

# John Carroll University Chemistry Department

## Biochemistry Concentration with ACS certification Study Plan (2017-2019 Bulletin)

### First Year

| Fall Semester                        | Credits   | Major | Core | Other | Spring Semester                       | Credits   | Major | Core | Other |
|--------------------------------------|-----------|-------|------|-------|---------------------------------------|-----------|-------|------|-------|
| CH141 General Chemistry I*           | 4         | X     |      |       | CH142 General Chemistry II*           | 4         | X     |      |       |
| CH143 General Chemistry Lab I*       | 1         | X     |      |       | CH144 General Chemistry Lab II*       | 1         | X     |      |       |
| MT135 Calculus / Analytic Geometry I | 4         | X     |      |       | MT136 Calculus / Analytic Geometry II | 4         | X     |      |       |
| EN125 Seminar on Academic Writing    | 3         |       | X    |       | COMM125 Speech Communications         | 3         |       | X    |       |
| BL155 Principles of Biology I        | 3         | X     |      |       | BL156 Principles of Biology II        | 3         | X     |      |       |
| BL157 Principles of Biology Lab I    | 1         | X     |      |       | BL158 Principles of Biology Lab II    | 1         | X     |      |       |
|                                      |           |       |      |       |                                       |           |       |      |       |
| <b>Total Credit Hours</b>            | <b>16</b> |       |      |       | <b>Total Credit Hours</b>             | <b>16</b> |       |      |       |

### Second Year

| Fall Semester                       | Credits   | Major | Core | Other | Spring Semester                     | Credits   | Major | Core | Other |
|-------------------------------------|-----------|-------|------|-------|-------------------------------------|-----------|-------|------|-------|
| CH221 Organic Chemistry I           | 3         | X     |      |       | CH222 Organic Chemistry II          | 3         | X     |      |       |
| CH223 Organic Chemistry Lab I       | 1         | X     |      |       | CH224 Organic Chemistry Lab II      | 1         | X     |      |       |
| PH125 General Physics I             | 3         | X     |      |       | CH261 Analytical Chemistry          | 3         | X     |      |       |
| PH125L General Physics Lab I        | 1         | X     |      |       | CH263 Analytical Chemistry Lab (QA) | 1         | X     | X    |       |
| Humanities Course                   | 3         |       | X    |       | PH126 General Physics II            | 3         | X     |      |       |
| Social Sciences Course              | 3         |       | X    |       | PH126L General Physics Lab II       | 1         | X     |      |       |
| Creative and Performing Arts (CAPA) | 1-3       |       | X    |       | BL213 Genetics                      | 4         | X     |      | X     |
| <b>Total Credit Hours</b>           | <b>15</b> |       |      |       | <b>Total Credit Hours</b>           | <b>17</b> |       |      |       |

### Third Year

| Fall Semester                         | Credits   | Major | Core | Other | Spring Semester                     | Credits   | Major | Core | Other |
|---------------------------------------|-----------|-------|------|-------|-------------------------------------|-----------|-------|------|-------|
| CH363 Physical Chemistry I            | 3         | X     |      |       | CH366 Physical Chemistry II         | 3         | X     |      |       |
| CH367 Physical Chemistry I Lab        | 2         | X     |      |       | CH436 Biochemistry II               | 3         | X     |      |       |
| CH435 Biochemistry I                  | 3         | X     |      |       | CH478 Chemistry Seminar             | 0         | X     |      |       |
| CH437 Biochemistry Laboratory         | 1         | X     |      |       | Engaging the Global Community (EGC) | 3         |       | X    |       |
| Issues in Social Justice Course (ISJ) | 3         |       | X    |       | TRS Course                          | 3         |       | X    |       |
| Language Requirement                  | 3         |       | X    |       | Language Requirement                | 3         |       | X    |       |
|                                       |           |       |      |       | Philosophy Knowledge/Reality (PLKR) | 3         |       | X    |       |
| <b>Total Credit Hours</b>             | <b>15</b> |       |      |       | <b>Total Credit Hours</b>           | <b>18</b> |       |      |       |

### Fourth Year

| Fall Semester                    | Credits   | Major | Core | Other | Spring Semester               | Credits   | Major | Core | Other |
|----------------------------------|-----------|-------|------|-------|-------------------------------|-----------|-------|------|-------|
| CH or BL Elective**              | 3         | X     |      |       | CH or BL Elective**           | 3         | X     |      |       |
| Career Elective                  | 6         | X     | X    | X     | Linked Pair of Courses        | 6         |       | X    |       |
| CH399 Undergraduate Research     | 1         | X     |      |       | Career Electives              | 3         | X     | X    | X     |
| Philosophy Values/Society (PLVS) | 3         |       | X    |       | CH481 Inorganic Chemistry     | 3         | X     |      |       |
| TRS Course                       | 3         |       | X    |       | CH482 Inorganic Chemistry Lab | 1         | X     |      |       |
|                                  |           |       |      |       |                               |           |       |      |       |
| <b>Total Credit Hours</b>        | <b>16</b> |       |      |       | <b>Total Credit Hours</b>     | <b>16</b> |       |      |       |

If you are planning to attend graduate school or a health professions program, take the GRE or MCAT in summer between years 3 and 4 and begin submitting applications this fall.

**Total CH Credit Hours Required: 42    Total Credit Hours Required to Graduate: 120**

**Notes:**

\* Well prepared students may substitute the CH141-144 sequence with CH151/153 - Chemical Principles and Lab in the Fall Semester

471 and PS426 and others by petition.

CH398, or CH399D (with 3 credits of CH399). One of these should be taken in the senior year.

\*Please consult your academic advisor to address specific needs of your major, minor, and/or concentration.