

Biochemistry, B.S.

Mission Statement

The biochemistry program at Coastal Carolina University is an interdisciplinary program housed within the Department of Chemistry. The mission of the biochemistry program is to develop strong student competencies in biochemistry through a selective blending of biology and chemistry coursework, and to develop strong critical reasoning skills in students that they can apply to all areas of study. The program's faculty is committed to providing meaningful undergraduate experiences for both majors and non-majors through high-quality, student-centered teaching and undergraduate research mentoring. Students completing a degree in biochemistry should be well prepared for entering a career, graduate school or medical school.

Student Learning Outcomes

Biochemistry students will complete the following as part of their program of study:

1. Students will understand the principles of biochemistry and apply concepts from different areas of chemistry to solve problems that may require a multidisciplinary approach.
2. Students will use biochemical concepts to explain the functional roles of biochemical molecules in complex processes, such as metabolic pathways or diseases.
3. Students will design experiments to solve scientific problems using knowledge of biochemical concepts and laboratory techniques.
4. Students will analyze and interpret research data derived from the scientific literature and laboratory experiments in pursuit of results that answer scientific questions in biochemistry.
5. Students will create oral presentations that explain biochemical processes to their peers.
6. Students will write formal reports that analyze data and evaluate results of laboratory experiments.

Students must earn a grade of 'C' or better in all foundation and major electives.

Degree Requirements (120 Credits)

Core Curriculum Requirements

Core Curriculum (38-40 Total Credit Hours)

Graduation Requirements

Graduation Requirements (3-7+ Credits) *

Foundation Requirements (52-60 Credits) *

A minimum grade of 'C' is required for all foundation courses.

Complete the following courses:

- BIOL 121 - Biological Science I (3 credits) * AND
- BIOL 121L - Biological Science I Laboratory (1 credit) *
- BIOL 122 - Biological Science II (3 credits) AND
- BIOL 122L - Biological Science II Laboratory (1 credit)
- BIOL 340 - Cell Biology (3 credits) AND

- BIOL 340L - Cell Biology Laboratory (1 credit)
- BIOL 350 - Fundamentals of Genetics (3 credits) AND
- BIOL 350L - Fundamentals of Genetics Laboratory (1 credit)
- CHEM 111 - General Chemistry I (3 credits) * AND
- CHEM 111L - General Chemistry Laboratory I (1 credit) *
- CHEM 112 - General Chemistry II (3 credits) AND
- CHEM 112L - General Chemistry Laboratory II (1 credit)
- CHEM 331 - General Organic Chemistry I (3 credits) AND
- CHEM 331L - General Organic Chemistry Laboratory I (1 credit)
- CHEM 332 - General Organic Chemistry II (3 credits) AND
- CHEM 332L - General Organic Chemistry Laboratory II (1 credit)
- CHEM 351 - Biochemistry I (3 credits) AND
- CHEM 351L - Biochemistry Laboratory I (1 credit)
- CHEM 352 - Biochemistry II (3 credits) AND
- CHEM 352L Q* - Biochemistry Laboratory II (1 credit)
- CHEM 353 - Physical Biochemistry (3 credits) AND
- CHEM 353L - Physical Biochemistry Laboratory (1 credit)
- MATH 160 - Calculus I (4 credits) *

Choose one of the following series for 8 credits:

- PHYS 211 - Essentials of Physics I (3 credits) AND
- PHYS 211L - Essentials of Physics I Laboratory (1 credit)
- PHYS 212 - Essentials of Physics II (3 credits) AND
- PHYS 212L - Essentials of Physics II Laboratory (1 credit)

OR

- PHYS 205 - Introductory Physics for Life Sciences I (3 credits) AND
- PHYS 205L - Introductory Physics for Life Sciences I Laboratory (1 credit)
- PHYS 206 - Introductory Physics for Life Sciences II (3 credits) AND
- PHYS 206L - Introductory Physics for Life Sciences II Laboratory (1 credit)

Choose one course/lab from the following:

- STAT 201 - Elementary Statistics (3 credits) * AND
- STAT 201L - Elementary Statistics Computer Laboratory (1 credit) *

OR

- PSYC 225 - Psychological Statistics (3 credits) AND
- PSYC 225L - Psychological Statistics Laboratory (1 credit)

Note:

* Course credit hours only count once toward the total university graduation credit hour requirements. Click on Credit Sharing for more information.

Major Requirements (12 Credits)

A minimum grade of 'C' is required for all major requirements. Select at least one course from each group:

Biology Group

- BIOL 330 - Microbiology (3 credits) AND
- BIOL 330L - Microbiology Laboratory (1 credit)
- BIOL 343 - Comparative Physiology (3 credits) AND
- BIOL 343L - Comparative Physiology Laboratory (1 credit)
- BIOL 349 - Plant Physiology (3 credits) AND
- BIOL 349L - Plant Physiology Laboratory (1 credit)
- BIOL 405 - Immunology (3 credits) AND
- BIOL 405L - Immunology Laboratory (1 credit)
- BIOL 410 - Developmental Biology (3 credits) AND
- BIOL 410L - Developmental Biology Laboratory (1 credit)
- BIOL 411 - Virology (3 credits) AND
- BIOL 411L - Virology Laboratory (1 credit)
- BIOL 420 - Neuroscience Foundations (3 credits) AND
- BIOL 420L Q* - Neurosciences Foundations Laboratory (1 credit)
- BIOL 432 - Parasitology (3 credits) AND
- BIOL 432L - Parasitology Laboratory (1 credit)
- BIOL 442 - Advanced Genetics (3 credits) AND
- BIOL 442L - Advanced Genetics Laboratory (1 credit)
- BIOL 450 - Molecular Biology (3 credits) AND
- BIOL 450L - Molecular Biology Laboratory (1 credit)
- BIOL 451 - Molecular Techniques (4 credits)

Chemistry Group

- CHEM 321 - Quantitative Analysis (3 credits) AND
- CHEM 321L - Quantitative Analysis Laboratory (1 credit)
- CHEM 422 - Instrumental Analysis (2 credits) AND
- CHEM 422L - Instrumental Analysis Laboratory (2 credits)
- CHEM 433 - Advanced Organic Chemistry (2 credits) AND
- CHEM 433L - Advanced Organic Chemistry Laboratory (2 credits)
- CHEM 441 - Physical Chemistry I (3 credits) AND
- CHEM 441L - Physical Chemistry I Laboratory (1 credit)
- CHEM 442 - Physical Chemistry II (3 credits) AND
- CHEM 442L - Physical Chemistry II Laboratory (1 credit)
- CHEM 453 - Biomolecular Structure and Function (3 credits) AND
- CHEM 453L - Biomolecular Structure and Function Laboratory (1 credit)
- MSCI 355 - Introduction to Environmental Ecotoxicology (3 credits) AND
- MSCI 355L - Introduction to Environmental Ecotoxicology Laboratory (1 credit)

Electives (1-15 Credits)

Total Credits Required: 120
