

**College of Science**  
**Department of Biochemistry (CALs)**  
**Bachelor of Science in Biochemistry (BS) - BIOC Major**  
**For Student Date of Entry under University Course Catalog 2022-2023**

**PATHWAYS TO GENERAL EDUCATION REQUIREMENTS**

Pathways to General Education requirements and approved courses are available online:

[http://www.pathways.prov.vt.edu/content/pathways\\_prov\\_vt\\_edu/en/about/course-catalog.html](http://www.pathways.prov.vt.edu/content/pathways_prov_vt_edu/en/about/course-catalog.html)

	(credit hours in parentheses)	
<b>Foundational Discourse</b> (Concept 1f: 6 credits) (ENGL 1105-1106 First-Year Writing)	(3) _____	(3) _____
<b>Advanced/Applied Discourse</b> (Concept 1a: 3 credits) (Select from approved Pathways courses)	(3) _____	
<b>Critical Thinking in the Humanities</b> (Concept 2: 6 credits) (Select from approved Pathways courses)	(3) _____	(3) _____
<b>Reasoning in the Social Sciences</b> (Concept 3: 6 credits) (Select from approved Pathways courses)	(3) _____	(3) _____
<b>Reasoning in the Natural Sciences</b> (Concept 4) (Area fulfilled by BIOL 1105 and BIOL 1106)		
<b>Foundational Quantitative and Computational Thinking</b> (Concept 5f) (Area fulfilled by MATH 1025 and MATH 1026)		
<b>Advanced/Applied Quantitative and Computational Thinking</b> (Concept 5a) (Area fulfilled by STAT 3615)		
<b>Critique and Practice in the Arts</b> (Concept 6a: 3 credits) (Select from approved Pathways courses)	(3) _____	
<b>Critique and Practice in Design</b> (Concept 6d: 3 credits) (Select from approved Pathways courses)	(3) _____	
<b>Critical Analysis of Identity and Equity in the United States</b> (Concept 7: 3 credits)* (Select from approved Pathways courses)		(3) _____

\*Concept 7 course may also be used to fulfill part of Concept 2 or Concept 3 requirement.

**Pathways credit hour requirement:**

**30 credits**

## COLLEGE AND DEPARTMENT REQUIREMENTS

\* indicates course with prerequisite(s) or corequisite(s). Always check the Undergraduate Catalog for the most current prerequisite and corequisite information.

### Degree Core (19 credits):

BCHM 1014	Biochem First Year Experience	(1) ___	
BCHM 2114*	Biochemical Calculations	(2) ___	
BCHM 4115-4116*	General Biochemistry	(4) ___	(3) ___
BCHM 4124*	Laboratory Problems in Biochemistry and Molecular Biology	(6) ___	
BIOL 2004*	Genetics	(3) ___	

### Major Requirements (56 credits):

BIOL 1105-1106	Principles of Biology	(3) ___	(3) ___
BIOL 1115-1116*	Principles of Biology Laboratory	(1) ___	(1) ___
BIOL 2604*	General Microbiology	(3) ___	
BIOL 2614*	General Microbiology Laboratory	(2) ___	
CHEM 1035-1036	General Chemistry	(3) ___	(3) ___
CHEM 1045-1046	General Chemistry Laboratory	(1) ___	(1) ___
CHEM 2114*	Analytical Chemistry	(3) ___	
CHEM 2124*	Analytical Chemistry Laboratory	(1) ___	
CHEM 2535-2536*	Organic Chemistry	(3) ___	(3) ___
CHEM 2545-2546*	Organic Chemistry Laboratory	(1) ___	(1) ___
CHEM 4615*	Physical Chemistry for the Life Sciences	(3) ___	
CHEM 4616* OR BCHM 4354* OR BCHM 5024*	Physical Chemistry for the Life Sciences OR Biochemical Communication OR Computational Biochemistry for Bioinformatics		(3) ___
MATH 1025-1026	Elementary Calculus	(3) ___	(3) ___
PHYS 2205-2206*	General Physics	(3) ___	(3) ___
PHYS 2215-2216*	General Physics Laboratory	(1) ___	(1) ___
STAT 3615*	Biological Statistics	(3) ___	

Free electives:

**15 credits**

College and Department credit hour requirement:

**75 credits**

Pathways to General Education requirement:

**30 credits**

Total to complete degree:

**120 credits**

**Prerequisites:** This checksheet contains no hidden prerequisites, although some courses listed are prerequisites for other courses. Consult the Undergraduate Catalog for the most current prerequisite and corequisite information.

**Foreign Language Requirement:** Students who did not successfully complete at least two units of a single foreign, classical, or sign language during high school must successfully complete six semester hours of a single foreign, classical, or sign language at the college level. Courses taken to meet this requirement do not count toward the hours required for graduation. Please consult the Undergraduate Catalog for details.

**Satisfactory Progress Toward Degree:**

- (1) After having attempted 36 semester credits (including transfer, advanced placement, advanced standing, credit by examination and course withdrawal hours), students must have completed at least 12 semester credits of the Pathways to General Education.
- (2) After having attempted 72 semester credits (including transfer, advanced placement, advanced standing, credit by examination and course withdrawal hours), students must have completed at least 24 semester credits of the Pathways to General Education.
- (3) After having attempted 72 semester credits (including transfer, advanced placement, advanced standing, credit by examination and course withdrawal hours), students:
  - a. Must have an in-major grade point average of 2.0 or greater; and
  - b. Must have completed: BCHM 2114, BIOL 1105-1106; BIOL 1115-1116; BIOL 2004; CHEM 1035-1036; CHEM 1045-1046; CHEM 2535-2536; CHEM 2545-2546; PHYS 2205-2206; PHYS 2215-2216.

**Credit hours and GPA requirements:** Graduation requires completion of a minimum of 120 credit hours with a GPA of 2.0 or greater for all hours attempted. In addition, students must have an in-major GPA of 2.0 or greater. **The following courses are used to calculate the in-major GPA (students must earn a grade of C- or better in each of these courses or their approved substitutions):**

BCHM: 2114, 4115, 4116, 4124

BIOL: 1105, 1106, 1115, 1116, 2004, 2604, 2614

CHEM: 1035, 1036, 1045, 1046, 2114, 2124, 2535, 2536, 2545, 2546, 4615, 4616

**Approved Course Substitutions:**

For CHEM 1035-1036: CHEM 1055-1056 or CHEM 1055H-1056H (General Chemistry for Majors)

For CHEM 1045-1046: CHEM 1065-1066 (General Chemistry Laboratory for Majors)

For CHEM 2535-2536: CHEM 2565-2566 (Principles of Organic Chemistry)

For CHEM 2114: CHEM 2154 (Analytical Chemistry for Majors)

For CHEM 2124: CHEM 2164 (Analytical Chemistry Laboratory for Majors)

For ENGL 1105-1106: COMM 1015-1016 (Communication Skills)

For ENGL 1106: ENGL 1204H (Honors Freshman English)

For STAT 3615: STAT 3005 (Statistical Methods)

For CHEM 4615-4616: CHEM 3615-3616 (Physical Chemistry for Majors)

For MATH 1025-1026: MATH 1225-1226 (Calculus of a Single Variable)

For PHYS 2205-2206 and PHYS 2215-2216: PHYS 2305-2306 (Foundations of Physics)