College of Agriculture and Life Sciences

Bachelor of Science in Biochemistry

SAMPLE Academic Plan for students graduating calendar year 2026 and for student date of entry under UG Catalog 2022-2023

Total of 120 credit hours needed for graduation

Fall Semester Freshman	Credits	Spring Semester Freshman	Credits
ENGL 1105: First-Year Writing - Pathways 1f (foundational) - Discourse	**3**	***ENGL 1106: First-Year Writing - Pathways 1f (foundational) - Discourse** *Prereq: ENGL 1105*	**3**
MATH 1025: Elementary Calculus - Pathways 5f (foundational) – Quantitative & Computational	**3**	***MATH 1026: Elementary Calculus - Pathways 5f (foundational) – Quantitative & Computational** *Prereq: MATH 1025*	**3**
CHEM 1035: General Chemistry - Pathways 4 - Reasoning in the Natural Sciences	3	*CHEM 1036: General Chemistry - Pathways 4 - Reasoning in the Natural Sciences *Prereq: CHEM 1035*	3
CHEM 1045: General Chemistry Lab	1	*CHEM 1046: General Chemistry Lab *Prereq: CHEM 1045*	1
BIOL 1105: Principles of Biology - Pathways 4 - Reasoning in the Natural Sciences	3	BIOL 1106: Principles of Biology - Pathways 4 - Reasoning in the Natural Sciences	3
BIOL 1115: Principles of Biology Lab	1	BIOL 1116: Principles of Biology Lab	1
BCHM 1014: Biochem First Year Experience	1	BCHM 1024: Biochem Research Skills (optional)	1
TOTAL	15	**TOTAL**	15
Fall Semester Sophomore	**Credits**	**Spring Semester Sophomore**	**Credits**
BCHM 4074: Career Orientation (optional)	1	*BCHM 2354: Biochemical Techniques *Prereq: CHEM 2535*	3
*CHEM 2535: Organic Chemistry *Prereq: CHEM 1036*	3	*BCHM 2364: Biochemical Techniques Lab	1
*CHEM 2545: Organic Chemistry Lab *Prereq: CHEM 1046*	1	*CHEM 2536: Organic Chemistry *Prereq: CHEM 2535*	3
***PHYS 2205: General Physics** *Prereq: MATH 1025*	**3**	*CHEM 2546: Organic Chemistry Lab *Prereq: CHEM 2545*	1
***PHYS 2215: General Physics Lab** *Coreq: PHYS 2205*	**1**	***PHYS 2206: General Physics** *Prereq: PHYS 2205*	**3**
***STAT 3615: Biological Statistics - Pathways 5a (adv) - Quantitative & Computational** *Prereq: MATH 1025*	**3**	***PHYS 2216: General Physics Lab** *Prereq: PHYS 2215; Coreq: PHYS 2206*	**1**
Pathways 3 – Reasoning in the Social Sciences: YOU CHOOSE	**3**	**Pathways 2 - Critical Thinking in the Humanities: YOU CHOOSE**	**3**
TOTAL	15	**TOTAL**	15
Fall Semester Junior	**Credits**	**Spring Semester Junior**	**Credits**
*BCHM 4115: General Biochemistry *Prereq: CHEM 2536; BCHM 2354, BCHM 2364*	4	*BCHM 4116: General Biochemistry *Prereq: BCHM 4115*	3
*BIOL 2004: Genetics *Prereqs: BIOL 1105, BIOL 1106, CHEM 1036*	3	*BCHM 4124: Biochemistry Lab *Prereq: BCHM 4115; Coreq: BCHM 4116*	6
*BIOL 2604: General Microbiology *Prereqs: BIOL 1105, BIOL 1106, CHEM 1036*	3	**Pathways 6d (design) – Critique and Practice in Design & the Arts: YOU CHOOSE**	3
*BIOL 2614: General Microbiology Lab *Prereqs: BIOL 1105, BIOL 1106, CHEM 1036* *Coreq: BIOL 2604*	2	**Pathways 3 – Reasoning in the Social Sciences: YOU CHOOSE**	**3**
Pathways 2 - Critical Thinking in the Humanities: YOU CHOOSE	**3**		
TOTAL	15	**TOTAL**	15
Fall Semester Senior	**Credits**	**Spring Semester Senior**	**Credits**
*CHEM 4615: Physical Chemistry Life Sci *Prereqs: CHEM 1036, MATH 1026, PHYS 2206* or *BCHM Advanced Elective (see pg. 2 for options)	3	*CHEM 4616: Physical Chemistry Life Sci *Prereqs: CHEM 1036, MATH 1026, PHYS 2206* or *BCHM Advanced Elective (see pg. 2 for options)	3
Pathways 6a (art) – Critique and Practice in Design & the Arts: YOU CHOOSE	3	**Pathways 7 - Identity and Equity in the US (note, this concept can possibly double count with another concept): YOU CHOOSE**	**3**
Pathways 1a (advanced) - Discourse: YOU CHOOSE	**3**	**Elective**	**9**
Elective	**6**		
TOTAL	15	**TOTAL**	15

Bolded courses may be taken during any semester, except for MATH 1025 must be taken before PHYS 2205 and PHYS 2206 must be taken before CHEM 4615-4616 if you take Physical Chemistry.

Pathways to General Education (Pathways) Consult the pathways courses table: https://www.pathways.prov.vt.edu/about/table.html. Pathways courses need to be completed prior to graduation				
Pathways Concept 1: Discourse (6 hrs foundational, 3 hrs advanced)	*Foundational:* **ENGL 1105**	**(3)**	*Foundational:* ***ENGL 1106**	**(3)**
	Advanced:			**(3)**
Pathways Concept 2: Critical Thinking in the Humanities (6 hrs)		**(3)**		**(3)**
Pathways Concept 3: Reasoning in the Social Sciences (6 hrs)		**(3)**		**(3)**
Pathways Concept 4: Reasoning in the Natural Sciences (6 hrs)	**BIOL 1105**	**(4)**	**BIOL 1106**	**(4)**
Pathways Concept 5: Quantitative and Computational Thinking (9 hrs)	*Foundational:* **MATH 1025**	**(4)**	*Foundational:* ***MATH 1026**	**(4)**
	Advanced: ***STAT 3615**			**(3)**
Pathways Concept 6: Critique and Practice in Design and the Arts (6 hrs)	*Arts (6a):*			**(3)**
	Design (6d):			**(4)**
Pathways Concept 7*: Critical Analysis of Identity & Equity in the US (3 hrs)	Pathways 7 should be double counted with either Pathways 2, 3, or 6a to avoid taking any additional credit hours.			**(3)**
* If a Pathways course is taken that does not double-count Pathways 7 with Pathways 2, 3 or 6a, then three more Pathways credits are needed.				

BCHM Advanced Electives options include:
BCHM 3634: Analysis of Biochemical Literature - Prereqs: BIOL 2604 and CHEM 2535 - offered fall semester only
BCHM 4354: Biochemical Communication - Prereqs: BCHM 4115 and STAT 2004 or 3615 - offered spring semester only
BCHM 4554: Biophysics for Biochemistry - Prereq: BCHM 4115 - offered spring semester only
BCHM 5024: Computational Biochemistry for Bioinformatics - offered every other spring semester only (odd years)

***Prerequisites and/or corequisites:** This checksheet contains no hidden prerequisites and/or corequisites, 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: 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: 2354, 2364, 4115, 4116, 4124; advanced elective courses
BIOL: 1105, 1106, 1115, 1116, 2004, 2604, 2614
CHEM: 1035, 1036, 1045, 1046, 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 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)