Academic Regulations and Requirements for the Bachelor of Science Degree

The regulations presented in this section apply to all Bachelor of Science programs.

In addition to the requirements presented here, students must satisfy the University regulations common to all undergraduate students including the process of Academic Performance Evaluation (see the *Academic Regulations of the University* section of this Calendar).

Breadth Requirement for the B.Sc.

Students in Bachelor of Science Honours or General programs must present the following credits at graduation:

1. 2.0 credits in Science Continuation courses not in the major discipline or disciplines;
2. 1.5 credits in Approved Arts or Social Sciences
3. 0.5 credit in NSCI 1000 Seminar in Science or Approved Arts or Social Sciences.

In most cases, the requirements for individual B.Sc. programs, as stated in this Calendar, contain these requirements, explicitly or implicitly.

Students admitted to B.Sc. programs by transfer from another institution must present at graduation (whether taken at Carleton or elsewhere):

1. 2.0 credits in Approved Arts or Social Sciences electives if on transfer the student received credit for fewer than 10.0 credits;
2. 1.0 credit of Approved Arts or Social Sciences electives if on transfer the student received credit for 10.0 or more credits;

Declared and Undeclared Students

Students who are registered in a program within the degree are called Declared students. Most students designate a program of study when they first apply for admission and so begin their studies as Declared students. Students may also choose to begin their studies within the B.Sc. degree without being registered in a program. These students are referred to as Undeclared. The recommended course pattern for Undeclared students is provided in the Undeclared entry of the Programs section of this Calendar. Undeclared students normally must apply to enter a program before beginning their second year of study. The Student Academic Success Centre offers support to Undeclared students in making this decision.

Change of Program within the B.Sc. Degree

Students may transfer to a program within the B.Sc. degree if upon entry to the new program they would be in good academic standing.

Other applications for change of program will be considered on their merits; students may be accepted in the new program in *Good Standing* or on Academic Warning.

Applications to declare or change their program within the B.Sc. Degree must be made online through Carleton Central by completing a Change of Program Elements (COPE) application form within the published deadlines. Acceptance into a program or into a program element or option is subject to any enrolment, and/or specific program, program element or option requirements as published in the relevant Calendar entry.

Minors, Concentrations and Specializations

Students may online through Carleton Central by completing a Change of Program Elements (COPE) application form to be admitted to a minor, concentration or specialization during their first or subsequent years of study. Acceptance into a minor, concentration or specialization requires that the student be in *Good Standing* and is subject to any specific requirements of the intended Minor, Concentration or Specialization as published in the relevant Calendar entry.

Experimental Science Requirement

Students in B.Sc. Honours or General degree programs must present at graduation at least two full credits of experimental science chosen from two different departments: Biology, Chemistry, Earth Sciences, Geography, or Physics.

Approved experimental science courses:

Biochemistry	
BIOC 2200 [0.5]	Cellular Biochemistry
BIOC 3006 [1.0]	Practical Biochemistry
BIOC 4001 [0.5]	Methods in Biochemistry
BIOC 4201 [0.5]	Advanced Cell Culture and Tissue Engineering
Biology	
BIOL 1003 [0.5]	Introductory Biology I
BIOL 1004 [0.5]	Introductory Biology II
BIOL 1103 [0.5]	Foundations of Biology I
BIOL 1104 [0.5]	Foundations of Biology II
BIOL 2001 [0.5]	Animals: Form and Function
BIOL 2002 [0.5]	Plants: Form and Function
BIOL 2104 [0.5]	Introductory Genetics
BIOL 2200 [0.5]	Cellular Biochemistry
Chemistry	
CHEM 1001 [0.5]	General Chemistry I
CHEM 1002 [0.5]	General Chemistry II
CHEM 1005 [0.5]	Elementary Chemistry I
CHEM 1006 [0.5]	Elementary Chemistry II
CHEM 2103 [0.5]	Physical Chemistry I
CHEM 2203 [0.5]	Organic Chemistry I
CHEM 2204 [0.5]	Organic Chemistry II

CHEM 2206 [0.5]	Organic Chemistry IV
CHEM 2302 [0.5]	Analytical Chemistry I
CHEM 2303 [0.5]	Analytical Chemistry II
CHEM 2800 [0.5]	Foundations for Environmental Chemistry
Earth Sciences	
ERTH 1006 [0.5]	Exploring Planet Earth
ERTH 1009 [0.5]	The Earth System Through Time
ERTH 2102 [0.5]	Mineralogy to Petrology
ERTH 2404 [0.5]	Engineering Geoscience
ERTH 2802 [0.5]	Field Geology
ERTH 3111 [0.5]	Vertebrate Paleontology I: Mammalian Paleontology and Evolution
ERTH 3112 [0.5]	Paleontology and Evolution of Lower Vertebrates
ERTH 3204 [0.5]	Mineral Deposits
ERTH 3205 [0.5]	Physical Hydrogeology
ERTH 3806 [0.5]	Structural Geology
Geography	
GEOG 1010 [0.5]	Global Environmental Systems
Physics	
PHYS 1001 [0.5]	Foundations of Physics I
PHYS 1002 [0.5]	Foundations of Physics II
PHYS 1003 [0.5]	Introductory Mechanics and Thermodynamics
PHYS 1004 [0.5]	Introductory Electromagnetism and Wave Motion
PHYS 1007 [0.5]	Elementary University Physics I
PHYS 1008 [0.5]	Elementary University Physics II
PHYS 2202 [0.5]	Wave Motion and Optics
PHYS 2604 [0.5]	Modern Physics I
PHYS 3007 [0.5]	Third Year Physics Laboratory: Selected Experiments and Seminars
PHYS 3606 [0.5]	Modern Physics II
PHYS 3608 [0.5]	Modern Applied Physics

Course Categories for B.Sc. Programs

Science Geography courses	
GEOG 1010 [0.5]	Global Environmental Systems
GEOG 2006 [0.5]	Introduction to Quantitative Research
GEOG 2013 [0.5]	Weather and Water
GEOG 2014 [0.5]	The Earth's Surface
GEOG 3003 [0.5]	Quantitative Geography
GEOG 3010 [0.5]	Field Methods in Physical Geography
GEOG 3102 [0.5]	Geomorphology
GEOG 3103 [0.5]	Watershed Hydrology
GEOG 3104 [0.5]	Principles of Biogeography
GEOG 3105 [0.5]	Climate and Atmospheric Change
GEOG 3108 [0.5]	Soil Properties
GEOG 4000 [0.5]	Field Studies
GEOG 4005 [0.5]	Directed Studies in Geography
GEOG 4013 [0.5]	Cold Region Hydrology
GEOG 4017 [0.5]	Global Biogeochemical Cycles
GEOG 4101 [0.5]	Quaternary Geography
GEOG 4103 [0.5]	Water Resources Engineering
GEOG 4104 [0.5]	Microclimatology
GEOG 4108 [0.5]	Permafrost
Science Psychology courses	
PSYC 2001 [0.5]	Introduction to Research Methods in Psychology
PSYC 2002 [0.5]	Introduction to Statistics in Psychology
PSYC 2700 [0.5]	Introduction to Cognitive Psychology
PSYC 3000 [1.0]	Design and Analysis in Psychological Research
PSYC 3506 [0.5]	Cognitive Development
PSYC 3700 [1.0]	Cognition (Honours Seminar)
PSYC 3702 [0.5]	Perception
Science Continuation courses	
A course at the 2000 level or above may be used as a Science Continuation credit in a B.Sc. program if it is not in the student's major discipline and is chosen from the following:	
- Biology (BIOL)	
- Biochemistry (BIOC)	
- Chemistry (CHEM), except CHEM 1003 and CHEM 1004	
- Computer Science (COMP), except COMP 1001. A maximum of two half-credits at the 1000 level in COMP, excluding COMP 1001, may be used as Science Continuation credits.	
- Earth Sciences (ERTH), except ERTH 2415, which may be used only as a free elective for any B.Sc. program. Students in Earth Sciences programs may use ERTH 2401, ERTH 2402 and ERTH 2403 only as free electives.	
- Engineering (students wishing to register in Engineering courses must obtain the permission of the Faculty of Engineering and Design.)	
- Environmental Science (ENSC)	
- Food Science and Nutrition (FOOD)	
- Geomatics (GEOM)	
- Mathematics (MATH) or Statistics (STAT)	
- Neuroscience (NEUR)	
- Physics (PHYS) except PHYS 2903.	
- Science Geography courses (see list above)	
- Science Psychology courses (see list above)	
- Technology, Society, Environment Studies (TSES) courses except TSES 2305. (Biology General, Major and Honours students may use these courses only as free electives. Integrated Science and Environmental Science students may include these courses in their programs but may not count them as part of the Science Sequence.)	
Science Faculty Electives	
Science Faculty Electives are courses at the 1000 - 4000 levels chosen from the following:	
- Biochemistry (BIOC)	
- Biology (BIOL)	
- Chemistry (CHEM) except CHEM 1003 and CHEM 1004	
- Computer Science (COMP) except COMP 1001, COMP 1805	
- Earth Sciences (ERTH) except ERTH 1010, ERTH 1011 and ERTH 2415. Earth Science students may use ERTH 2401, ERTH 2402 and ERTH 2403 only as free electives.	
- Engineering	

- ENSC 2001
- Food Science and Nutrition (FOOD)
- Geomatics (GEOM)
- Mathematics (MATH) or Statistics (STAT) except MATH 1805
- Neuroscience (NEUR)
- Physics (PHYS) except PHYS 1901, PHYS 1902, PHYS 1905, and PHYS 2903.
- Science Geography (GEOG) (see list above)
- Science Psychology (PSYC) (see list above)
- Technology, Society, Environment (TSES) (Biology General, Major and Honours students may use these courses only as a free elective)
Advanced Science Faculty Electives
Advanced Science Faculty Electives are courses at the 2000 - 4000 levels chosen from the Science Faculty Electives list above.

Approved Arts or Social Sciences Electives

All courses offered by the Faculty of Arts and Social Sciences, the Faculty of Public Affairs are approved as Arts or Social Sciences courses **EXCEPT FOR:** BUSI 1001, BUSI 1002, BUSI 1004, BUSI 1005, BUSI 1402, BUSI 2001, BUSI 2002, BUSI 3001, BUSI 3008, BUSI 4000, BUSI 4002, ECON 2201, ECON 2202, ECON 2400, ECON 4004, ECON 4005, ECON 4706, ECON 4707, all Science Geography courses (see list above), all Geomatics (GEOM) courses, all Science Psychology courses (see list above).

Free Electives

Any course is allowable as a Free Elective providing it is not prohibited (see below) or enrolment restricted (consult this Calendar and/or the registration instructions at carleton.ca/registration). Students are expected to comply with prerequisite requirements for all courses as published in this Calendar.

Courses Allowable Only as Free Electives in any B.Sc. Program	
CHEM 1003 [0.5]	The Chemistry of Food, Health and Drugs
CHEM 1004 [0.5]	Drugs and the Human Body
ERTH 1010 [0.5]	Our Dynamic Planet Earth
ERTH 1011 [0.5]	Evolution of the Earth
ERTH 2415 [0.5]	Natural Disasters
MATH 1805 [0.5]	Discrete Structures I
COMP 1805 [0.5]	Discrete Structures I
PHYS 1901 [0.5]	Planetary Astronomy
PHYS 1902 [0.5]	From our Star to the Cosmos
PHYS 1905 [0.5]	How Things Work: Physics in Everyday Life
PHYS 2903 [0.5]	Physics and the Imagination
ISCI 2002 [0.5]	Human Impacts on the Environment
MATH 0107 [0.5]	Algebra and Geometry (Only if not completed previously, and only if required as a prerequisite for the current program of study)
Prohibited Courses	
The following courses are not acceptable for credit in any B.Sc. program:	
ISCI 1001 [0.5]	Introduction to the Environment
ISCI 2000 [0.5]	Natural Laws
COMP 1001 [0.5]	Introduction to Computers for the Arts and Social Sciences
MATH 0005 [0.5]	Precalculus: Functions and Graphs
MATH 0006 [0.5]	Precalculus: Trigonometric Functions and Complex Numbers