

Four-year Graduation Plan

Bachelor of Science (BS) with faculty mentored research

The following schedule is a suggested plan of study for the BS degree in Biochemistry and Molecular Biology that includes faculty mentored research. It lists the science courses required for the degree. This list does not include the courses needed to meet the General Education requirements. Some of these courses are also offered during the summer session. There are multiple options to graduate in four years. Classes should be chosen in consultation with the Biochemistry and Molecular Biology advisor.

First Year

Fall Semester			Spring Semester		
CHEM 1110	Principles of Chemistry I	4 s.h.	CHEM 1120	Principles of Chemistry II	4 s.h.
MATH 1850	Calculus I ¹	4 s.h.	MATH 1860	Calculus II	4 s.h.
			STAT 3510	Biostatistics OR	3 s.h.
			BIOS 4120	Introduction to Biostatistics ¹	3 s.h.

Second Year

Fall Semester			Spring Semester		
BIOL 1411	Foundations of Biology	4 s.h.	BIOL 1412	Diversity of Form and Function	4 s.h.
CHEM 2210	Organic Chemistry I ²	3 s.h.	CHEM 2220	Organic Chemistry II ²	3 s.h.
PHYS 1511	College Physics I ³	4 s.h.	CHEM 2410	Organic Chemistry Lab ²	3 s.h.

Students are encouraged to begin their research in biochemistry during their second year, which can include BMB:3999, ICRU fellowship-sponsored research, or a summer research experience. Students should consult with their advisor.

Third Year

Fall Semester			Spring Semester		
BMB 3120	Biochem & Molecular Biology I	3 s.h.	BMB 3130	Biochemistry & Molecular Biology II	3 s.h.
PHYS 1512	College Physics II ³	4 s.h.	BMB 3140	Experimental Biochemistry	3 s.h.
	Advanced Science Elective ⁴	tbd	BMB 3150	Development of Senior Research Project (prereq for BMB:4999)	2 s.h.
BMB 3993	Undergraduate Biochemistry Research	tbd	BMB 3993	Undergraduate Biochemistry Research	tbd

Summer Session

Advanced Undergraduate Biochemistry

BMB 4999 Research⁴ 2-3 s.h.

Fourth Year

Fall Semester			Spring Semester		
CHEM 4420	Biophysics and Advanced Biochemistry ⁵	3 s.h.	BMB 4430	Principles of Physical Chemistry ⁶	3 s.h.
BMB 4999	Advanced Undergraduate Biochemistry Research ⁷	2-3 s.h.	BMB 4999	Advanced Undergraduate Biochemistry Research ⁷	2-3 s.h.
	Advanced Science Elective	tbd		Advanced Science Elective	tbd

¹Students can choose Calculus I (MATH:1850), Engineering Math I (MATH:1550) or Calculus for Biological Sciences (MATH:1460) for their first semester of math. A second semester of math can include Calculus II (MATH:1860) or Engineering Math II (MATH:1560); however, Biostatistics (STAT:3510) or Introduction to Biostatistics (BIOS:4120) can substitute.

²Students can take either the organic (CHEM:2210, 2220, 2410) or the organic chemistry for majors (CHEM:2230, 2240, 2420-recommended).

³Students can take either College Physics (PHYS:1511,1512) or Introductory Physics (PHYS:1611,1612)

⁴Six s.h. of Advanced Science Electives are required for the BA degree. Science electives may be taken at any time; some of the courses may have prerequisites.

⁵A total of 9 s.h. of Advanced Science Electives are required for the BS degree.

⁶A total of 6 s.h. of Advanced Research or Laboratory courses are required for the BS degree; typically as Advanced Undergraduate Biochemistry Research (BMB:4999)

⁷The BS degree requires Biophysics and Advanced Biochemistry (BMB:4240) and one of the following courses: CHEM 4430, CHEM 4431, or CHEM 4432

⁸A total of 6 s.h. of BMB 4999 are required for the BS degree with Honors in the Major. The number of semester hours of research, in any given semester, will depend upon arrangements between student and research advisor. Prerequisites are Biochemistry & Molecular Biology I and II (BMB 3120 and BMB 3130), Experimental Biochemistry (BMB 3140), Development of Senior Research Project (BMB 3150), and prior lab experience (BMB:3993, Honors Research Practicum, summer research experience, prior advanced laboratory courses) or consent from the instructor. In addition, a grade of B- or better for each course is required.

Four-year Graduation Plan

Bachelor of Science (BS) with laboratory enriched courework

The following schedule is a suggested plan of study for the BS degree in Biochemistry and Molecular Biology that includes faculty mentored research. It lists the science courses required for the degree. This list does not include the courses needed to meet the General Education requirements. Some of these courses are also offered during the summer session. There are multiple options to graduate in four years. Classes should be chosen in consultation with the Biochemistry and Molecular Biology advisor.

First Year

Fall Semester			Spring Semester		
CHEM 1110	Principles of Chemistry I	4 s.h.	CHEM 1120	Principles of Chemistry II	4 s.h.
MATH 1850	Calculus I ¹	4 s.h.	MATH 1860	Calculus II	4 s.h.
			STAT 3510	Biostatistics OR	3 s.h.
			BIOS 4120	Introduction to Biostatistics ¹	3 s.h.

Second Year

Fall Semester			Spring Semester		
BIOL 1411	Foundations of Biology	4 s.h.	BIOL 1412	Diversity of Form and Function	4 s.h.
CHEM 2210	Organic Chemistry I ²	3 s.h.	CHEM 2220	Organic Chemistry II ²	3 s.h.
PHYS 1511	College Physics I ³	4 s.h.	CHEM 2410	Organic Chemistry Lab ²	3 s.h.

Students are encouraged to begin their research in biochemistry during their second year, which can include BMB:3999, ICRU fellowship-sponsored research, or a summer research experience. Students should consult with their advisor.

Third Year

Fall Semester			Spring Semester		
BMB 3120	Biochem & Molecular Biology I	3 s.h.	BMB 3130	Biochemistry & Molecular Biology II	3 s.h.
PHYS 1512	College Physics II ³	4 s.h.	BMB 3140	Experimental Biochemistry	3 s.h.
	Advanced Science Elective ⁴	tbd			

Fourth Year

Fall Semester			Spring Semester		
BMB 4240	Biophysics and Advanced Biochemistry	3 s.h.	CHEM 4430	Principles of Physical Chemistry	3 s.h.
	Advanced Laboratory Course ⁵	tbd		Advanced Laboratory Course	tbd
	Advanced Science Elective	tbd		Advanced Laboratory Course	tbd

¹Students can choose Calculus I (MATH:1850), Engineering Math I (MATH:1550) or Calculus for Biological Sciences (MATH:1460) for their first semester of math. A second semester of math can include Calculus II (MATH:1860) or Engineering Math II (MATH:1560); however, Biostatistics (STAT:3510) or Introduction to Biostatistics (BIOS:4120) can substitute.

²Students can take either the organic chemistry sequence (CHEM:2210, 2220, 2410) or the organic chemistry for majors (CHEM:2230, 2240, 2420-recommended).

³Students can take either College Physics (PHYS:1511,1512) or Introductory Physics (PHYS:1611,1612).

⁴A total of 9 s.h. of Advanced Science Electives are required for the BS degree.

⁵A total of 6 s.h. of Advanced Laboratory Courses are needed for the BS degree without faculty mentored research.