

The Biochemistry and Molecular Biology (BCMB) Program Curricular Planning

Students navigate through the BCMB Program in a variety of ways depending on their academic preparedness and on their specific interests. The following curricular plans represent a few of the possible paths for completing a BCMB major. We suggest that you discuss your background and your career goals with a BCMB adviser and configure the curricular plan that best supports your educational goals. Note that in these three outlined curricular plans, the term “elective” is used to denote a course that is not required to fulfill a BCMB major requirement. Many BCMB students enroll in electives that are germane to their major. For example, courses such as Biomolecular NMR Spectroscopy, Developmental Biology, Human Genes and Disease, Immunology, Medicinal Organic Chemistry, Microbiology and Neurobiology attract many BCMB majors. Remember that during your four years at the college, you will need to not only meet your major requirements but also fulfill your general education requirements. Be certain to think carefully about all of the elements of your undergraduate academic plan

BCMB Curricular Plan I (No AP Credit in the Sciences)

Fr.	Exploration & Discovery Chem. 110 (General Chemistry) lecture/lab Math 131 (Calculus I) or Math 132 (Calculus II) Elective	Exploration & Discovery Chem. 120 (General Chemistry) lecture/lab Bio 151 (Inv. In Genetics and Evolutionary Biology) lecture/lab Math 132 (Calculus II) or Elective
So.	Chem 220 (Organic Chemistry) lecture/lab Physics 141 (General Physics I) lecture/lab Elective Elective	Chem 220 (Organic Chemistry) lecture/lab Physics 142 (General Physics II) lecture/lab Bio 200 (Inv. in Cell and Molecular Biology) lecture/lab
Jr.	Bio 310 (Molecular Biology) Bio 312 (Molecular Biology Lab) Chem 330 (Structural Biochemistry) Elective	Overseas Study
Sr.	Bio 361 (Cell Biology) lecture/lab Elective Elective Senior Research or Elective	Chem 310 (Physical Chemistry) Chem 335 (Metabolic Biochemistry) Chem 336 (Biochemistry Lab) Senior Research or Elective

BCMB Curricular Plan II (AP Credit in Biology, Calculus and Chemistry)

Fr.	Exploration & Discovery Math 132 (Calculus II) Elective Elective	Exploration & Discovery Chem. 120 (General Chemistry) lecture/lab Bio 200 (Inv. in Cell and Molecular Biology) lecture/lab Elective
So.	Bio 310 (Molecular Biology) Bio 312 (Molecular Biology Lab) Chem 220 (Organic Chemistry) lecture/lab Physics 141 (General Physics I) lecture/lab	Chem 220 (Organic Chemistry) lecture/lab Physics 142 (General Physics II) lecture/lab Elective Elective
Jr.	Chem 330 (Structural Biochemistry) Bio 361 (Cell Biology) lecture/lab Elective Elective	Overseas Study
Sr.	Bio 361 (Cell Biology) lecture/lab Elective Elective Senior Research or Elective	Chem 310 (Physical Chemistry) Chem 335 (Metabolic Biochemistry) Chem 336 (Biochemistry Lab) Senior Research or Elective

Curricular Plan for Starting the BCMB Major as a Sophomore

Fr.	Exploration & Discovery Elective Elective Elective	Exploration & Discovery Elective Elective Elective
So.	Chem. 110 (General Chemistry) lecture/lab Math 131 (Calculus I) or Math 132 (Calculus II) Elective Elective	Chem. 120 (General Chemistry) lecture/lab Math 132 (Calculus II) Bio 151 (Inv. in Cell and Molecular Biology) lecture/lab
Jr.	Chem 220 (Organic Chemistry) lecture/lab Physics 141 (General Physics I) lecture/lab Bio 361 (Cell Biology) lecture/lab Elective	Chem 220 (Organic Chemistry) lecture/lab Physics 142 (General Physics II) lecture/lab Upper-Divisiopn Bio. Elective Elective
Sr	Bio 310 (Molecular Biology) Bio 312 (Molecular Biology Lab) Chem 330 (Structural Biochemistry) Elective	Chem 310 (Physical Chemistry) Chem 335 (Metabolic Biochemistry) Chem 336 (Biochemistry Lab) Elective

ADVANCED PLACEMENT CREDIT IN BIOLOGY, CHEMISTRY, AND MATHEMATICS

If you have an AP score of 5 in Biology, or an IB score of 7, you will receive credit for Bio 151. If you have an AP Chemistry score of 4, you will receive credit for Chem 110, and you should plan on enrolling in Chem 120 spring semester. If you received an AP Chemistry score of 5, or an IB score of 7, you are exempt from both semesters of General Chemistry (Chem 110 and 120). However, the Chemistry Department recommends that you consult with Dr. Louis Kuo (kuo@lclark.edu) before registering for Organic Chemistry (Chem 210).

If you have a Calculus AB AP score of 4-5 or one year of strong high school calculus, you should register for Math 132. If you have a Calculus BC score of 4-5, or two years of high school calculus, you have completed the required calculus course work for the BCMB major. We encourage students who arrive having completed their calculus requirement to continue their study of mathematics during their time at the college. We recommend enrolling in at least one or the following courses offered by the Department of Mathematics Sciences: Statistical Concepts and Methods, Discrete Mathematics, Linear Algebra, Differential Equations

COURSE WORK IN PHYSICS

Most BCMB majors enroll in the Physics 141,142 introductory sequence in physics but the Physics 151,152,251 sequence may also be used to satisfy the BCMB major requirements. This three-semester sequence is well suited for students interested in a more in-depth exploration of the topics.

OVERSEAS STUDY

For the majority of BCMB majors, the best semester to study overseas is the spring semester of their junior year. This is particularly true if a student anticipates participating in BCMB Honors Research during their senior year. If a fall semester overseas program is selected, students should consider enrolling during their sophomore year in either Bio 311/312 or Bio 361. Otherwise, concurrent enrollment in Bio 311/312, Bio 361, and Chem 330 will be required.

DOUBLE MAJORS

About ten percent of BCMB majors complete a second major. BCMB students have completed second majors in many different disciplines including Mathematics and Computer Science, International Affairs, Psychology, Hispanic Studies, and Sociology and Anthropology. Completion of a double major requires very careful academic planning and students are advised to work closely with a faculty adviser from each of their major disciplines.