



2023-2024 Catalog

Cell and Molecular Biology

Bachelor of Science

Program

Biology

The BS in Cell and Molecular Biology degree offers a curriculum concentrated in the areas of genetics, cell, and molecular biology. It emphasizes critical evaluation of scientific data, performance of sound experiments and tools for effective communication both orally and in writing. All CMB-BS students will complete a minimum of 11 laboratories and spend at least 100 hours working on an independent research project outside class under the supervision of a biology professor. Graduates of this major will be prepared to enter graduate school in biomedical research, health-related professional school, or work in careers related to the biotechnology industry.

**Note: All biology students must complete a Major Field Test prior to graduation. **

Total Credits 76

Biology			
Complete all of the following courses.			
Item #	Course Title		Credits
<input type="checkbox"/> BIOL 1351	Introduction to Population Biology and Evolution	BIOL 1351 Corequisite: BIOL 1151	3
<input type="checkbox"/> BIOL 1151	Introduction to Biology Practicum	BIOL 1151 Corequisite: BIOL 1351	1
<input type="checkbox"/> BIOL 1352	Introduction to Cell and Molecular Biology	BIOL 1352 Corequisite: BIOL 1152	3
<input type="checkbox"/> BIOL 1152	Basic Lab Techniques in Biology	BIOL 1152 Corequisite: BIOL 1352	1
<input type="checkbox"/> BIOL 3321	Genetics	Prerequisites (with a grade of 'C' or better): BIOL 1351/1151, 1352/1152 and CHEM 1341/1141.	3
<input type="checkbox"/> BIOL 3121	Genetics and Molecular Biology Laboratory	Prerequisites (with a grade of 'C' or better): BIOL 1351/1151, 1352/1152 and CHEM 1341/1141, 1342/1142; Corequisite: BIOL 3321	1
<input type="checkbox"/> BIOL 3333	Microbiology	BIOL Upper-Division Prerequisite (with a 'C' or better): BIOL 3321	3
<input type="checkbox"/> BIOL 3133	Microbiology Laboratory	BIOL Upper-Division Prerequisite (with a 'C' or better): BIOL 3321	1
<input type="checkbox"/> BIOL 3351	Molecular Biology	BIOL 3351 Prerequisites (With Grade of 'C' or Better): BIOL 3321, CHEM 2343	3
<input type="checkbox"/> BIOL 3151	Advanced Molecular Biology Laboratory	BIOL 3151 Prerequisites: BIOL 3321, 3121	1
<input type="checkbox"/> BIOL 3461	Cell Biology	BIOL Upper-Division Prerequisite (with a 'C' or better): BIOL 3321	4

<input type="checkbox"/>	BIOL 4332	Evolution	BIOL 4332 Prerequisites (With Grade of 'C' or Better): BIOL 3321 and Senior Standing.	3
<input type="checkbox"/>	BIOL 4336	Cells, Genes and Molecules	BIOL 4336 Prerequisites: BIOL 3321, 3334, 3351	3

Biology Research Methods

Complete all of the following courses.

Item #	Course Title		Credits	
<input type="checkbox"/>	BIOL 4194	Guided Biological Research	BIOL 3321, BIOL 3194, Senior standing or second semester Junior. Minimum of 50 documented research hours with Biology faculty member.	1
<input type="checkbox"/>	BIOL 4195	Biology Senior Thesis	BIOL 4195 Prerequisites: BIOL 3321, 3194, 4194. Senior standing and entering last semester. Minimum of 100 documented research hours with Biology faculty member.	1

Chemistry

Complete all of the following courses in order.

Item #	Course Title		Credits	
<input type="checkbox"/>	CHEM 1341	General Chemistry I	CHEM 1341 Corequisite: CHEM 1141	3
<input type="checkbox"/>	CHEM 1141	General Chemistry I Laboratory	CHEM 1141 Corequisite: CHEM 1341	1
<input type="checkbox"/>	CHEM 1342	General Chemistry II	CHEM 1342 Prerequisite (C or better): CHEM 1341/1141. Corequisite: CHEM 1142	3
<input type="checkbox"/>	CHEM 1142	General Chemistry II Laboratory	CHEM 1142 Corequisite: CHEM 1342	1
<input type="checkbox"/>	CHEM 2343	Organic Chemistry I	CHEM 2343 Prerequisite: CHEM 1342/1142; Corequisite: CHEM 2143.	3
<input type="checkbox"/>	CHEM 2143	Organic Chemistry I Laboratory	CHEM 2143 Corequisite: CHEM 2343	1
<input type="checkbox"/>	CHEM 3333	Organic Chemistry II	CHEM 3333 Prerequisite: CHEM 2343/2143; Corequisite: CHEM 3133.	3
<input type="checkbox"/>	CHEM 3133	Organic Chemistry II Laboratory	CHEM 3133 Corequisite: CHEM 3333	1
<input type="checkbox"/>	CHEM 3334	Biochemistry	CHEM 3334 Prerequisites: CHEM 2343, 2143	3
<input type="checkbox"/>	CHEM 3134	Biochemistry Laboratory	CHEM 3134 Corequisite: CHEM 3334	1
<input type="checkbox"/>	CHEM 4334	Advanced Biochemistry	CHEM 4334 Prerequisites (With Grade of 'C' or Better): CHEM/BIOL 3334	3

Physics

Choose one pair of the following courses.

Item #	Course Title	Credits
<input type="checkbox"/>	General Physics I & II w/ lab	
<input type="checkbox"/>	University Physics I & II w/ Labs	

Mathematics

Complete the following course.

Item #	Course Title	Credits
<input type="checkbox"/>	MATH 3450 Biostatistics I	4

Science Electives

Complete 12hrs of any of the following courses.

Item #	Course Title		Credits
<input type="checkbox"/>	BIOL 2445 Human Anatomy and Physiology I		4
<input type="checkbox"/>	BIOL 2446 Human Anatomy and Physiology II	BIOL 2046 Prerequisite: BIOL 2445; Corequisite: BIOL 2446	4
<input type="checkbox"/>	BIOL 3339 Neuroscience	BIOL Upper-Division Prerequisite (with a 'C' or better): BIOL 3321	3
<input type="checkbox"/>	BIOL 3362 Cancer Biology	BIOL Upper-Division Prerequisite (with a 'C' or better): BIOL 3321	3
<input type="checkbox"/>	BIOL 3345 Physiology	BIOL 3345 Prerequisite (With Grade of 'C' or Better): BIOL 1351/1151, 1352/ 1152	3
<input type="checkbox"/>	BIOL 3448 Comparative Anatomy	BIOL Upper-Division Prerequisite (with a 'C' or better): BIOL 3321	4
<input type="checkbox"/>	BIOL 4321 Nucleic Acids	BIOL Upper-Division Prerequisite (with a 'C' or better): BIOL 3321	3
<input type="checkbox"/>	BIOL 4449 Immunology	BIOL Upper-Division Prerequisite (with a 'C' or better): BIOL 3321	4
<input type="checkbox"/>	CHEM 3343 Analytical Chemistry	CHEM 3343 Prerequisite: CHEM 1342/1142; Corequisite: CHEM 3143.	3
<input type="checkbox"/>	CHEM 3143 Analytical Chemistry Laboratory	CHEM 3143 Corequisite: CHEM 3343	1
<input type="checkbox"/>	CHEM 4331 Advanced Organic Chemistry	CHEM 4331 Prerequisites: CHEM 3333/3133; Corequisite: CHEM 4131.	3
<input type="checkbox"/>	CHEM 4131 Advanced Organic Chemistry Laboratory	CHEM 4131 Corequisite: CHEM 4331.	1
<input type="checkbox"/>	CHEM 4332 Inorganic Chemistry	CHEM 4332 Prerequisites: CHEM 3333/3133; Corequisite: CHEM 4132.	3
<input type="checkbox"/>	CHEM 4132 Inorganic Chemistry Laboratory	CHEM 4132 Corequisite: CHEM 4332	1

<input type="checkbox"/>	PHYS 1332	General Physics II	PHYS 1332 Prerequisite: PHYS 1331	3
<input type="checkbox"/>	PHYS 1112	General Physics II Laboratory	PHYS 1112 Corequisite: PHYS 1332	1
<input type="checkbox"/>	PHYS 2334	University Physics II	PHYS 2334 Prerequisite: PHYS 2333; Pre/Corequisite: MATH 1432.	3
<input type="checkbox"/>	PHYS 2112	University Physics II Lab	PHYS 2112 Corequisite: PHYS 2334	1