

NOTE: Students who were admitted before 2013/2014 calendar term. Important to follow term you were admitted in.



## Combined Honours B.Sc. Biology and Physics

The Biology and Physics program is aimed at students who are interested in both fields, as well as their combination, for research in anything from molecular level cellular machines to large scale medical imaging. The Biology and Physics program provides a strong background for graduate study in the field of Medical Physics. Students may apply to the Co-Operative Education Option in this program. Typically each year, you will take 5.0 credits (10 "half-courses"), and shown below are the courses that are normally taken in a given year, designed to satisfy the prerequisite structure. Not specified are possible elective courses, as there is some flexibility starting in year two.

### Your First Year

**Physics:** PHYS 1001 and 1002 (recommended) or 1003 and 1004 or 1007 and 1008 (with an average grade of B- or higher)  
**Biology:** BIOL 1103 and 1104  
**Chemistry:** CHEM 1001 and 1002 or 1005 and 1006  
**Mathematics:** MATH 1004, 1104 and MATH 1005  
Computer Science: COMP 1005  
Electives: NSCI 1000 or 0.5 credits approved arts or social science elective

In first year university, your courses will give you the basics that you need in order to continue on in the program as well as some breadth of study into subjects other than your major.

### Your Second Year

**Physics:** PHYS 2202 and 2604  
**Biology:** BIOL 2001, 2104 and 2200  
**Mathematics:** MATH 2004, 3705 and STAT 2507

Like the other years of the program, second year requires a significant amount of laboratory work in each course as well as lecture components. You will be taking optics and modern physics, as well as animal physiology, biochemistry and genetics.

Third year covers a wide variety of subjects in Physics and Biology, with all levels of biology (molecular, cell and animal) and both applied and theoretical physics courses. An engineering core course offers techniques for numerical analysis useful for applied lab work.

In your fourth year, you will perform an independent research project under the supervision of a professor at the university. Projects may be in Biology or Physics depending on your interests.

### Your Third Year

**Physics:** PHYS 3007, 3207, 3606 and 3701  
**Biology:** BIOL 3104, 3201 and 3305  
**\* Engineering Core:** ECOR 2606  
† ECOR 2606 can be taken without the prerequisite (ECOR 1606 or SYSC 1005)

### Your Fourth Year

**Physics:** PHYS 3308 and 4409 and 1.0 credit from: PHYS 3802, 3807, 4008, 4203, 4409, 4608 and 4707  
**Biology:** 1.0 credit from: BIOL 4106, 4109, 4202, 4301 and 4306  
**Project:** BIOL 4908 (full year) or PHYS 4909 (full year) or PHYS 4907 (fall term) and 0.5 credit in PHYS at the 4000-level or PHYS 4908 (winter term) and 0.5 credit in PHYS at the 4000-level

**Note:** In addition to the above required courses, you must take 1.5 elective credits in approved Arts or Social Sciences and 1.0 credit in free electives as outlined in the Undergraduate Calendar.

## Questions?

Please feel free to contact the department: **Loc:** 3302 Herzberg **Tel:** (613) 520-4320  
**Fax:** (613) 520-4061 **Email:** physics@carleton.ca **Web:** www.physics.carleton.ca