# CHEMISTRY MAJOR

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

Name: ___________________________________________  
Graduation year: ________________________

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<tr>
<th>YEAR</th>
<th>SEMESTER</th>
<th>COURSE</th>
<th>CRED.</th>
<th>PREREQUISITE(S)</th>
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| Soph. | Fall     | CHEM BC2001x (Gen. Chem.)  
MATH UN1101x (Calc. I), Note 1 | 5.0 | Algebra |
|       | Spring   | CHEM BC3230y (Orgo I)  
CHEM BC3328y (Orgo I Lab)  
MATH UN1102y (Calc. II), Note 1 | 3.0 | CHEM BC2001x  
CHEM BC2001x; Coreq.: CHEM BC3230y  
MATH UN1101x,y |
| Junior | Fall    | CHEM BC3231x (Orgo II)  
CHEM BC3333x (Mod. Tech.)  
PHYS BC2001x (Physics w/ lab), Note 2 | 3.0 | CHEM BC3230y  
CHEM BC3328y; Coreq.: CHEM BC3231x  
MATH UN1101x,y |
|        | Spring | CHEM BC3242 (Quant. Lecture)  
CHEM BC3338y (Quant. Lab)  
PHYS BC2002y (Physics w/ lab), Note 2  
CHEM BC3271y (Inorganic) | 4.5 | CHEM BC3231x; MATH UN1101x,y; Coreq: CHEM BC3338y  
CHEM BC3231x, 3333x  
MATH UN1101x,y  
CHEM BC3231x |
| Senior | Fall    | CHEM BC3253x (Quantum)  
CHEM BC3358x (Adv. Syn. Lab)  
Senior Requirement, Note 4  
Elective Course, Notes 3 and 5 | 3.0 | CHEM BC3242y; MATH UN1102 or 1201; PHYS BC2001x & 2002y CHEM BC3333x, 338y, 3271y; Coreq.: CHEM BC3253x |
|        | Spring | CHEM BC3252y (Thermo.)  
CHEM BC3348y (Adv. Spec. Lab)  
Senior Requirement, Note 4  
Elective Course, Note 3 | 3.0 | CHEM BC3242y; MATH UN1102 or 1201; PHYS BC2001x & 2002y CHEM BC3253x; Coreq.: CHEM BC3271y, 3252y |

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**Note 1.** Two semesters of math after entering college, including *Calculus I* and (II or III) 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. The mathematics department allows students to take *Calculus I* followed directly by III. A third and fourth semester of calculus (MATH UN1201- UN1202) is strongly recommended.

**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, by invitation of the department) 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):

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<tr>
<th>COURSE</th>
<th>CREDITS</th>
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<tbody>
<tr>
<td>CHEM BC3280 Advanced Organic</td>
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<tr>
<td>CHEM BC3272 Advanced Inorganic</td>
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<tr>
<td>CHEM BC3254 Methods and Applications in Physical Chemistry</td>
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<tr>
<td>CHEM BC3282 Biological Chemistry I (required for ACS certification)</td>
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<tr>
<td>CHEM BC3283 Biological Chemistry II</td>
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<tr>
<td>CHEM BC3555 Biochemistry Techniques Laboratory</td>
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<td>Approved CU course: ___________________________</td>
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SENIOR REQUIREMENT:

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<tr>
<th>COURSE</th>
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<tr>
<td>CHEM BC3901x/3902y Senior Honors Thesis</td>
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<tr>
<td>CHEM BC3599x,y Guided Research</td>
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GENERAL ADVISING NOTES:
- Students are encouraged to take Quantum Chemistry before Thermodynamics and Kinetics, but either order is acceptable. Note that Quantum is a corequisite 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: