

# Chemistry and Biochemistry Program Degree Requirements

Updated for 2023-2024 Catalog Year

## DEGREE PROGRAMS IN CHEMISTRY

| CR             | CHEMISTRY BS   | CHEMISTRY BA  |  | CR             |
|----------------|--|---|--|----------------|
| 5 - 8          | CHEM 111/111L or HONS 190/190L<br>General Chemistry I  | CHEM 111/111L or HONS 190/190L<br>General Chemistry I             |  | 5 - 8          |
|                | CHEM 112/112L or HONS 190/190L<br>General Chemistry II | CHEM 112/112L or HONS 190/190L<br>General Chemistry II            |  |                |
| 5              | CHEM 220/220L<br>Analytical Chemistry                  | CHEM 220/220L<br>Analytical Chemistry                             |  | 5              |
| 4              | CHEM 231/231L or HONS 192/192L<br>Organic Chemistry I  | CHEM 231/231L or HONS 192/192L<br>Organic Chemistry I             |  | 4              |
| 4              | CHEM 232/232L or HONS 293/293L<br>Organic Chemistry II | CHEM 232/232L or HONS 293/293L<br>Organic Chemistry II            |  | 4              |
| 4              | MATH 120 or HONS 115<br>Calculus I                     | MATH 120 or HONS 115<br>Calculus I                                |  | 4              |
| 4              | MATH 220 or HONS 215<br>Calculus II                    | MATH 220 or HONS 215<br>Calculus II                               |  | 4              |
| 1              | CHEM 492<br>Senior Seminar II                          | CHEM 492<br>Senior Seminar II                                     |  | 1              |
| 3              | CHEM 351<br>Biochemistry I                             | <i>Select at least <u>one</u> physical chemistry course:</i>      |  |                |
| 4              | CHEM 341/341L<br>Physical Chemistry-Thermo             | CHEM 341<br>Physical Chemistry-Thermo                             |  | 3              |
| 4              | CHEM 342/342L<br>Physical Chemistry-Quantum            | CHEM 342<br>Physical Chemistry-Quantum                            |  |                |
| 4              | CHEM 311/312L<br>Inorganic Chemistry with lab          |   |  |                |
| 4              | PHYS 111/111L or HONS 157/157L<br>Physics I            | <i>Select two 3-credit lecture courses at 300 level or above:</i> | <i>Select two lab courses at 300 level or above:</i> |                |
| 4              | PHYS 112/112L or HONS 158/158L<br>Physics II           | CHEM 341 (3)<br>Physical Chemistry-Thermo                         | CHEM 341L (1)<br>P-chem I lab                        | 6<br>(lecture) |
| 1              | CHEM 490<br>Senior Seminar I                           | CHEM 342 (3)<br>Physical Chemistry-Quantum                        | CHEM 342L (1)<br>P-chem II lab                       | 2 - 5<br>(lab) |
| 3              | CHEM 371<br>Synthesis                                  | CHEM 311 (3)<br>Inorganic Chemistry                               | CHEM 312L (1)<br>Inorganic Lab                       |                |
| 4              | CHEM 421/421L<br>Instrumental Analysis                 | CHEM 351 (3)<br>Biochemistry I                                    | CHEM 354L (1)<br>Biochemistry Lab                    |                |
| <b>58 - 61</b> | <b>Total credit hours for B.S. in Chemistry</b>        | CHEM 352 (3)<br>Biochemistry II                                   | CHEM 355 (2)<br>Research Methods                     |                |
|                |  | CHEM 353 (3)<br>Chemical Biology                                  | CHEM 371 (3)<br>Synthesis                            |                |
|                |  | CHEM 421 (3)<br>Instrumental Analysis                             | CHEM 421L (1)<br>Instrumental Lab                    |                |
|                |  | CHEM 422 (3)<br>Environmental Chemistry                           | CHEM 422L (1)<br>Environmental Lab                   |                |
|                |  | CHEM 431 (3)<br>Advanced Organic Chem                             | CHEM 432 (2)<br>Industrial Chemistry                 |                |
|                |  |   | CHEM 435 (2)<br>Materials & Polymers                 |                |
|                |  | <b>Total credit hours for B.A. in Chemistry</b>                   |  | <b>38 - 44</b> |

  

| CHEMISTRY MINOR  | CR           |
|--|--------------|
| CHEM 111/111L (Or HONS 190/190L)   | 5-8          |
| CHEM 112/112L (Or HONS 190/190L)   |              |
| CHEM 220/220L  | 5            |
| CHEM 231/231L (Or HONS 192/192L)   | 4            |
| CHEM 232/232L (Or HONS 293/293L)   | 4            |
| OR   |              |
| CHEM 341/341L  |              |
| CHEM 342/342L  |              |
| ELECTIVE 3-credit hour CHEM course at 300 level or above that is not a special topics course | 3            |
| <b>Total credit hours for minor in Chemistry</b>   | <b>21-24</b> |

## DEGREE PROGRAMS IN BIOCHEMISTRY

| CR                 | BIOCHEMISTRY BS   |                                      | BIOCHEMISTRY BA  |  | CR                 |
|--------------------|---|--------------------------------------|--|--|--------------------|
| 5 - 8              | CHEM 111/111L or HONS 190/190L<br>General Chemistry I                     |                                      | CHEM 111/111L or HONS 190/190L<br>General Chemistry I          |  | 5 - 8              |
|                    | CHEM 112/112L or HONS 190/190L<br>General Chemistry II                    |                                      | CHEM 112/112L or HONS 190/190L<br>General Chemistry II         |  |                    |
| 4                  | BIOL 111/111L or HONS 151/151L<br>Biology I                               |                                      | BIOL 111/111L or HONS 151/151L<br>Biology I                    |  | 4                  |
| 4                  | BIOL 112/112L or HONS 152/152L<br>Biology II                              |                                      | BIOL 112/112L or HONS 152/152L<br>Biology II                   |  | 4                  |
| 5                  | CHEM 220/220L<br>Analytical Chemistry                                     |                                      | CHEM 220/220L<br>Analytical Chemistry                          |  | 5                  |
| 4                  | CHEM 231/231L or HONS 192/192L<br>Organic Chemistry I                     |                                      | CHEM 231/231L or HONS 192/192L<br>Organic Chemistry I          |  | 4                  |
| 4                  | CHEM 232/232L or HONS 293/293L<br>Organic Chemistry II                    |                                      | CHEM 232/232L or HONS 293/293L<br>Organic Chemistry II         |  | 4                  |
| 3                  | CHEM 351<br>Biochemistry I  |                                      | CHEM 351<br>Biochemistry I                                     |  | 3                  |
| 3                  | CHEM 352<br>Biochemistry II   |                                      | CHEM 352<br>Biochemistry II                                    |  | 3                  |
| 4                  | MATH 120 or HONS 115<br>Calculus I  |                                      | MATH 120 or HONS 115<br>Calculus I                             |  | 4                  |
| 1                  | CHEM 492<br>Senior Seminar II   |                                      | CHEM 492<br>Senior Seminar II                                  |  | 1                  |
| 4                  | BIOL 312/312L<br>Molecular Biology  |                                      | BIOL 312 (lecture only)<br>Molecular Biology                   |  | 3                  |
| 4                  | MATH 220 or HONS 215<br>Calculus II                                       |                                      |  |  |                    |
| 1                  | CHEM 490<br>Senior Seminar I  |                                      | CHEM 360<br>Biophysical Chemistry                              |  | 3                  |
| 4                  | CHEM 341/341L<br>Physical Chemistry-Thermo                                |                                      |  |  |                    |
| 4                  | CHEM 342/342L<br>Physical Chemistry-Quantum                               |                                      | <i>Select <u>one lecture course</u> from the following:</i>    |  |                    |
| 3                  | CHEM 311<br>Inorganic Chemistry   |                                      | <i>Select <u>two lab courses</u> with at least one with *:</i> |  |                    |
| 4                  | PHYS 111/111L or HONS 157/157L<br>Physics I                               |                                      | CHEM 311 (3)<br>Inorganic Chemistry                            | CHEM 312L (1)<br>Inorganic Lab           | 2 - 3<br>(lecture) |
| 4                  | PHYS 112/112L or HONS 158/158L<br>Physics II                              |                                      | CHEM 341 (3)<br>P-Chem I                                       | CHEM 341L (1)<br>P-Chem II Lab           | 2 - 5<br>(lab)     |
| 4                  | CHEM 342 (3)<br>P-Chem II   |                                      | CHEM 342 (3)<br>P-Chem II                                      | CHEM 342L (1)<br>P-Chem II Lab           |                    |
| 1                  | CHEM 354L<br>Biochemistry Lab   |                                      | CHEM 353 (3)<br>Chemical Biology                               | CHEM 355 (2)<br>Research Methods         |                    |
|                    | <i>Select <u>one lecture course</u>:</i>                                  |                                      | CHEM 356 (2)<br>Biochem. Basis of Disease                      | CHEM 371 (3)<br>Synthesis Lab            |                    |
| 3 - 5<br>(lab)     | <i>Select <u>two lab courses</u> (<math>\geq 3</math> credits total):</i> |                                      | CHEM 421 (3)<br>Instrumental Analysis                          | CHEM 421L (1)<br>Instrumental Lab        |                    |
| 2 - 3<br>(lecture) | CHEM 353 (3)<br>Chemical Biology  | CHEM 312L (1)<br>Inorganic Lab       | CHEM 422 (3)<br>Environmental Chemistry                        | CHEM 422L (1)<br>Environmental Lab       |                    |
|                    | CHEM 356 (2)<br>Biochem. Basis of Disease                                 | CHEM 355 (2)<br>Research Methods     | CHEM 431 (3)<br>Advanced Organic Chem.                         | *CHEM 423 (2)<br>Bioanalytical Chemistry |                    |
|                    | CHEM 431 (3)<br>Advanced Organic  | CHEM 371 (3)<br>Synthesis Lab        |  | *CHEM 354L (1)<br>Biochemistry Lab       |                    |
|                    | CHEM 421 (3)<br>Instrumental Analysis                                     | CHEM 421L (1)<br>Instrumental Lab    |  | CHEM 432 (2)<br>Industrial Chemistry     |                    |
|                    | CHEM 422 (3)<br>Environmental Chemistry                                   | CHEM 422L (1)<br>Environmental Lab   |  | CHEM 435 (2)<br>Materials & Polymers     |                    |
|                    |   | CHEM 423 (2)<br>Bioanalytical        |  | *BIOL 312L (1)<br>Molecular Biology Lab  |                    |
|                    |   | CHEM 432 (2)<br>Industrial Chemistry |  |  |                    |
|                    |   | CHEM 435 (2)<br>Materials & Polymers |  |  |                    |
|                    |   | CHEM 481 (2)<br>Research I           |  |  |                    |
| <b>71 - 77</b>     | <b>Total credit hours for B.S. in Biochemistry</b>                        |                                      | <b>Total credit hours for B.A. in Biochemistry</b>             |  | <b>47 - 54</b>     |