

Biochemistry and Molecular Biology, BA

The curriculum for the BA with a major in biochemistry and molecular biology is identical to the BS degree in the first two years of study, to maximize student flexibility.

Requirements

The Bachelor of Arts with a major in biochemistry and molecular biology requires a minimum of 120 s.h., including at least 58 s.h. of work for the major. Students must maintain a grade-point average (GPA) of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences GE CLAS Core.

The biochemistry and molecular biology major for the Bachelor of Arts degree provides a rigorous education in biochemical concepts and practice in the laboratory while giving students flexibility to specialize in additional disciplines and to obtain clinical volunteer experience. The BA program is intended for most students majoring in biochemistry and molecular biology, including those with pre-medicine, pre-pharmacy, pre-dental, and other pre-health professions interests. It also is appropriate for students earning more than one major.

Qualified students may graduate with honors in the biochemistry and molecular biology major; see "Honors in the Major" under Honors [p. 2] in this section of the catalog.

The BA with a major in biochemistry and molecular biology requires the following coursework.

Requirements	Hours
Common Requirements	52-53
Additional Requirements	6

Common Requirements

Students complete the following during their first three years.

Course #	Title	Hours
All of these:		
BMB:3120 & BMB:3130	Biochemistry and Molecular Biology I-II	6
BMB:3140	Experimental Biochemistry	3
BMB:4240	Biophysics and Advanced Biochemistry	3
BIOL:1411- BIOL:1412	Foundations of Biology - Diversity of Form and Function	8
CHEM:1110 & CHEM:1120	Principles of Chemistry I-II	8
CHEM:2210 or CHEM:2230	Organic Chemistry I Organic Chemistry I for Majors	3
CHEM:2220 or CHEM:2240	Organic Chemistry II Organic Chemistry II for Majors	3
CHEM:2410 or CHEM:2420	Organic Chemistry Laboratory Organic Chemistry Laboratory for Majors	3

MATH:1850 or MATH:1550 or MATH:1460	Calculus I Engineering Mathematics I: Single Variable Calculus Calculus for the Biological Sciences	4
PHYS:1511 or PHYS:1611	College Physics I Introductory Physics I	4
PHYS:1512 or PHYS:1612	College Physics II Introductory Physics II	4
One of these:		
BIOS:4120	Introduction to Biostatistics	3
MATH:1560	Engineering Mathematics II: Multivariable Calculus	4
MATH:1860	Calculus II	4
STAT:3510	Biostatistics	3

If students take PHYS:1612 Introductory Physics II, they must take the course with the lab component.

Additional Requirements

In addition to the common requirements listed, students must complete the following.

Course #	Title	Hours
	Advanced science electives, as listed in the student handbook.	6

Students intending to earn advanced degrees in the biological or health sciences are advised to enroll in BMB:3993 Undergraduate Biochemistry Research or BMB:4999 Advanced Undergraduate Biochemistry Research for independent research. There are no prerequisites for BMB:3993. The course involves experience in an active biochemistry and molecular biology research lab, which must be arranged ahead of time with a supervising faculty member. Students may make arrangements directly with the faculty member, or they may request assistance from an undergraduate advisor. Credit earned in BMB:3993 does not count toward the major, but it does count toward the minimum of 120 s.h. required to graduate.

Before students register for BMB:4999 Advanced Undergraduate Biochemistry Research, they must have completed BMB:3120 Biochemistry and Molecular Biology I, BMB:3130 Biochemistry and Molecular Biology II, BMB:3140 Experimental Biochemistry, and BMB:3150 Development of Senior Research Project, with a grade of B-minus or higher in each course. Students also are required to have prior research experience, such as in BMB:3993 Undergraduate Biochemistry Research, URES:3992 Undergraduate Research and Creative Projects, URES:3994 Undergraduate Research and Creative Projects, or HONR:3994 Honors Research Practicum, and permission of the instructor.

Teacher Licensure

Students interested in teaching in elementary and/or secondary schools should seek admission to the Teacher Education Program (TEP) in the College of Education.

To qualify for licensure in secondary teaching, students in the TEP complete a degree in education as well as a related College of Liberal Arts and Sciences degree. See Apply on the College of Education website for details on requirements and deadlines for applying to the College of Education and about TEP choices of majors leading to licensure.

Honors

Honors in the Major

Students have the opportunity to graduate with honors in the major. They must maintain a cumulative University of Iowa grade-point average (GPA) of at least 3.33 and a GPA of at least 3.33 in coursework for the major. They must earn 6 s.h. in BMB:4999 Advanced Undergraduate Biochemistry Research and present their research results in a written thesis format and in an oral presentation given at the Lata Undergraduate Symposium.

University of Iowa Honors Program

In addition to honors in the major, students have opportunities for honors study and activities through membership in the University of Iowa Honors Program. Visit Honors at Iowa to learn about the university's honors program.

Membership in the UI Honors Program is not required to earn honors in the biochemistry and molecular biology major.

Career Advancement

Biochemistry and molecular biology graduates with bachelor's degrees often work as research assistants in industry, government, academia, or health services; teach in secondary schools; or go on to advanced study in medicine, dentistry, or other areas. The program offers solid preparation for careers in biochemistry, medicine, biology, chemistry, dentistry, research, or related sciences. About one-third of biochemistry and molecular biology majors go on to study medicine; others enter graduate programs or professional degree programs.

The Pomerantz Career Center offers multiple resources to help students find internships and jobs.

Academic Plans

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the university's Four-Year Graduation Plan. Courses in the major are those required to complete the major; they may be offered by departments other than the major department.

Before the third semester begins: CHEM:1110 Principles of Chemistry I, CHEM:1120 Principles of Chemistry II, and two semesters of advanced math (e.g., Calculus I, Calculus II, or Biostatistics).

Before the fifth semester begins: BIOL:1411 Foundations of Biology, BIOL:1412 Diversity of Form and Function, CHEM:2210 Organic Chemistry I or CHEM:2230 Organic Chemistry I for Majors, CHEM:2220 Organic Chemistry II or CHEM:2240 Organic Chemistry II for Majors, and CHEM:2410 Organic Chemistry Laboratory or CHEM:2420 Organic Chemistry Laboratory for Majors.

Before the seventh semester begins: PHYS:1611 Introductory Physics I or PHYS:1511 College Physics I, PHYS:1612 Introductory Physics II or PHYS:1512 College Physics II, BMB:3120 Biochemistry and Molecular Biology I, BMB:3130 Biochemistry and Molecular Biology II, BMB:3140 Experimental Biochemistry, a science elective, and at least 90 s.h. earned toward the degree.

Before or during the eighth semester: BMB:4240 Biophysics and Advanced Biochemistry, a science elective, and all remaining coursework in the major, all remaining GE CLAS Core courses, and a minimum of 120 total s.h. to graduate.

Sample Plan of Study

Sample plans represent one way to complete a program of study. Actual course selection and sequence will vary and should be discussed with an academic advisor. For additional sample plans, see MyUI.

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This sample plan is being reviewed and will be added at a later date.