

## Department of Biology

### Biotechnology - Specialization

#### Wondering what courses to take?

##### (BTEC-P-BSH)

##### Year One:

F	<b>Introductory Biology of Cells</b> (BIOL-102)
FW	<b>Calculus</b> (MATH-121 or 120 or (MATH 123 & 124))
FW	<b>General Chemistry</b> (CHEM-112 or 116)
W	<b>Introductory Biology of Organisms</b> (BIOL-103)

*Plus elective courses*

##### Year Two:

F	<b>Mendelian &amp; Molecular Genetics</b> (BIOL-205)
F	<b>Data Management</b> (BIOL-243) or (PSYC-202)
FW	<b>2nd year Chemistry</b>
F&/W	6.0 units BIOL OR BIOMED & MOLECULAR SCI Option List
W	<b>Evolutionary Genetics</b> (BIOL-206)
W	<b>Molecular Biology</b> (BCHM-218)

*Plus elective courses*

##### Year Three:

F/W	6.0 units <b>Animal Physiology</b> (BIOL-339); <b>Plant Physiology</b> (BIOL-341); <b>Comparative Biochemistry</b> (BIOL-334)
F	<b>Cell Biology</b> (BIOL-330)
F/W	<b>12.0 units BTEC BIOL List</b>
F/W	<b>Experimental Approaches to Animal Physiology</b> (BIOL-401) or <b>Experiments in Plant Physiology</b> (BIOL-402)
W/S	<b>Frontiers in Cell and Molecular Physiology</b> (BIOL-403) or <b>Techniques in Molecular Biology</b> (BIOL-404)

*Plus elective courses*

##### Year Four:

Students have the option of completing:

F/W	18.0 units BTEC BIOL; BTEC Options <b>OR</b>
F/W	<b>Research in Biology</b> (BIOL-537); <b>Research in Biotechnology</b> (BIOL-541) <b>PLUS</b> 6.0 units BTEC BIOL; BTEC Options
F/W	3.0 units <b>Biotechnology and Society</b> (BIOL-360); <b>Plant Biotechnology</b> (BIOL-503); <b>Biotechnology</b> (BIOL-507); <b>Current Topics in Biochemistry</b> (BCHM-441)

*Plus elective courses*

**Research Honours Thesis Project** (BIOL-537) OR (BIOL 541) Capstone undergraduate experience, which offers complete immersion in the research process. Thesis students design and execute their own projects by working in our laboratories with faculty, graduate students, and other research personnel. Students experience all elements of research including identification of the scientific question, experimental design, poster and oral presentations, a written thesis, and a formal defense

visit: <http://www.queensu.ca/artsci> for details on all plans

F (fall term), W (winter term), FW (both fall and winter terms)

## Department of Biology

#### Looking for suggestions?

**Ecology & Evolutionary Biology stream**--suggested courses: Cell Biology (BIOL-330), Field Studies (BIOL-307), Macroevolution (BIOL-440), Natural Selection/Microevolution (BIOL-439), Conservation Biology (BIOL-422).

**Plant Sciences stream**--suggested courses: Ecology (BIOL-302), Plant Physiology (BIOL-341), Genomics (BIOL-331), Techniques in Molecular Biology (BIOL-404), Plants for People (BIOL-315).

**Integrated Animal Biology stream**--suggested courses: Ecology (BIOL-302), Animal Physiology (BIOL-339), Animal Behaviour (BIOL-321), Environmental Physiology of Animals (BIOL-322), Cell Biology (BIOL-330), Cellular Basis of Adaptation (BIOL-431), Neuroethology (BIOL-445).

**Genetics and Molecular Biology stream**--suggested courses: Ecology (BIOL-302), Molecular Biology (BCHM-218), Cell Biology (BIOL-330), Analytical Genomics (BIOL-331), Techniques in Molecular Biology (BIOL-404), Molecular Genetics of Development (BIOL-430), Molecular Genetics (BIOL-441).

##### BTEC\_Biology

BIOL 315/3.0; BIOL 331/3.0; BIOL 333/3.0; BIOL 334/3.0; BIOL 339/3.0; BIOL 341/3.0; BIOL 360/3.0; BIOL 401/3.0; BIOL 402/3.0; BIOL 403/3.0; BIOL 404/3.0; BIOL 409/3.0; BIOL 430/3.0; BIOL 431/3.0; BIOL 441/3.0; BIOL 503/3.0; BIOL 506/3.0; BIOL 507/3.0; BIOL 508/3.0"

##### BTEC\_Options

BCHM 315/3.0; BCHM 316/3.0; BCHM 410/3.0; BCHM 411/3.0; BCHM 432/3.0; CHEE 229/3.0; CHEE 342/3.0; CHEE 380/3.0; CHEE 405/3.0; CHEE 440/3.0; CHEE 450/3.0; CHEE 484/3.0; DDHT 459/3.0; DDHT 460/3.0; MICR 221/3.0; MICR 360/3.0; MICR 435/3.0; MICR 451/3.0; MICR455/6.0; MICR 461/3.0; PHAR 270/3.0; PHAR 340/3.0; PHAR 416/3.0; PHAR 450/3.0"

##### Suggested First Year Electives

GEOL-107	History of Life
PSYC-100	Psychology
PHYS-107	Introductory Physics
ENGL-110	Introduction to English Literature
ENGL-168/169	Modern Literature in English
GEOL-105	Environmental Geology
GPHY-100	Geography and the Environment

For more information, including detailed information on requirements for biology degree programs as well as biology courses that can be used to fill option courses in upper years, please refer to the Faculty of Arts and Science Calendar.