

BIOCHEMISTRY AND MOLECULAR BIOLOGY, B.S.

Requirements

The biochemistry and molecular biology major requires 48 credits of BIO, BMB, or CHM courses, and students will need to take at least two courses from these requirements each semester for adequate progress in the major.

Code	Title	Hours
Required Major Courses		
Broad Foundation in Chemistry: *		
CHM 111 & 111L	College Chemistry I and College Chemistry I Lab	4
CHM 280 & 280L	College Chemistry II and Theory and Methods of Quantitative Analysis Lab	4
CHM 122 & 122L or CHM 123 & 123L	Organic Chemistry I and Organic Chemistry I Lab Organic Chemistry I Honors and Organic Chemistry I Honors Lab	4
CHM 223 & 223L	Organic Chemistry II and Organic Chemistry II Lab	4
Broad Foundation in Biology: *		
BIO 150 & 150L	Biology I and Biology I Lab	4
BIO 160 & 160L	Biology II and Biology II Lab	4
BIO 265	Cellular and Molecular Biology	3
BMB Core Sequence:		
BMB 370	Biochemistry I: Macromolecules and Metabolism (Third Year)	3
BMB 372	Advanced Molecular Biology (Third or fourth year)	3
BMB 373	Biochemistry II	3
BMB 371L	Advanced Biochemistry Lab (Third Year)	1.5
BMB 372L	Advanced Molecular Biology Laboratory (Third or fourth year)	1.5
BMB 388	Senior Seminar in Biochemistry and Molecular Biology (Senior year only)	1
	The BMB research requirement of two semesters or summers of research fulfilled by enrolling in two of the following courses: BMB 390, BMB 391, BIO 391, CHM 391, BMB 392, BIO 392, or CHM 392. **	0-6
BMB 395	Senior Research Project (Senior year only; guided by a faculty member)	2
Electives		
Co-Requirements ***		
MTH 112	Calculus with Analytic Geometry II	4
PHY 113 or PHY 123	General Physics I General Physics I - Studio Format	4
PHY 114 or PHY 124	General Physics II General Physics II - Studio Format	4

*
These biology and chemistry core courses should be completed in the first two years of study.

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At least two semesters or summers of research are required for research performed in a laboratory at Wake Forest University or the Wake Forest School of Medicine.

Should also be completed by the end of the third year.

Candidates for the BS degree in BMB must have a minimum GPA of 2.0 in their biology, chemistry, and BMB courses numbered 200 or above. Required physics and mathematics courses must be taken for a letter grade and may not be taken pass/fail.

Elective courses must be selected from the following list. For course descriptions, see the relevant department's listing in this publication. Additional elective courses may have been approved since publication of this bulletin. The program coordinator maintains a complete list of all approved elective courses. Students choosing the concentration in molecular biology can take any two from the list, while students choosing the biochemistry concentration must take either BMB 376 or CHM 341 and one other elective.

Elective Courses

Code	Title	Hours
BMB 301	Special Topics in Biochemistry and Molecular Biology	3
BMB 376	Biophysical Chemistry	3
BMB/BIO 381	Epigenetics	3
BMB/BIO 382	Molecular Signaling	3
BMB/BIO 383	Genomics	3
BIO 317 & 317L	Plant Physiology and Development and Plant Physiology and Development Lab (lab is optional)	3-4
BIO 336 & 336L	Development and Development Lab (lab is optional)	3-4
BIO 343	Molecular Neuroscience	3
BIO 360	Metabolic Diseases	3
BIO 362	Immunology	3
BIO 365	Biology of the Cell	3
BIO 367	Virology	3
BIO 369	Cancer Biology	3
BIO 386	Genetics & African Diaspora	3
BIO 388	Methods in Molecular Genetics	4
CHM 324	Medicinal Chemistry I	3
CHM 334	Chemical Analysis	4
CHM 341	Physical Chemistry I	3
CSC/BIO 385	Bioinformatics	3
CSC/BIO 387	Computational Systems Biology	3
PHY/BIO 307	Biophysics	3
PHY 320	Physics of Biological Macromolecules	3

Honors

Highly qualified majors may be eligible to graduate with honors in biochemistry and molecular biology if their research project is of sufficient quality. To be awarded the distinction "Honors in Biochemistry and Molecular Biology," a graduating student must have a minimum GPA of 3.0 in all courses and a 3.3 in required and elective BIO, BMB, and CHM courses. Honors students will have begun research before their senior year. Students interested in pursuing an honors degree must obtain preapproval from the program coordinator during the fall of the senior year and enroll in BMB 395 during their senior year. The student must prepare an honors paper describing his or her independent research project, written in the form of a scientific paper, which must be submitted to, and approved by, an advisory committee. Honors students are also required to make a short oral presentation at the end of their senior year. For additional information, please consult the program coordinator or BMB faculty advisors.