

# Biology (Applied Microbiology Concentration) Degree Planning Guide

Students must complete a minimum of 42 credits under the BIOL or SUST prefix to earn a degree. Students must complete all core classes (22-27 credits) and six courses from at least **three** of the upper level baskets (3 must be 300 level or higher with a minimum of 18 credits): Students choosing an emphasis shall select **4 courses from one basket and 2 courses from at least two** of the other baskets.

**In order to graduate 128 credit hours must be completed. Last 30 credit hours must be completed in residency.**

*This is an unofficial degree planning sheet. It is subject to change.*

## SUGGESTED COURSES FOR APPLIED MICROBIOLOGY CONCENTRATION

Core plus five courses from the Molecular and Microbiology and Anatomy & Physiology Baskets to include BIOL 316, BIOL 351, BIOL 390, BIOL 416, BIOL 418, and CHEM 320 and CHEM 353.

BIOL 354 and MATH 420.  
ORGL 472 is recommended

## BIOLOGY CORE REQUIREMENTS: 22 - 27 CREDITS

BIOL 117 General Biology I (4)  
BIOL 260 General Genetics (4) @  
SCI 498-Advanced Topics (2) S or BIOL 401 Research 1 (3) @ or SUST 499 (3) for Sustainability conc or BIOL 499 (3) for Applied Microbiology conc.

BIOL 118 General Biology II (4)  
BIOL 270 Evolution (4) S #  
BIOL 115 - Intro to Human Anatomy and Physiology (4)

### OR

BIOL 101 and BIOL 102 (8) - Anatomy and Physiology 1 and 2 (101) and S (102)

## UPPER LEVEL BASKETS: MINIMUM 18 CREDITS

### Sustainability & Environmental Stewardship

SUST 101: Intro to Sustainability (3)  
SUST 201: Environmental Science and Health (3)  
SUST 150: Sustainability Exploration Seminar (3) S  
SUST 350: Sustainability Expedition S  
SUST 375: Strategies in Sustainability (3) F

### Ecology

BIOL 216 Plants & People (4) S \*  
BIOL 231 Conservation Biology (3)F\* @  
BIOL 314 Botany (4) S\* ^  
BIOL 352 General Ecology (4) F\* \$ or ^  
BIOL 381 Ornithology (4) S\* ^  
BIOL 304 Zoology (3) F\* #

### Molecular & Microbiology

BIOL 316 General Microbiology (4) #  
BIOL 390 Biotechnology (4) F #  
BIOL 391 Molecular Genetics (4) S\* \$  
BIOL 416 Microbial Genetics (4) F\* &  
BIOL 418 Applied Microbiology (4) S\* &

### Anatomy & Physiology

BIOL 220 Exercise Science (3) @\*  
BIOL 303 Comparative Vertebrate Anatomy (4) F\* ^  
BIOL 350 Intro to Human Anatomy (4) S\* (\*) or >  
BIOL 351 Cell Biology (4) S #  
BIOL 354 Immunology (3) S\* &  
BIOL 394 Advanced Physiology (3) F @ or >  
BIOL 395 Pathophysiology (3) S !\*

## GENERAL EDUCATION: 33 CREDITS

### I. Skills/Processes for Literacy (3 courses)

A. INTD 101 University Seminar  
B. ENGL 101 Composition: Theme Writing  
C. ENGL 104 Composition: The Essay

### II. Humanities (5 courses)

A. Fine Arts (1 course): Art Music, Performance  
B. Literature/Language (1 course): ENGL or Foreign Language  
C. Philosophy (1 course)  
D. Humanities Electives (2 courses)  
1. HUM 101/301 or HIST 131/331  
2. One additional elective from ENGL, The Arts/Aesthetics, Foreign Language, HUM, PHIL, REL

### III. Social Science (3 courses)

A. American History or Government  
B. Social Science Electives (2 courses from ECON, GEOG, HIST, PSCI, PSYC, SOC)

### IV. Natural Science/Quantitative Reasoning (met through major)

### V. General Education Electives (2 courses): From the College of Arts and Sciences

### ADDITIONAL COURSE CHOICES (not required and not part of the baskets)

CHEM 353 - Quantitative Analysis (4) F  
CHEM 320 Biochemistry (4) F  
CHEM 321 Biochemistry II (3) S  
BIOL 101 and/or 102 - Anatomy and Physiology  
ORGL 472-Understanding Organization Behavior (3)  
SCI 250 - Computational Science (3) see catalog for prereqs, S

**TIMING** - \* denotes that the course is offered every other year

**PREREQUISITES** F=Fall S=Spring  
@=117/118, # =260 > = 101/102  
& = 316 \$ = 270 != 394 (\*) = 115

### COREQUISITES

^ = 270 a = 394

### ALTERNATE COURSE OFFERINGS

**Fall Even Years:** Conservation Biology, Comparative Vertebrate Anatomy

**Fall Odd Years:** Ecology, Zoology, Physical Chemistry 1

**Spring Even Years:** Pathophys, Ex Science, Plants and People, Immunology, Ornithology Physical Chemistry 2, Inorganic Chemistry

**Spring Odd Years:** Intro to Gross, Molecular Genetics, Botany

## NON-BIOLOGY SCIENCE AND MATH REQUIREMENTS: MINIMUM 30 CREDITS

MATH 151 Calculus I (4) F (recommended) OR  
MATH 125 College Algebra & Trigonometry (3) F/S

CHEM 103 General Chemistry I (4)  
CHEM 104 General Chemistry II (4)  
CHEM 203 Organic Chemistry I (4)  
CHEM 204 Organic Chemistry II (4)

MATH 141 Elementary Stats (3)  
F/S OR MATH 420 (3) Statistics for Sci Research  
OR PSYC 341 Understanding Statistical Inference

PHYS 153 Calculus-Based Physics I (4) S (recommended) OR PHYS 103 Gen. Physics I (4) F

PHYS 154 Calculus-Based Physics II (4) S