

## CHEMISTRY: CHEMICAL BIOLOGY SPECIALIZATION (CCB) & PRE-HEALTH

This track overlaps with the Chemistry and the Biochemistry and Molecular Biology major in Years 1–2, allowing students to explore both chemistry and biology courses without limiting their options later. This specialization has better overlap with pre-health requirements than the other chemistry majors, making it a good choice for future health professionals.

For simplicity, the recommended path through the major is presented. See advising worksheet for alternative paths that satisfy this major's requirements.

### Core Courses

1. General Chemistry with Quantitative Analysis (2 semesters)
  - Recommended: CH109 + CH110
  - **or** CH101 + CH102 + CH201(2 units) **or** CH101 + CH116 + CH201(2 units)
2. Organic Chemistry with Qualitative Analysis (2 semesters)
  - Recommended: CH211 + CH212
  - **or** CH203 + CH214 **or** CH203 + CH204 + CH220(2 units) **or** CH214 + CH218
3. Inorganic Chemistry (1 semester)
  - CAS CH232 (spring)
4. Physical Chemistry (2 semesters)
  - CH352 – Physical Chemistry II: Statistical Thermodynamics (fall)
  - CH525 – Biophysical Chemistry (spring course, CH225 recommended, not required)
5. Biochemistry and Chemical Biology (3 semesters)
  - BB421(fall)
  - BB422 (spring) or CH623 (fall)
  - CH524 (spring)

### Required Related Courses

1. Biology (1 semester):
  - CAS BI08 (spring)
2. Cell Biology (1 semester)
  - Recommended: CAS BI213 (fall) **or** BI203 (both semesters)
3. Calculus (2 semesters)
  - Recommended: CAS MA123 + MA124
  - **or** MA 121 + MA122 + CH225
4. General Physics (2 semesters, calculus-based)
  - Recommended: CAS PY211 + PY212
  - **or** PY211+ PY106 **or** PY251 + PY252)

### Electives

Two additional 4-unit electives must be completed. At least one elective must be at the **400-level or higher**, and at least one must be a **CAS CH course**. Completion of two terms of research

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(CAS CH 401, 402 or CAS CH 461, 462) can be used to fulfill one elective requirement; the research must involve a project at the chemistry-biology interface.

### Sample 4-Year Plan

Year	Fall Semester	Spring Semester	Notes
<b>First</b>	CH109*, MA123, <b>PS/SO Course</b> , CC101/WR120  <u>Optional:</u> CH195/FY101	CH110*, MA124, BI108*, WR15x	~CH195 is a good way to get oriented in the major and meet other aspiring chemists. If CH195 conflicts with your other courses, register for FY101. ~Students who elect to use AP credit for BI107 & BI108 may begin their language requirement in Year 1. See notes below regarding recommendations for pre-health students.
<b>Second</b>	CH211*, BI213/203, PY211*, <b>PS/SO Course</b>  <u>Optional:</u> <b>FY 103</b>	CH212*, PY212*, <b>BI315*</b> , Open/HUB	See notes below regarding pre-health recommendations for additional upper-level biology courses.
<b>Third</b>	BB421*, CH352, <b>Statistics</b> , Language 1,	BB422*, CH524*, CH525, Language 2,	Pre-med students should take BB422, rather than CH623, to prepare for the MCAT.
<b>Fourth</b>	CH401/461/HUB, CCB Elective #1, Open/HUB, Language 3	CH402/462/HUB, CH232*, CCB Elective #2, Language 4  <u>Optional</u> SY101	CH401/402 = Honors Research; CH461/462 = Senior Research

\* = laboratory course. **Bold** = pre-health courses outside of your major

\*\*Advice from Pre-Health Advising:

- If you have AP/IB or other advanced credit for CAS BI 107 and CAS BI 108, we recommend you take at least CAS BI 108.
  - Chemistry: Chemical Biology Specialization (CCB) and Biochemistry and Molecular Biology (BMB) majors are not required to take BI 107. However, some

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health profession schools require two semesters of general biology with laboratory.

- We recommend CCB and BMB majors take BI 108 (Biology 2), BI 213 (Intensive Cell Biology) or BI 203 (Cell Biology), and BI 315 (Systems Physiology) to satisfy most schools' biology requirement.
- One semester each of Psychology and Sociology are recommended for pre-medical students to prepare for the MCAT.
  - For Psychology, we recommend PS101 or PS261
  - For Sociology, we recommend SO100 or SO215
- Many health profession schools require a semester of statistics. You can select from MA113, MA115, MA116, MA213, or MA214
  - Please note that students are only allowed credit for one of the following: MA113/115/213 and MA116/214.
- As a Chemistry major, two semesters of biochemistry are recommended to satisfy prerequisite requirements and for pre-medical students to prepare for the MCAT. If you do not take BB422, you will need to self-study that content for medical school.
- If you do not intend to take a gap year, pre-medical students should complete Biochemistry, Statistics, and Psychology/Sociology by the end of your third year at BU.

\*\* The Pre-professional Advising Office: Pre-health provides conservative course recommendations based on each student's major(s), minor(s), and intended health profession. These recommendations may change over time in response to updates in your academic or career goals, as well as evolving requirements from health profession schools and programs. Ultimately, it's the student's responsibility to be aware of the specific requirements of the schools to which they plan to apply.