Suggested Course Schedule for Chemistry Majors

The information below outlines the sequence of required chemistry courses for a typical chemistry major. AP credits or changing majors may have you on a different track. Please feel free to contact the chemistry 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. 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

<table>
<thead>
<tr>
<th>Fall</th>
<th>CHEM 10181/11181</th>
<th>Intro to Chemical Principles (with lab)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>PHYS 10310/11310</td>
<td>General Physics I (with lab)</td>
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<tr>
<td></td>
<td>MATH 10550</td>
<td>Calculus I</td>
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<table>
<thead>
<tr>
<th>Spring</th>
<th>CHEM 10182/11182</th>
<th>Organic Structure and Mechanism (with lab)</th>
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<tbody>
<tr>
<td></td>
<td>PHYS 10320/11320</td>
<td>General Physics II (with lab)</td>
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<tr>
<td></td>
<td>MATH 10560</td>
<td>Calculus II</td>
</tr>
</tbody>
</table>

### Additional Notes:
- If you arrived with AP credit for physics (PHYS 10310/10320) and you are considering a pre-professional tract, then you may want to take physics during your freshman year (PHYS 10310/11310 fall, 10320/11320 spring) – for those medical schools which require physics be taken in college. If you know that you are not going the pre-professional route, then you may wish to accept the AP credit and take other courses.
- 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. CHEM 20262 is the course that fulfills our math requirement. However, if you really enjoy math and/or are considering studying it further, you can consider taking Calc III instead of repeating one of the courses you have AP credit for. Calc III, along with Intro to Linear Algebra/Differential Equations can be used to fulfill our math requirement as well. It is not advised that you take CHEM 20262 early. It is best to take CHEM 20262 the spring semester before you start physical chemistry.

### Sophomore Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>CHEM 20283/21283</th>
<th>Organic Reactions and Applications (with lab)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>CHEM 23201</td>
<td>Chemistry Seminar (one with Thurston Miller)</td>
</tr>
<tr>
<td></td>
<td>Science Elective</td>
<td>(optional)</td>
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<table>
<thead>
<tr>
<th>Spring</th>
<th>CHEM 20284/21284</th>
<th>Chemistry Across the Periodic Table (with lab)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CHEM 20262</td>
<td>Mathematical Methods</td>
</tr>
<tr>
<td></td>
<td>Science Elective</td>
<td>(optional)</td>
</tr>
</tbody>
</table>

### Additional Notes:
- If you are pre-professional and have not already taken the introductory biology courses, you should try to fit them in sophomore year (Fall: BIOS 20201/21201; Spring: BIOS 20202/21202).
- If you are interested in study abroad or a combination program, consider taking analytical chemistry (CHEM 30333/31333) during the spring of your sophomore year. There are no prerequisites for this class so it can be taken at any level.
- After completing CHEM 23201, you will need to take two more chemistry seminars-CHEM 23202 (offered in the spring) or 23203 (offered in the fall). These can be taken at any time, but only one per semester.
- 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 medical or professional school, connect with the pre-professional advisors, think about volunteer activities, and other ways to learn about medicine or your anticipated field of study.

• 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. Steven Wietstock (swietsto@nd.edu) for research overrides.

Junior Year

Fall  
CHEM 30321  
CHEM 30333/31333  
Chem Seminar or Science Elective  
Physical Chemistry I  
Analytical Chemistry (with lab)  
(optional)

Spring  
CHEM 30322  
CHEM 40420  
Chem Seminar or Science Elective  
Physical Chemistry II (with lab)  
Principles of Biochemistry  
(optional)

Additional Notes:
• Check you GPS and see Dr. Goodenough if there are issues with any chemistry credits. Remember that you need 6 credits in science electives by the end of your senior year. CHEM 48498 Undergraduate Research is strongly recommended to satisfy these electives.
• Analytical Chemistry (CHEM 30333/31333) and Biochemistry (CHEM 40420) are offered in both the fall and spring semesters. These can be taken either semester, junior or senior year. You can place each in your schedule as it best fits requirements for your future goals.
• If you are interested in teaching, there are jobs in the undergraduate labs and first-year tutoring programs.
• If you are interested in medical or another professional school, you should make sure you have taken CHEM 40420 by the end of the junior year in preparation for the MCAT and other professional entrance exams.

Honors in Chemistry and Biochemistry Program Criteria and Requirements
• You must have an overall GPA of 3.50 or higher.
• You should 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 CHEM 48498 (or another approved research course in the College of Science) after being admitted into the Honors Program. Data from previous semester 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) – see Dr. Wietstock for the course override. You can take CHEM 48500 concurrent with CHEM 48498. To receive honors you must achieve a grade of B or higher in CHEM 48500.

Senior Year

Please double check your GPS and make sure that all the classes you believe are being counted show up properly. 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 40443/41443  
Chem Seminar or Science Elective  
Advanced Inorganic Chemistry (with lab)  
(optional)

Spring  
CHEM 40434 or 40436  
Chem Seminar or Science Elective  
Physical Methods or Instrumental Methods  
(optional)

Additional Notes:
• If graduate school is a possibility for you, register for the GRE and subject tests in the fall semester (subject tests are only offered on specific dates, so pay attention to deadlines for registration for those exams).