# HONOURS BIOCHEMISTRY & MOLECULAR BIOLOGY, SINGLE MAJOR

This guide tells you which courses are required for your honours Biochemistry & Molecular Biology major and when you should take such courses. It also provides some advice with options you may have. In first and second year you will find that many of your options are limited owing to the larger number of required courses. By third year, your options become much wider. See the academic calendar for a complete listing of all chemistry and biology courses as well as for university requirements that apply to all degrees. For more information contact [chemistry@trentu.ca](mailto:chemistry@trentu.ca), [biology@trentu.ca](mailto:biology@trentu.ca) or visit the [Department of Chemistry](http://www.trentu.ca/chemistry/) or [Department of Biology](http://www.trentu.ca/biology/).

## FIRST YEAR REQUIREMENTS

Chemistry, biology, and mathematics are the core of the first year curriculum for BMB majors.

1.0 credit in Chemistry

CHEM 1000H

Grade:

CHEM 1010H

Grade:

CHEM 1000H and CHEM 1010H are the required prerequisites to all upper‐year chemistry courses. Minimum 60% required.

1.0 credit in Biology

BIOL 1020H

Grade:

BIOL 1030H

Grade:

BIOL 1020H and BIOL 1030H are the required prerequisites to most upper‐year biology courses. Minimum 60% required.

0.5 credit in Physics

PHYS 1060H

Grade:

or

PHYS 1001H

Grade:

* PHYS-­‐1060H is Physics for Life Sciences
* PHYS 1001H is Introductory Physics I, which along with PHYS 1002H (Introductory Physics II) is taken by Chemistry majors and by Physics majors
* Some professional programs and graduate schools may require a full year of physics; if want to keep your options open then I suggest taking PHYS 1001H in the fall, and PHYS 1002H in the winter.

1.0 credit in Mathematics

Calculus is required for certain upper-year courses required for biochemistry majors.

There are two options with respect to mathematics

* Option 1 MATH 1110H and MATH 1120 H, Calculus I and II.

MATH 1110H

Grade:

MATH 1120H

Grade:

* Option 2 MATH 1005H, Applied Calculus, plus another 0.5 credit in mathematics, such as a single‐term algebra course (MATH 1350H), or a single-term course in probability and statistics (MATH 1550H).

MATH 1005H

Grade:

MATH

Grade:

* Experience has shown that option 1 offers the best preparation for the calculus required in upper‐year physical and inorganic chemistry courses.

## SECOND YEAR REQUIREMENTS

0.5 credit in Genetics: BIOL 2050H

Grade:

0.5 credit in Cell Biology: BIOL 2070H

Grade:

0.5 credit in Analytical Chemistry: CHEM 2400H (before 2024) CHEM 2410H (2024 onwards)

Grade:

1.0 credit in Organic Chemistry: CHEM 2100H, and CHEM 2110H

CHEM 2100H

Grade:

CHEM 2110H

Grade:

0.5 credit in Physical Chemistry: CHEM 2500H

Grade:

This course requires calculus; MATH 1100Y is the better choice

0.5 credit in Inorganic Chemistry: CHEM 2200H

Grade:

0.5 credit in Biochemistry: CHEM 2300H

Grade:

## THIRD YEAR REQUIREMENTS

0.5 credit in Molecular Biology: BIOL 3080H

Grade:

1.0 credit in Biochemistry: CHEM 3310H and CHEM 3320H

CHEM 3310H

Grade:

CHEM 3320H

Grade:

1.0 credit in Chemistry at the 3000-­level:

These can be according to your interests and include organic, inorganic, physical, analytical instrumentation, and environmental.

CHEM

Grade:

CHEM

Grade:

2.0 Biology credits at the 3000 or 4000-­level, taken from the following list (choose 4):

* Microbiology: BIOL 3250H; BIOL 4370H
* Physiology: BIOL 3830H; BIOL 3840H
* Molecular Biology: BIOL 4380H
* Developmental Biology: BIOL 4080H
* Immunology: BIOL 4160H
* Virology: BIOL 4260H
* Pharmacology: BIOL 4320H
* Plant Physiological Ecology: BIOL 4280H
* Applied Molecular Genetics: BIOL 4600H; prerequisite is Population Genetics (BIOL 3620H)
* Neuroendocrinology (BIOL 4840H)

BIOL

Grade:

BIOL

Grade:

BIOL

Grade:

BIOL

Grade:

## FOURTH YEAR REQUIREMENTS

1.0 credit in Chemistry

CHEM

Grade:

CHEM

Grade:

## THIRD AND FOURTH YEAR REQUIREMENTS

An additional 3.0 credits in Biology or Chemistry beyond the 2000­level

Course:

Grade:

Course:

Grade:

Course:

Grade:

Course:

Grade:

Course:

Grade:

Course:

Grade:

## University Honours B.Sc. Requirements

Credit total: minimum 20 credits

Science credits: minimum 14 credits

Cumulative average: minimum 65%

3 credits in different disciplines: minimum 60% in each

Number of D grades: maximum of 1.0 credit in Chemistry and Biology courses

For more information see the [University Calendar](http://www.trentu.ca/calendar/) or contact the Chemistry & Biochemistry Undergrad Advisor, Andrew Vreugdenhil [avreugdenhil@trentu.ca](mailto:avreugdenhil@trentu.ca)