

# BIOCHEMISTRY MAJOR

*Suggested program for students who complete General Chemistry in sophomore year.*

Name: \_\_\_\_\_

Graduation year: \_\_\_\_\_

YEAR		COURSE	CRED.	PREREQUISITE(S)
Soph.	Fall	CHEM BC2001x (Gen Chem) MATH UN1101x (Calc. I), <i>Note 1</i>	5.0 3.0	Algebra
	Spring	CHEM BC3230y (Orgo I) CHEM BC3328y (Orgo I Lab) MATH UN1102y (Calc. II), <i>Note 1</i> BIOL BC1502y (Intro Biol.) BIOL BC1503y (Intro Biol. Lab)	3.0 2.5 3.0 3.0 2.0	CHEM BC2001x CHEM BC2001x MATH UN1101x,y BIOL BC1001 (or equivalent) BIOL BC1001 (or equivalent)
Junior	Fall	CHEM BC3231x (Orgo II) CHEM BC3333x (Mod. Tech.) PHYS BC2001x (Physics w/lab), <i>Note 2</i>	3.0 3.0 4.5	CHEM BC3230y CHEM BC3328y; Coreq.: CHEM BC3231x MATH UN1101x,y
	Spring	CHEM BC3242y (Quant. Lecture) CHEM BC3338y (Quant. Lab) PHYS BC2002y (Physics w/lab), <i>Note 2</i>	3.0 3.0 4.5	CHEM BC3231x; MATH UN1101x,y; <u>Coreq:</u> CHEM BC3338y CHEM BC3231x, 3333x MATH UN1101x,y
Senior	Fall	CHEM BC3282x (Biol. Chem.) CHEM BC3253x (Quantum) Senior Requirement, <i>Note 4</i> <i>Elective Course (optional), Note 3</i>	3.0 3.0 4.0 3.0	CHEM BC3231x, BIOL BC1502y CHEM BC3242y; MATH UN1102 or 1201; PHYS BC2001x & 2002y
	Spring	CHEM BC3283y (Biol. Chem. II) CHEM BC3355y (Biochem. Lab) Senior Requirement, <i>Note 4</i> <i>CHEM BC3271y (Inorganic), Note 5</i>	3.0 5.0 4.0 3.0	CHEM BC3282x CHEM BC3333x, BC3338y CHEM BC3231x

**Note 1.** Two semesters of math after entering college, including *Calculus* I and II are required. For the Class of 2021 and beyond, students must complete through *Calculus II*, including two math courses while a student at Barnard. At least one of the courses taken at Barnard must be a calculus class. The remaining requirement can be fulfilled with a mathematics, statistics, or computer science course. A few suggested courses that fulfill this requirement after students have taken through *Calculus II* and after they have taken at least one calculus class in college are (1) Computer Science W1004 INTRO-COMPUT SCI/PROG IN JAVA; (2) Computer Science W1005 INTRO-COMPUT SCI/PROG-MATLAB; (3) Engineering E1006 INTRO TO COMP FOR ENG/APP SCI; (4) ORCA 2500 Foundations of Data Science; (5) BC3050 BIG DATA WITH PYTHON.

**Note 2.** The Barnard physics sequence (PHYS BC2001x-2002y) is strongly recommended. Any calculus-based Columbia sequence, with two semesters of laboratory work, is acceptable (1401-2, 1601-2, but *not* 1201-2). Consult with your advisor to ensure proper laboratory placement. For greater coverage of basic physics, PHYS BC3001x (*Waves and Optics*) is recommended.

**Note 3.** One elective course is required. A list of approved advanced lecture and/or lab courses at Barnard or Columbia is available.

**Note 4.** Senior Honors Thesis (CHEM BC3901/3902) or Guided Research (CHEM BC3599) at Barnard, Columbia, or elsewhere.

**Note 5.** Completion of CHEM BC3271 (*Inorganic*) is required to receive an American Chemical Society certified degree. It is not required for the major.

**ELECTIVE COURSE(S):**

<b>COURSE</b>	<b>CREDITS</b>	<b>SEMESTER</b>
<input type="checkbox"/> CHEM BC3271 <i>Inorganic</i> (required for ACS certification)	3.0	
<input type="checkbox"/> CHEM BC3280 <i>Advanced Organic</i>	3.0	
<input type="checkbox"/> CHEM BC3252 <i>Thermodynamics and Kinetics</i>	3.0	
<input type="checkbox"/> CHEM BC3254 <i>Methods and Applications in Physical Chemistry</i>	3.0	
<input type="checkbox"/> CHEM BC3348 <i>Advanced Spectroscopy and Analysis Laboratory</i>	3.0	
<input type="checkbox"/> CHEM BC3358 <i>Advanced Chemical Synthesis Laboratory</i>	5.0	
<input type="checkbox"/> Approved CU course: _____	_____	

**SENIOR REQUIREMENT:**

	<b>MENTOR</b>
<input type="checkbox"/> CHEM BC3901/3902 <i>Senior Honors Thesis</i>	
<input type="checkbox"/> CHEM BC3599 <i>Guided Research</i>	

**GENERAL ADVISING NOTES:**

- Biochemistry majors are no longer required to complete the fall semester *Introductory Biology* lecture or lab course (BIOL BC 1500/1501). They still must complete the spring semester (BIOL BC1502/1503).
- Biochemistry majors are no longer required to complete *Thermodynamics and Kinetics* (CHEM BC3252).
- Students must complete Inorganic Chemistry (CHEM BC3271) to receive an ACS-certified degree
- Students are strongly encouraged to take a math course after their first year.

**OTHER NOTES/COMMENTS:**