

Cell Biology/Biochemistry (BICH)

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Developed jointly by the biology and chemistry departments, the major in cell biology and biochemistry at Bucknell is interdisciplinary in nature. The **bachelor of science major** is designed for students who are interested in understanding living organisms at the cellular and molecular level. This course of study will provide strong foundations in both biology and chemistry and will offer the student both the intellectual and the laboratory skills to grapple with questions at the interface of these two disciplines. In addition to a rigorous scientific education, this program enables students to gain a strong background in the liberal arts and to think critically about the impact of biotechnology on social and ethical issues.

The major in cell biology/biochemistry will focus on subdisciplines within biology and chemistry such as immunology, genetic engineering, nucleic acids, biomembrane function, cell biology of cancer, and enzymology. This program strongly emphasizes independent student research, including both seminar programs and hands-on research. A major in cell biology/biochemistry offers students an excellent preparation for careers in biotechnology, biomedical technology, medicine, pharmacology and bioengineering. It also is an excellent foundation for students preparing for entrance into Ph.D. programs in cell and molecular biology or biochemistry or Ph.D./M.D. programs in medically related fields.

The major requires five courses within the biology department (BIOL 205, BIOL 206, BIOL 207, BIOL 327, and BIOL 352) and six courses within the chemistry department (CHEM 211, CHEM 212, CHEM 221, CHEM 231, CHEM 340 or CHEM 341, and CHEM 351).

Additionally, an interdepartmental Biochemical Methods course (BIOL 340/CHEM 358) is required as are three electives chosen from the following list: BIOL 302, BIOL 316, BIOL 318, BIOL 322, BIOL 323, BIOL 324, BIOL 326, BIOL 328, BIOL 329, BIOL 331, BIOL 339, BIOL 343, BIOL 347, BIOL 348, BIOL 365, BIOL 399; CHEM 313, CHEM 314, CHEM 317, CHEM 322, CHEM 332, CHEM 342, CHEM 352, CHEM 360, CHEM 375, CHEM 376, PSYC 250 and PSYC 343. At least one of these biology or chemistry electives must be a laboratory course. One full credit of a research course (BIOL 399, CHEM 375, CHEM 376, or CHEM 403) may be counted as an elective toward the major. Two semesters of physics (PHYS 211 and PHYS 212) and two semesters of calculus (MATH 201 and MATH 202) are required. A course selected from the following list of related humanities and social science courses also will be completed: HIST 170, HIST 171, HIST 270, HIST 271, HIST 272, HIST 273, HIST 279, HIST 370; PHIL 218, PHIL 220, PHIL 235, PHIL 272; RELI 240; SOCI 130; UNIV 245, or selected courses with permission of program director.

The recommended sequence for the bachelor of science major is as follows:

First Year	First Semester: BIOL 205; CHEM 211; MATH 201 Second Semester: BIOL 206; CHEM 212; MATH 202
Sophomore Year	First Semester: BIOL 207; CHEM 221 Second Semester: BIOL 327; CHEM 231
Junior Year	First Semester: BIOL 352; CHEM 351; PHYS 211 Second Semester: BIOL 340/CHEM 358; PHYS 212; Elective in biology or chemistry
Senior Year	First Semester: CHEM 341 or elective in biology or chemistry Second Semester: CHEM 340 or elective in biology or chemistry; Elective in biology or chemistry

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