

Suggested Course Schedule for Biochemistry Majors

The information below outlines the sequence of required **science** courses for a typical biochemistry major. AP credits or changing majors may have you on a different track. Please feel free to contact the biochemistry advisor (Dr. Goodenough, dgoodeno@nd.edu) if you have questions or concerns about what courses you should take.

Students who are interested in study abroad options should see Dr. Goodenough as soon as you know where you would like to go. Dublin is the easy choice for biochemistry majors, but we can make almost any program work. It just requires some extra planning and rearrangement of a few of your science courses. The sooner we start planning out your schedule, the easier it will be to open up the semester you want to be abroad.

Freshman Year

Fall CHEM 10181/11181 Intro to Chemical Principles (with lab)
BIOS 10161/11161 Biological Sciences I (with lab)
MATH 10550 Calculus I

Spring CHEM 10182/11182 Organic Structure and Mechanism (with lab)
BIOS 10162/11162 Biological Sciences II (with lab)
MATH 10560 Calculus II

Additional Notes:

- If you arrived with AP credit for calculus, you may want to take physics during your freshman year (PHYS 10310/11310 fall, 10320/11320 spring).
- You are not required to use your Calc I/II AP credits. There is some value in seeing this course content at a college level. **Do not take Calc III unless you are planning to double major in math.** CHEM 20262 is the course that fulfills our math requirement. It is not advised that you take this course early. It is best to take CHEM 20262 the spring semester before you start physical chemistry.

Sophomore Year

Fall CHEM 20283/21283 Organic Reactions and Applications (with lab)
CHEM 23201 Chemistry Seminar (one with **Thurston Miller**)
CHEM 23212 Biochemistry Seminar
PHYS 30210/31210 Physics I (with lab)

Spring CHEM 20284/21284 Chemistry Across the Periodic Table (with lab)
CHEM 20262 Mathematical Methods
PHYS 30220/31220 Physics II (with lab)

Additional Notes:

- If you have not already taken the introductory biology courses, you must complete them during your sophomore year (BIOS 20201/21201 fall, 20202/21202 spring).
- You will need to take two more chemistry seminars-CHEM 23202 (offered in the spring) or 23201 (offered in the fall). These can be taken at any time, but only one per semester.
- If you took physics as a freshman, consider taking analytical chemistry during your sophomore year (spring preferred). There are no prerequisites for this class so it can be taken at any level.
- If you are considering study abroad and have not already done so, please see Dr. Goodenough.

(Sophomore notes continued on back)

- If you are interested in research, the sophomore year is a great time to talk with the research faculty and choose a lab. You must be registered for CHEM 48498 to receive credit for research. You can receive up to 3 credits per semester. The general guideline is a commitment of 4 hours per week, per credit. Exact expectations should be discussed with the research advisor you choose. Contact Dr. Goodenough (dgoodeno@nd.edu) for research overrides.

Junior Year

Fall CHEM 30341/31341 Fundamentals of Biochemistry (with lab)
 CHEM 30321 Physical Chemistry I (**no lab**)
 BIOS 30341 Cell Biology (*lab optional**)

Spring CHEM 30342 Intermediary Metabolism (**no lab**)
 CHEM 30322 Physical Chemistry II (**no lab**)
 BIOS 20303/21303 Fundamentals of Genetics (*lab optional**)

Additional Notes:

If you are interested in the Honors in Chemistry and Biochemistry Program, the criteria and requirements are listed below.

- You must have an **overall** GPA of 3.50 or higher.
- You must apply to the Director of Undergraduate Studies by the end of the first week of classes during the fall or spring semester of the **junior year**.
- You must complete a minimum of two semesters of CHEM48498/48499 **after being admitted** into the Honors Program. Data from previous semesters of research can be included in your thesis, but you must participate in research for at least two semesters during your junior or senior years, and following acceptance into the program.
- Once you are ready to write up your thesis you should enroll in CHEM 48500 (Research Thesis in Chemistry or Biochemistry). You can take 48500 concurrent with CHEM 48498. To receive honors you must achieve a grade of B or higher in CHEM 48500.
- **Please note:** research must be within the Department of Chemistry and Biochemistry (have a CHEM 48498/48499 classification) or be part of an equivalent undergraduate research program at the University of Notre Dame, approved by the Department of Chemistry and Biochemistry.

Senior Year

Please double check your GPS and make sure that all the classes you believe are being counted are showing up that way. Make sure you sketch out both semesters to ensure that you are able to fulfill all of your university and departmental requirements during the remaining two semesters.

Fall CHEM 50531 Molecular Biology I

Spring CHEM 30333/31333 Analytical Chemistry (with lab)

Additional Notes:

Analytical chemistry is offered in both the fall and spring semesters. Chemistry and biochemistry majors are encouraged to take it during the spring semester. Also note, the laboratory course can be taken concurrent with the lecture, or subsequent to completion of the lecture.

*** In addition to the courses and requirements listed above, biochemistry majors must complete two additional science credits. One of these credits must be a laboratory credit that can be fulfilled with cell biology lab (BIOS 31341), genetics lab (BIOS 21303) or any other upper level biology lab course. This lab requirement can also be fulfilled by completing two credits of research under the direction of a single faculty mentor. Students interested in proceeding on to graduate school would benefit from taking the cell bio and/or genetics labs in addition to working in a research laboratory.**