



# Rensselaer

## BIOLOGY B.S.

This curriculum is designed to prepare students for admission to graduate or professional school or to enter the workplace. The philosophy behind it is to leave as many options as possible to the student.

### FIRST YEAR

| Fall      |                                      |    | Spring    |   |    |
|-----------|--------------------------------------|----|-----------|---|----|
| Number    | Course                               | CR | Number    | Course  | CR |
| BIOL 1010 | Introduction to Biology <sup>1</sup> | 3  | BIOL 2120 | Introduction to Cell & Molecular Biology <sup>1</sup> | 3  |
| BIOL 1015 | Introduction to Biology Lab          | 1  | BIOL 2125 | Intro to Cell & Molecular Biology Lab <sup>1</sup>    | 1  |
| CHEM 1110 | Chemistry I with Advanced Lab        | 4  | CHEM 1200 | Chemistry II  | 4  |
| MATH 1010 | Calculus I                           | 4  | MATH 1020 | Calculus II   | 4  |
|           | HASS Core Elective <sup>2</sup>      | 4  |           | HASS Core Elective <sup>2</sup>                       | 4  |

### SECOND YEAR

| Fall      |                                 |    | Spring    |                                 |    |
|-----------|---------------------------------|----|-----------|---------------------------------|----|
| Number    | Course                          | CR | Number    | Course                          | CR |
| BIOL 2500 | Genetics and Evolution          | 4  | BIOL 4620 | Molecular Biology               | 4  |
| CHEM 2230 | Organic Chemistry Lab I         | 1  | CHEM 2240 | Organic Chemistry Lab II        | 1  |
| CHEM 2250 | Organic Chemistry I             | 3  | CHEM 2260 | Organic Chemistry II            | 3  |
| PHYS 1100 | Physics I                       | 4  | PHYS 1200 | Physics II                      | 4  |
|           | HASS Core Elective <sup>2</sup> | 4  |           | HASS Core Elective <sup>2</sup> | 4  |

### THIRD YEAR (WITH 3RD YEAR FALL SEMESTER AWAY)

| The Arch Summer Semester <sup>7</sup> |                                       |    | Spring    |                                 |    |
|---------------------------------------|---------------------------------------|----|-----------|---------------------------------|----|
| Number                                | Course                                | CR | Number    | Course                          | CR |
| BIOL 4760                             | Molecular Biochemistry I <sup>6</sup> | 4  | BIOL 4200 | Biostatistics                   | 4  |
| BIOL                                  | Advanced Lab Option <sup>3</sup>      | 6  | BIOL      | Biology Elective <sup>4</sup>   | 4  |
|                                       | Elective <sup>5</sup>                 | 2  |           | Elective                        | 4  |
|                                       | HASS Core Elective <sup>2</sup>       | 4  |           | HASS Core Elective <sup>2</sup> | 4  |

### FOURTH YEAR (WITH 3RD YEAR FALL SEMESTER AWAY)

| Fall   |                               |    | Spring |                               |    |
|--------|-------------------------------|----|--------|-------------------------------|----|
| Number | Course                        | CR | Number | Course                        | CR |
| BIOL   | Biology Elective <sup>4</sup> | 4  | BIOL   | Biology Elective <sup>4</sup> | 4  |
|        | Elective                      | 4  | BIOL   | Biology Elective <sup>4</sup> | 4  |
|        | Elective                      | 4  |        | Elective                      | 4  |
|        | Elective                      | 4  |        | Elective                      | 4  |

### THIRD YEAR (WITH 3RD YEAR SPRING SEMESTER AWAY)

| The Arch Summer Semester <sup>7</sup> |                                 |    | Fall      |                                       |    |
|---------------------------------------|---------------------------------|----|-----------|---------------------------------------|----|
| Number                                | Course                          | CR | Number    | Course                                | CR |
| BIOL 4200                             | Biostatistics                   | 4  | BIOL 4760 | Molecular Biochemistry I <sup>6</sup> | 4  |
| BIOL                                  | BIOL Elective <sup>4</sup>      | 4  | BIOL      | Advanced Lab Option <sup>3</sup>      | 6  |
|                                       | Elective                        | 4  |           | Elective <sup>6</sup>                 | 2  |
|                                       | HASS Core Elective <sup>2</sup> | 4  |           | HASS Core Elective <sup>2</sup>       | 4  |

#### FOURTH YEAR (WITH 3RD YEAR SPRING SEMESTER AWAY)

| Fall   |                               |    | Spring |                               |    |
|--------|-------------------------------|----|--------|-------------------------------|----|
| Number | Course                        | CR | Number | Course                        | CR |
| BIOL   | Biology Elective <sup>4</sup> | 4  | BIOL   | Biology Elective <sup>4</sup> | 4  |
|        | Elective                      | 4  | BIOL   | Biology Elective <sup>4</sup> | 4  |
|        | Elective                      | 4  |        | Elective                      | 4  |
|        | Elective                      | 4  |        | Elective                      | 4  |

*This curriculum requires a minimum of 128 credit hours.*

#### FOOTNOTES

1. *Students who apply Advanced Placement credits in place of BIOL 1010 may take BIOL 2120 & BIOL 2125 in its place.*
2. **Humanities and Social Sciences (HASS) Core Electives:** *A total of 24 credits of HASS Core Electives should be taken. Students should take an Inquiry course during their first year. For a listing of HASS Inquiry courses go to: <https://info.rpi.edu/hass-inquiry>. In addition, students should take a HASS Communications Intensive course during their first three semesters.*
3. *Communication Intensive and Culminating Experience Requirement cannot be satisfied with transfer credits and must be fulfilled via the **Advanced Laboratory requirement**.*
4. **Biology Elective Requirement (16 credits).** *Biology electives may include any BIOL courses, and up to 1 BCBP course. No 1000 or 2000 level courses can serve as Biology electives. No more than one of the following courses may serve as Biology electives: BIOL 4900 or BIOL 4970. No more than one 4000-level elective can be met with transfer credits.*
5. *An additional 2-CR elective may be satisfied by mentoring, research (e.g. BIOL 2900, 2930, 2940, 4940, 4970), or any other elective. This credit may be taken at any time, not necessarily at the time shown in the template.*
6. *Cannot be satisfied with transfer credits.*
7. *For students who have applied for and been granted an exception, The Arch Summer courses would be taken during the fall semester. For listing of the exception process go to: <http://info.rpi.edu/arch/students/#ExceptionProcess>*

#### ELECTIVES

Careful selection of biology electives and technical electives in the third and fourth years may contribute significantly to preparation for various professional goals. Technical electives include any pertinent course in biology, other sciences, or mathematics. Students who anticipate working on a senior thesis are strongly urged to take BIOL 4200 Biostatistics as soon as possible and one of the following advanced laboratory courses (BIOL 4320, 4710, BIOL 4720, BIOL 4740) in their junior year, since these courses offer excellent preparation for independent laboratory work and meet the communication intensive requirement.

#### ADVANCED LABORATORY COURSES

|           |                         |           |                              |
|-----------|-------------------------|-----------|------------------------------|
| BIOL 4320 | Microbiology Laboratory | BIOL 4720 | Molecular Biology Laboratory |
| BIOL 4710 | Biochemistry Laboratory | BIOL 4740 | Adv. Cell Biology Laboratory |