

# Biology: Bachelor of Science Major

<b>Faculty of Science and Horticulture</b>	kpu.ca/science
<b>Biology</b>	kpu.ca/science/biology
<b>Program Type</b>	Undergraduate
<b>Credential Granted</b>	Baccalaureate Degree
<b>Offered At</b>	Richmond Surrey
<b>Start Date(s)</b>	September January May
<b>Intake Type</b>	Open intake
<b>Format</b>	Full-time Part-time
<b>Instructional Cycle</b>	Semester-based
<b>Curriculum Effective Date</b>	01-Sep-2016
<b>How to Apply</b>	www.kpu.ca/admission

## DESCRIPTION

The B.Sc. Major in Biology is a foundational degree program strongly grounded in scientific methodology and practical skills. The structure and breadth of courses offered is designed to equip graduates with a high level of competency in the knowledge, skills and experience necessary for competitive entry into the workforce in a wide range of fields. Graduates will also be well prepared for entry into a professional school or graduate studies program.

Central to this program is the provision of a lab intensive experience where students learn first-hand, the appropriate use of equipment and techniques to investigate living organisms and how they function. Upper level courses build upon the core knowledge and skills developed in 1st and 2nd Year, allowing the exploration of more advanced biological concepts and practical techniques. This culminates in a community focused research or directed studies project which requires students to apply the knowledge and skills they have learned.

### IMPORTANT NOTES:

First and second year courses required in the program are normally available on both Richmond and Surrey campuses.

Elective courses are not offered every year. Students are encouraged to plan their courses carefully and to see a degree advisor for guidance.

## STUDENT PROFILE

This degree program will appeal to individuals with a passionate interest in living organisms and how they function. Whether entering from high school, other post-secondary institutions or returning from the workforce to study, this program will appeal to anyone who shares a concern for the future of humanity and the welfare of our planet and who is seeking a career that can make a difference.

Students who are successful in this program are likely to be self-motivated, have a strong work ethic and have well developed oral and written communication skills.

## ADMISSION REQUIREMENTS

The Faculty's Admission Requirements, which consist of KPU's undergraduate English Proficiency Requirement, apply to this program.

## DECLARATION REQUIREMENTS

Students intending to graduate with this Faculty of Science and Horticulture degree must declare the credential by the time they complete 60 credits of undergraduate coursework. At the time of declaration, the student must satisfy all of the following requirements:

- In good academic standing with the University
- Completion of a minimum of 24 credits of undergraduate coursework, including the following:
  - 3 credits of ENGL at the 1100 level or higher
  - BIOL 1110 with a minimum grade of "C"
  - BIOL 1210 with a minimum grade of "C"
  - CHEM 1110 with a minimum grade of "B" or CHEM 1210 with a minimum grade of "C"
  - MATH 1120 with a minimum grade of "C" or MATH 1130 with a minimum grade of "C"
  - PHYS 1101 with a minimum grade of "C" or PHYS 1120 with a minimum grade of "C"

## CURRICULAR REQUIREMENTS

### General Requirements

All students must meet the following minimum requirements for a Bachelor of Science at KPU:

- 120 credits from a minimum of 40 courses (at least 3 credits each) at the 1100 level or higher.
- 45 credits from a minimum of 15 courses at the 3000 level or higher, including 9 credits at the 4000 level.
- 18 credits of breadth electives (see Electives below) including:
  - at least 12 credits from courses that are offered outside the Faculty of Science & Horticulture; and
  - up to 6 credits from fields of science not prescribed in the Major requirements; and
  - 3 credits from a course at the 3000 level or higher.
- Cumulative GPA of 2.0 or higher
- At least 50% of all courses for the BSc, and at least 66% of upper-level courses for the BSc, must be completed at KPU.

### Biology Major

In addition to meeting the General Requirements, students must complete the following courses.

Note: Some courses are only offered once per year. Please refer to the course timetable and speak with an Academic Advisor when planning.

### YEAR 1

#### All of:

BIOL 1110	Introductory Biology I	4 credits
BIOL 1210	Introductory Biology II	4 credits
CHEM 1110	The Structure of Matter	4 credits
CHEM 1210	Chemical Energetics and Dynamics	4 credits

ENGL 1100	Introduction to University Writing	3 credits
MATH 1130*	Calculus for Life Sciences I	3 credits
MATH 1230	Calculus for Life Sciences II	3 credits
PHYS 1101	Physics for Life Sciences I	4 credits
PHYS 1102	Physics for Life Sciences II	4 credits
3 credits of ENGL at the undergraduate level		3 credits

\* MATH 1120 may be used as a substitute for MATH 1130

## YEAR 2

### All of:

BIOL 2320	Genetics	4 credits
BIOL 2321	Cell Biology	4 credits
BIOL 2322	Ecology	4 credits
BIOL 2421	Cellular Biochemistry	3 credits
CHEM 2320	Organic Chemistry I	4 credits
CHEM 2420	Organic Chemistry II	4 credits
MATH 2335	Statistics for Life Sciences	3 credits
9 credits of electives (see Electives below)		9 credits

## YEAR 3

### All of:

BIOL 3110	Animal Behaviour	4 credits
BIOL 3215	Zoology	4 credits
BIOL 3165	Conservation Biology	3 credits
BIOL 3180	Life Science Research Methods	3 credits
BIOL 3225	Botany	4 credits
BIOL 3320	Molecular Genetics	4 credits
BIOL 3321	Advanced Cell and Molecular Biology	4 credits
3 credits of BIOL at the undergraduate level		3 credits
6 credits of electives (see Electives below)		6 credits

## YEAR 4

### All of:

BIOL 4140	Animal Physiology	4 credits
BIOL 4150	Evolutionary Biology	3 credits
BIOL 4235	Marine Biology	3 credits
BIOL 4245	Developmental Biology	4 credits
12 credits of electives (see Electives below)		12 credits

### Plus all of Group A or Group B:

#### Group A

BIOL 4900	Special Topics	3 credits
3 credits of BIOL at the 3000 level or higher		3 credits

#### Group B

BIOL 4199	Research Project I	3 credits
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BIOL 4299	Research Project II	3 credits
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## Electives

As part of this program, students are required to complete 27 credits of electives. These must satisfy the General Requirements for 18 credits of breadth as stated above. The following courses are recommended as electives:

- ANTH 3242
- ASTR 1105
- ASTR 3111
- BIOL 2330
- BIOL 3160
- BIOL 3330
- BIOL 4160
- BIOL 4260
- BIOL 4320
- BIOL 4360
- CHEM 2315
- CHEM 3310
- CPSC 1100
- EDUC 4100
- ENVI 2305
- ENVI 2405
- ENVI 3112
- HSCI 3225
- HORT 3310
- PHYS 3202

## CREDENTIAL AWARDED

Upon successful completion of this program, students are eligible to receive a **Bachelor of Science, Major in Biology**.