIOL 483 Research in Biology	2
TOTAL	**16**

Note: In order to graduate in four years (eight regular semesters) the student must average passing 16/17 hours per semester.

Total Hours 128

BIOL 315 Molecular Genetics & Lab (4 cr hrs)
This focuses on molecular principles and processes of heredity. Topics include gene structure, expression, and regulation; chromosome organization and replication; mutations and DNA repair; and relevant advances in genetic biotechnology. Mendelian and non-Mendelian heredity are studied in depth and put in a molecular context. The laboratory reinforces molecular and Mendelian heredity concepts with inquiry-based experiments. Pre-requisites: BIOL 111,112 with labs, CHEM 111, 112 with labs. Co-requisite: BIOL 315 lab 1 cr hr. FALL.

BIOL 336 General Microbiology & Lab (4 cr hrs)
A detailed study of the morphology, physiology, and taxonomy of microorganism. Topics will include a survey of all microorganisms and viral agents, in-depth focus on prokaryotic genetics and physiology, anti-microbial methods and strategies host-parasite interactions, microbial diseases as well as applied and environmental aspects. Laboratory investigations will include techniques for isolation and identification of major groups of microorganisms. Pre-requisites: BIOL 111, 1112 with labs Co-requisite: BIOL 336 lab 1 cr hr. SPRING.

BIOL 483 Research in Biology (1-3 cr hrs)
This is laboratory or filed research course in life sciences with a faculty supervisor. An approved research project and written report are required. This course may be repeated for a maximum 6 total credit hours toward degree requirements. Prerequisite: Junior standing and consent of faculty supervisor. FALL/SPRING/SUMMER.

BIOL 311 Int. Vertebrate A&P I & Lab (4 cr hrs)
This course is the first course in a two-semester sequence of course that emphasizes the variations and similarities in the structures and physiological functions used by vertebrates to cope with their environments. Discussion of vertebrate form and function will include the topics of vertebrate evolution, functional morphology, and development. Specifically, the course will focus on living vertebrates and will cover taxonomy, biological design and metabolism. The topics of digestion and energetics; developmental anatomy and physiology and the structure and function of the integumentary system will be included. Skeletal and structural systems including bones, joints and connective tissues as well as the muscular system and muscle physiology will be presented. Laboratory session will involve detailed dissections of representative vertebrate specimens and inquiry-based physiological experimentation. Pre-requisites: BIOL 111,1112 with labs, CHEM 111,112 with labs.

BIOL 321 Botany Fundamentals I & lab (4 cr hrs)
A review of the plant world: photosynthetic prokaryotes to angiosperms. Plant physiology, anatomy, and modes of reproduction. Prerequisite: BIOL 111, 112. Co- requisite: B321 lab, 1 credit hour. FALL.

BIOL 370 Ecology & Lab (4 cr hrs)
Relationships of organisms to environment, including energy flow, population dynamics, and the structural and functional aspects of ecosystems. Prerequisites: BIOL 111,112. Co-requisite: B270 lab, 1 credit hour. FALL.

BIOL 397 Junior Science Seminar
The student plans a science topic inquiry, either through original or library research. Requires a progress report or literature review paper and oral presentation of findings. FALL and SPRING.

BIOL 430 Invertebrate Zoology & Lab (4 cr hrs)
Survey and comparative studies of the morphology, physiology, and ecology of representative invertebrates. Prerequisite: BIOL 111,112. Co-requisite: B340 lab, 1 credit hour. FALL.

BIOL 483 Research in Biology
This is laboratory or filed research course in life sciences with a faculty supervisor. An approved research project and written report are required. This course may be repeated for a maximum 6 total credit hours toward degree requirements. Prerequisite: Junior standing and consent of faculty supervisor. FALL/SPRING/SUMMER.

BIOL 480 Biometry (3 cr hrs)
Statistics as applied to biology and related fields. Emphasis on statistical methods in the interpretation of t-tests chi-square, ANOVA, and simple correlation and regression. Prerequisite: Math 270. SPRING.

BIOL 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 biological sciences. SPRING.

BIOL 410 Evolution (3 cr hrs)
Evolutionary relationships of taxonomy, embryology, comparative anatomy, genetics, physiology, biochemistry, and geology. Prerequisite: BIOL 111,112. SPRING ODD YEARS.