

BIOCHEMISTRY AND MOLECULAR BIOLOGY

THE PROGRAM ADVISORS

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THE PROGRAM

The major in Biochemistry and Molecular Biology is an interdisciplinary major at the interface of biology and chemistry. It is designed to prepare students for careers in biochemistry and molecular biology, as well as the related fields of cell biology, microbiology, molecular genetics, or in the health sciences.

Students who intend to major in Biochemistry and Molecular Biology must file an "intent to major" form with the department coordinator of the departments of Biology and Chemistry at the time they declare their major. This form must be signed by the student and a program advisor.

Learning outcomes for this program may be found at www.redlands.edu/BS-BIOC/learningoutcomes.

BACHELOR OF SCIENCE

DEGREE REQUIREMENTS

Students planning to continue their education in graduate or professional school are strongly advised to look at graduate or professional school requirements at universities to which they may apply as they may require specific upper-level courses.

BIOLOGY COURSES: 4 courses / 15-16 credits

- BIOL 200 Principles of Biology: Unity and Diversity (4)
- BIOL 201 Principles of Biology: Molecular/Cellular Biology and Genetics (4)
- BIOL 239 Molecular Genetics and Heredity (4)
- BIOL 325 Medical Genetics (3-4) or BIOL 326 Neuroscience (4) or BIOL 332 Nutrition (4) or BIOL 343 Microbiology (4) or BIOL 345 Immunology (4) or BIOL 348 Developmental Biology (4) or the third course from the Biochemistry and Molecular Biology Advanced Core

CHEMISTRY COURSES: 7 courses / 28 credits

- CHEM 131 General Chemistry (4)
- CHEM 132 General Chemistry (4)
- CHEM 231 Organic Chemistry (4)
- CHEM 232 Organic Chemistry (4)
- CHEM 320 Biochemistry (4)
- CHEM 330 Analytical Chemistry (4) or CHEM 331 Physical Chemistry I (4)
- CHEM 332 Physical Chemistry II (4)

ADVANCED BIOCHEMISTRY AND MOLECULAR BIOLOGY COURSES: 2 courses/8 credits

Choose two of the following courses:

- CHEM 420 Advanced Biochemistry (4)
- BIOL 338 Cell Biology (4)
- BIOL 342 Advanced Molecular Genetics and Genomics (4)

CAPSTONE RESEARCH AND SEMINAR: 8-12 credits

Choose one of the following groups:

- BIOL 394 Junior Seminar (0)
 - BIOL 460 Senior Research in Biology (4)
 - BIOL 461 Senior Research in Biology (4)
- OR
- 3 credits of CHEM 378 Chemistry Research (1–3) (depending on chemistry degree track)
 - 1 credit of CHEM 478 Senior Research and Thesis (1)
 - Three semesters of CHEM 394 Chemistry Seminar (1)
 - One semester of CHEM 494 Communication in Chemistry (3)
- OR
- 6 credits of BLCM 460 Advanced Interdisciplinary Research in Biology and Chemistry (1–3)
 - BIOL 394 Junior Seminar (0) or BIOL 495 Senior Seminar (1)–BIOL 496 Senior Seminar (1) or three semesters of CHEM 394 Chemistry Seminar (1) and one semester of CHEM 494 Communication in Chemistry (3)

Note: Research topics must be approved by the departments of Biology and Chemistry.

RELATED FIELD REQUIREMENTS

MATHEMATICS:

Choose one of the following groups:

- MATH 121 Calculus I (4)
 - MATH 122 Calculus II (4)
- OR
- MATH 118 Integrated Calculus I (4)
 - MATH 119 Integrated Calculus II (4)
 - MATH 122 Calculus II (4)

PHYSICS:

Choose one of the following groups:

- PHYS 220 Fundamentals of Physics I (4)
 - PHYS 221 Fundamentals of Physics II (4)
- OR
- PHYS 231 General Physics I (4)
 - PHYS 232 General Physics II (4)