

CHEMISTRY 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>	3.0 2.5 3.0	CHEM BC2001x CHEM BC2001x; <u>Coreq.</u> : CHEM BC3230y MATH UN1101x,y
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; <u>Coreq.</u> : CHEM BC3231x <u>Coreq.</u> : MATH UN1101x,y
	Spring	CHEM BC3242 (Quant. Lecture) CHEM BC3338y (Quant. Lab) PHYS BC2002y (Physics w/ lab), <i>Note 2</i> CHEM BC3271y (Inorganic)	3.0 3.0 4.5 3.0	CHEM BC3231x; MATH UN1101x,y; <u>Coreq.</u> : CHEM BC3338y CHEM BC3231x, 3333x <u>Coreq.</u> : MATH UN1102x,y CHEM BC3231x
Senior	Fall	CHEM BC3253x (Quantum) CHEM BC3358x (Adv. Syn. Lab) Senior Requirement, <i>Note 4</i> <i>Elective Course, Notes 3 and 5</i>	3.0 5.0 4.0 3.0	CHEM BC3242y; MATH UN1102 or 1201; PHYS BC2001x & 2002y CHEM BC3333x, 3338y, 3271y; <u>Coreq.</u> : CHEM BC3253x
	Spring	CHEM BC3252y (Thermo.) CHEM BC3348y (Adv. Spec. Lab) Senior Requirement, <i>Note 4</i> <i>Elective Course, Note 3</i>	3.0 3.0 4.0 3.0	CHEM BC3242y; MATH UN1102 or 1201; PHYS BC2001x & 2002y CHEM BC3253x; <u>Coreq.</u> : CHEM BC3271y, 3252y

Note 1. Two semesters of math after entering college, including *Calculus* I and II are required. Students having AP credit for 1 or 2 semesters of calculus will fulfill this requirement with additional mathematics, statistics, or computer science courses. *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 BC3282 (*Biological Chemistry*) is required to receive an American Chemical Society certified degree. It is not required for the major.

ELECTIVE COURSE(S):

COURSE	CREDITS	SEMESTER
<input type="checkbox"/> CHEM BC3280 <i>Advanced Organic</i>	3.0	
<input type="checkbox"/> CHEM BC3272 <i>Advanced Inorganic</i>	3.0	
<input type="checkbox"/> CHEM BC3254 <i>Methods and Applications in Physical Chemistry</i>	3.0	
<input type="checkbox"/> CHEM BC3282 <i>Biological Chemistry I</i> (required for ACS certification)	3.0	
<input type="checkbox"/> CHEM BC3283 <i>Biological Chemistry II</i>	3.0	
<input type="checkbox"/> CHEM BC3355 <i>Biochemistry Techniques Laboratory</i>	5.0	
<input type="checkbox"/> Approved CU course: _____	_____	

SENIOR REQUIREMENT:

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

GENERAL ADVISING NOTES:

- Students are encouraged to take *Quantum Chemistry* before *Thermodynamics and Kinetics*, but either order is acceptable. Note that *Quantum* is a co-requisite for the *Advanced Synthesis Lab*.
- Students are encouraged to consider taking an elective course during the Fall semester of their junior year.
- Students are strongly encouraged to take a math course after their first year.

OTHER NOTES/COMMENTS: