

BIOCHEMISTRY B.S. (Sample Plan of Study)
 (for students following requirements in the *2023-24 General Bulletin or later*)
(123 total credit hours required for graduation)

First Year – Fall

<u>Course Number</u>	<u>Course Topic</u>	<u>Hours</u>
BIOC 101	Biochemistry introduction	1
BIOL 214	Biology I	3
BIOL 214L	Biology I lab	1
CHEM 105 (or CHEM 111)	Chemistry 1	3 (or 4)
CHEM 113	Chemistry lab	2
MATH 121	Calculus I	4
Academic Inquiry, Breadth, or Elective course ¹		3
	<u>Total</u>	<u>17 (or 18)</u>

First Year – Spring

BIOL 215	Biology II	3
BIOL 215L	Biology II lab	1
CHEM 106 (or ENGR 145)	Chemistry II	3
MATH 122 (or MATH 124)	Calculus II	4
PHYS 121 (or PHYS 123)	Physics I: mechanics	4
Academic Inquiry, Breadth, or Elective course ¹		3
	<u>Total</u>	<u>18</u>

Second Year – Fall

<u>Course Number</u>	<u>Course Topic</u>	<u>Hours</u>
CHEM 223 (or CHEM 323)	Organic chemistry I	3
CHEM 233	Organic chemistry I lab	2
PHYS 122 (or PHYS 124)	Physics II: electricity and magnetism	4
STAT 312 (or STAT312R/313)	Basic statistics	3
Breadth or Elective course ¹		3
	<u>Total</u>	<u>15</u>

Second Year – Spring

CHEM 224 (or CHEM 324)	Organic chemistry II	3
CHEM 234	Organic chemistry II lab	2
ENGR 131 (or CSDS 132)	Computer programming introduction	3
Breadth or Elective course ¹		3
Open Elective course ³ (e.g. to complete a minor)		3
	<u>Total</u>	<u>14</u>

Third Year – Fall

<u>Course Number</u>	<u>Course Topic</u>	<u>Hours</u>
BIOC 307	Biochemistry I: molecules and pathways	4
BIOC Approved Technical Elective or Core Course ²		3
Breadth or Elective course ¹		3
Open Elective course ³ (e.g. to complete a minor)		3
	<u>Total</u>	<u>13</u>

Third Year – Spring

BIOC 308	Biochemistry II: molecular biology	4
BIOC 391 ⁴	Capstone Research	3
BIOC Approved Technical Elective or Core Courses ²		6
Breadth or Elective course ¹		3
	<u>Total</u>	<u>16</u>

Fourth Year – Fall

<u>Course Number</u>	<u>Course Topic</u>	<u>Hours</u>
BIOC 373	Biochemistry Senior Seminar	3
BIOC Approved Technical Elective or Core Course ²		3
Breadth or Elective course ¹		3
Open Elective courses ³ (e.g. to complete a minor)		6
	<u>Total</u>	<u>15</u>

Fourth Year – Spring

BIOC 393 ⁵	Senior Capstone Communication	3
BIOC Approved Technical Elective or Core Course ²		3
Breadth or Elective course ¹		3
Open Elective courses ³ (e.g. to complete a minor)		6
	<u>Total</u>	<u>15</u>

¹Please refer to the general education requirements as specified in the General Bulletin.

²Students must take 2 of the 3 Biochemistry core courses: BIOC 312, BIOC 334, and BIOC 350.

²B.S. students are required to complete 3 approved technical elective courses.

³Any course not specified for the Biochemistry major or CWRU General Education requirements.

⁴Students must take BIOC 391 at least one semester.

⁵The Honors Research concentration requires BIOC 393H in place of BIOC 393.

Optional concentrations (Cancer Biology, Infectious Disease, Metabolism, and Computational Health Science) do not require additional courses but do require completion of 1 specific Biochemistry core course and 2 specific approved technical elective courses.