



# 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>	4
BIOL 1015	Introduction to Biology Lab	1	CHEM 1200	Chemistry II	4
CHEM 1110	Chemistry I with Advanced Lab	4	MATH 1020	Calculus II	4
MATH 1010	Calculus I	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>8</sup>			Spring		
Number	Course	CR	Number	Course	CR
BIOL 4760	Molecular Biochemistry I <sup>7</sup>	4	BIOL 4200	Biostatistics	4
BIOL	Advanced Lab Option <sup>3</sup>	6	BIOL	Biology Elective <sup>5</sup>	4
	Elective <sup>6</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>5</sup>	4	BIOL	Culminating Experience <sup>4</sup>	4
	Elective	4	BIOL	Biology Elective <sup>5</sup>	4
	Elective	4		Elective	4
	Elective	4		Elective	4

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

The Arch Summer Semester <sup>8</sup>			Fall		
Number	Course	CR	Number	Course	CR
BIOL 4200	Biostatistics	4	BIOL 4760	Molecular Biochemistry I <sup>7</sup>	4
BIOL	BIOL Elective <sup>5</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>5</sup>	4	BIOL	Culminating Experience <sup>4</sup>	4
	Elective	4	BIOL	Biology Elective <sup>5</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 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 Requirement (4 credits) cannot be satisfied with transfer credits and must be fulfilled via the **Advanced Laboratory requirement**.
4. **Culminating Experience Requirement** (4 credits). Cannot be satisfied with transfer credits. Majors can select Senior Research Thesis (BIOL 4990) or any of the BIOL or BCBP listed in Culminating Experience Courses.
5. **Biology Elective Requirement** (12 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.
6. 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.
7. Cannot be satisfied with transfer credits.
8. 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.

#### CULMINATING EXPERIENCE COURSES

BIOL 4100	From Neuron to Behavior	BIOL 4630	Molecular Biology II
BIOL 4150	Cellular Neuroscience	BIOL/BCBP 4660	The Biology of Systems
BIOL 4220	Mach. Learning for Env. Biology	BIOL 4860	Evolution
BIOL 4250	Developmental Biology	BIOL 4870	Lake George BLUE
BIOL 4260	Advanced Cell Biology	BIOL 4961	Human Population
BIOL 4270	Human Physiology	BIOL 4990	Senior Research Thesis
BIOL 4310	Microbiology	BCBP 4310	Genetic Engineering
BIOL 4350	Virology	BCBP 4800	Methods in Biophysics
BIOL 4540	Sequence Analysis	BCBP 4870	Protein Struct. Determination
BIOL 4550	Molecular Modeling		

#### ADVANCED LABORATORY COURSES

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