

Geography Geographic Information Processing

Department of Geography and Environmental Studies

Faculty of Arts and Social Sciences

This section presents the requirements for:

- **Geography – B.A. Honours with Concentration in Physical Geography Resource and Environmental Assessment Globalization, Society and Environment**
- **Geography – B.A. Combined Honours**
- **Geography – B.A. General**
- **Geographic Information Processing – B.A. Honours**
- **Geography with Concentration in Physical Geography – B.Sc. Honours**
- **Geography with Concentration in Geographical Information Processing – B.Sc. Honours**
- **Minor in Geography**
- **Minor in Geography: Physical Geography**
- **Minor in Geography: Resource and Environmental Assessment**
- **Minor in Geographic Information Processing**
- **Joint Program with Algonquin College**

The following programs are offered by the Department of Geography and Environmental Studies in cooperation with other academic units.

Biology and Physical Geography

B.Sc. Combined Honours: see the Biology program section of this Calendar.

Geology and Physical Geography

B.Sc. Combined Honours: see the Earth Sciences program section of this Calendar.

Geology and Geography

B.Sc. Combined Honours with Concentration in Terrain Science: see the Earth Sciences program section of this Calendar.

Biology and Geography

B.A. Combined Honours: see the Biology program section of this Calendar.

Graduation Requirements

In addition to the requirements listed below, students must satisfy:

- i) the University regulations, including the process of Academic Performance Evaluation (see the *Academic Regulations of the University* section of this Calendar),
- ii) for B.A. programs, the common regulations applying to all B.A. students including those relating to First-Year Seminars and Breadth Requirements (see *Academic Regulations and Requirements for the Bachelor of Arts Degree*),
- iii) for B.Sc. programs the common regulations applying to all B.Sc. students including those relating to Science Continuation and Breadth Requirements (see *Academic Regulations and Requirements for the Bachelor of Science Degree*),

Students should consult the Department when planning their program and selecting courses.

B.A. Program Requirements

Geography

B.A. Honours (20.0 credits)

A. Credits Included in the Major CGPA (10.0 credits):

1. 1.0 credit from: GEOG 1001 [1.0], FYSM 1100 [1.0], or FYSM 1101 [1.0];
2. 0.5 credit in GEOG 2100;
3. 1.5 credits in GEOG 2004, GEOG 2005, GEOG 2006,
4. 1.0 credit from GEOG 2101, GEOG 2200, and GEOG 2300;
5. 1.0 credit in GEOG 3000 (or other approved field course) and GEOG 3900;
6. 1.0 credit from: GEOG 4904 [1.0] or GEOG 4909 [1.0];
7. 2.0 credits in Geography at the 3000-level;
8. 2.0 credits in Geography at the 4000-level;

B. Credits Not Included in the Major CGPA (10.0 credits)

9. 8.0 credits in electives not in Geography;
10. 2.0 credits in free electives.

Geography with Concentration in Physical Geography

B.A. Honours (20.0 credits)

A. Credits Included in the Major CGPA (10.5 credits):

1. 1.0 credit from: GEOG 1001 [1.0], FYSM 1100 [1.0], FYSM 1101 [1.0];
2. 1.5 credits in GEOG 2004, GEOG 2005, GEOG 2006,
3. 0.5 credit from: GEOG 2101, GEOG 2200, or GEOG 2300;
4. 1.0 credit in Geography GEOG 3000 (or other approved field course) and GEOG 3900;
5. 1.0 credit in Geography GEOG 4904 [1.0] or GEOG 4909 [1.0] (with a topic in physical geography);

and in Physical Geography:

6. 0.5 credit in GEOG 2100;
7. 1.0 credit in GEOG 2102, GEOG 3002;
8. 0.5 credit in GEOG 4406 or GEOG 4408 (with a placement in physical geography);
9. 2.0 credits from: GEOG 3101, GEOG 3102, GEOG 3103, GEOG 3104, GEOG 3105, GEOG 3108;
10. 1.5 credits from GEOG 4003, GEOG 4004, GEOG 4005 (with a topic in physical geography), GEOG 4101, GEOG 4103, GEOG 4104, GEOG 4108, GEOG 4109;

B. Credits Not Included in the Major CGPA (9.5 credits):

11. 8.0 credits in electives not in Geography;
12. 1.5 credits in free electives.

Geography with Concentration in Resource and Environmental Assessment

B.A. Honours (20.0 credits)

A. Credits Included in the Major CGPA (10.5 credits):

1. 1.0 credit from: GEOG 1001 [1.0], FYSM 1100 [1.0], or FYSM 1101 [1.0];
2. 0.5 credit in GEOG 2100;
3. 1.5 credits in GEOG 2004, GEOG 2005 and GEOG 2006;
4. 0.5 credits in either GEOG 2200 or GEOG 2300;
5. 1.0 credit in GEOG 3000 (or other approved field course), and GEOG 3900;
6. 1.0 credit in either GEOG 4904 [1.0] or GEOG 4909 [1.0] (with a topic in resources and environmental assessment);

and in Resource and Environmental Assessment:

7. 2.5 credits in GEOG 2007, GEOG 2101, GEOG 3101, GEOG 3306, GEOG 4004;
8. 0.5 credit in GEOG 4406 or GEOG 4408 (with a placement in resource and environmental assessment);
9. 1.0 credit from: GEOG 3002, GEOG 3102, GEOG 3103, GEOG 3104, GEOG 3105, GEOG 3108, GEOG 3206, GEOG 3209, GEOG 3300;
10. 1.0 credit from GEOG 4003, GEOG 4005 (with a topic in resource and environmental assessment), GEOG 4101, GEOG 4104, GEOG 4108, GEOG 4109, GEOG 4300, GEOG 4400, GEOG 4405, GEOG 4407;

B. Credits Not Included in the Major CGPA (9.5 credits):

11. 8.0 credits in electives not in Geography;
12. 1.5 credits in free electives.

Geography with Concentration in Globalization, Society and Environment

B.A. Honours (20.0 credits)

A. Credits Included in the Major CGPA (10.5 credits):

1. 1.0 credit from: GEOG 1001 [1.0], FYSM 1100 [1.0] or FYSM 1101 [1.0];
2. 0.5 credits in GEOG 2100;
3. 2.0 credits in GEOG 2004, GEOG 2005, GEOG 2006, GEOG 2101;
4. 1.0 credit in GEOG 3000 (or other approved field course), and GEOG 3900;
5. 1.0 credit in either GEOG 4904 [1.0] or GEOG 4909 [1.0] (with a topic in globalization);

and in Globalization, Society and Environment:

6. 1.0 credit from GEOG 2200, GEOG 2300, GEOG 2505;
7. 2.0 credits in GEOG 3209, GEOG 3307, GEOG 3404, GEOG 4401;
8. 0.5 credit from: GEOG 3200, GEOG 3206, GEOG 3300, GEOG 3306, GEOG 3600, GEOG 3602, GEOG 3603, GEOG 3700;
9. 1.0 credit from: GEOG 4005 (with globalization topic), GEOG 4203, GEOG 4207, GEOG 4300, GEOG 4301, GEOG 4400, GEOG 4406, GEOG 4408, GEOG 4600;
10. 0.5 credit from: GEOG 2007, GEOG 3001, GEOG 3003, GEOG 4004;

B. Credits Not Included in the Major CGPA (9.5 credits):

11. 8.0 credits in electives not in Geography;
12. 1.5 credits in free electives.

Geography

B.A. Combined Honours (20.0 credits)

A. Credits Included in the Geography Major CGPA (7.0 credits):

1. 1.0 credit from: GEOG 1001 [1.0], FYSM 1100 [1.0] or FYSM 1101 [1.0];
2. 0.5 credit in GEOG 2100;
3. 0.5 credit from: GEOG 2101, GEOG 2200, and GEOG 2300;
4. 0.5 credit in either GEOG 2005 or GEOG 2006;
5. 1.0 credit in GEOG 2004, GEOG 3900;
6. 1.5 credits in Geography at the 3000-level;
7. 1.0 credit in Geography at the 4000-level;
8. 1.0 credit in GEOG 4904 [1.0] or GEOG 4909 [1.0] or Geography at the 4000-level;

B. Additional Requirements (13.0 credits):

9. The requirements of the other Honours discipline must be satisfied;
10. 5.0 credits in electives not in Geography or the other discipline;
11. Sufficient free electives to total 20.0 credits for the program.

Note: in Item 8 above, credit in one of GEOG 4904 [1.0] or GEOG 4909 [1.0] is compulsory unless an Honours research essay or equivalent is completed in the other Honours discipline.

Geography

B.A. General (15.0 credits)

A. Credits Included in the Major CGPA (7.0 credits):

1. 1.0 credit from: GEOG 1001 [1.0], FYSM 1100 [1.0], or FYSM 1101 [1.0];
2. 0.5 credit in GEOG 2100;
3. 1.0 credit in GEOG 2004, GEOG 2005;
4. 1.0 credit from GEOG 2101, GEOG 2200, and GEOG 2300;
5. 1.0 credit in Geography at the 2000-level or above;
6. 2.5 credits in Geography at the 3000-level or above;

B. Credits Not Included in the Geography Major CGPA (8.0 credits):

7. 7.0 credits in electives not in Geography;
8. 1.0 credit in free electives.

Geographic Information Processing

B.A. Honours (20.0 credits)

A. Credits Included in the Major CGPA (10.0 credits):

1. 1.0 credit in GEOG 1001[1.0];
2. 2.0 credits in GEOG 2004, GEOG 2005, GEOG 2006, GEOG 2007;
3. 3.0 credits in GEOG 3000, GEOG 3002, GEOG 3003, GEOG 3005, GEOG 3006, GEOG 3007,
4. 1.5 credits in GEOG 4003, GEOG 4006, GEOG 4008;

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5. 0.5 credit in GEOG 4406 or GEOG 4408 (with placement in a GIP-related setting);
6. 1.0 credit in Geography at the 2000-level or higher;
7. 1.0 credit in GEOG 4904 [1.0] or GEOG 4909 [1.0], with an emphasis on the nature and/or use of Geographic Information Processing;

B. Credits Not Included in the Major CGPA (10.0 credits):

8. 8.0 credits in electives not in Geography;
9. 2.0 credits in free electives.

Course Categories for B.Sc. Geography

Geography Science Electives

GEOG 2004, GEOG 2005, GEOG 2006, GEOG 2007, GEOG 2100, GEOG 2102, GEOG 3000, GEOG 3002, GEOG 3003, GEOG 3005, GEOG 3006, GEOG 3007, GEOG 3101, GEOG 3102, GEOG 3103, GEOG 3104, GEOG 3105, GEOG 3108, GEOG 4000, GEOG 4003, GEOG 4004, GEOG 4005, GEOG 4006, GEOG 4008, GEOG 4101, GEOG 4103, GEOG 4104, GEOG 4108, GEOG 4109, GEOG 4406, GEOG 4408

Science Continuation

See *Academic Regulations and Requirements for the Bachelor of Science Degree* for a list of courses in this category.

Experimental Science Electives

BIOL 1003, BIOL 1004, CHEM 1000, PHYS 1001, PHYS 1002, PHYS 1003, PHYS 1004, PHYS 1007, PHYS 1008

Approved Arts or Social Sciences Electives

See *Academic Regulations and Requirements for the Bachelor of Science Degree* for a list of courses in this category.

B.Sc. Program Requirements

Geography with Concentration in Physical Geography

B.Sc. Honours (20.0 credits)

A. Credits Included in the Major CGPA (9.0 credits)

1. 1.0 credit in GEOG 2100, GEOL 1006;
2. 1.0 credit in GEOG 2004, GEOG 2102;
3. 2.5 credits in GEOG 3101, GEOG 3102, GEOG 3104, GEOG 3105 and GEOG 3108;
4. 2.0 credits in Geography Science Electives at the 4000-level;
5. 1.5 credits in Geography Science Electives;
6. 1.0 credit in GEOG 4906 [1.0];

B. Credits Not Included in the Major CGPA (11.0 credits)

7. 1.0 in Experimental Science Electives;
8. 0.5 credit in MATH 1007;
9. 0.5 credit in Mathematics, Statistics or Computer Science;
10. 2.0 credits in Science Continuation, not in Geography;
11. 2.0 approved credits in Science, Computer Science or Engineering;

12. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences;
13. 1.0 credit in Approved Arts or Social Sciences, not in Geography;
14. 0.5 credit in Approved Arts or Social Sciences;
15. 3.0 credits in free electives.

Geography with Concentration in Geographical Information Processing
B.Sc. Honours (20.0 credits)

A. Credits Included in the Major CGPA (9.0 credits):

1. 1.0 credit in GEOG 2100, GEOL 1006;
2. 2.0 credits in GEOG 2004, GEOG 2005, GEOG 2006, GEOG 2007;
3. 2.5 credits in GEOG 3002, GEOG 3003, GEOG 3005, GEOG 3006, GEOG 3007;
4. 1.5 credits in GEOG 4003, GEOG 4006, GEOG 4008;
5. 0.5 credit in Geography Science Electives at the 4000-level;
6. 0.5 credits in Geography Science Electives;
7. 1.0 credit in GEOG 4906 [1.0]. The project must have an emphasis on the nature and or use of geographic information processing;

B. Credits Not Included in the Major CGPA (11.0 credits):

8. 1.0 credit in Experimental Science Electives;
9. 2.0 approved credits in Computer Science;
10. 2.0 credits in Science Continuation, not in Geography;
11. 1.0 approved credits in Science, Computer Science or Engineering;
12. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences;
13. 1.0 credit in Approved Arts or Social Sciences, not in Geography;
14. 0.5 credit in Approved Arts or Social Sciences;
15. 3.0 credits in free electives.

Biology and Physical Geography

B.Sc. Combined Honours (20.0 credits)

A. Credits Included in the Major CGPA (13.0 credits):

1. 2.0 credits from: BIOL 1003, BIOL 1004, GEOG 2100 and GEOL 1006;
2. 10.0 credits in Biology (or Biochemistry) and Science Geography at the 2000-level or above, satisfying collectively:
 - a) 0.5 credits chosen from BIOL 3605, BIOL 3606, GEOG 3000, GEOG 4000;
 - b) at least 4.0 credits in Biology or Biochemistry;
 - c) at least 4.0 credits in Geography;
 - d) at least 4.0 credits are at the 3000-level or above;
3. 1.0 credit in BIOL 4908 [1.0] or GEOG 4906 [1.0];

B. Credits Not Included in the Major CGPA (7.0 credits):

4. 1.5 credits in CHEM 1000 [1.0], MATH 1007;
5. 0.5 credit in MATH 1107 or STAT 2507;
6. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences;

7. 1.5 credits in Approved Arts or Social Sciences;
8. 1.0 credit in Science Faculty Electives;
9. 1.0 credit in Science Faculty Electives or Computer Science (COMP), not in Biology or Geography, at the 2000-level or above;
10. 1.0 credit in free electives.

Notes:

1. Courses in Physical Geography are listed in the *Academic Regulations and Requirements for the Bachelor of Science Degree* section as Science Geography courses.
2. For item 7, 1.0 credit in Geography, other than the Physical Geography, is recommended;
3. For item 8, either (PHYS 1003 and PHYS 1004) or (PHYS 1007 and PHYS 1008) is required, unless OAC Physics is presented on admission.

Geology and Physical Geography B.Sc. Combined Honours (20.0 credits)

A. Credits Included in the Major CGPA (12.0 credits):

1. 1.0 credit in GEOL 1006 and GEOG 2100 (preferred), or GEOL 1007 or GEOG 1008;
2. 1.5 credits in GEOL 2203, GEOL 2205, GEOL 2208;
3. 2.0 credits in Geology (GEOL) at the 3000-level or above;
4. 1.0 credit in Geology (GEOL) at the 4000-level;
5. 0.5 credits in GEOG 2102;
6. 1.5 credit in Science Geography Courses at the 2000-level or above;
7. 2.0 credits in GEOG 3002, GEOG 3102, GEOG 3105, GEOG 3108;
8. 1.0 credit in Science Geography Courses at the 4000-level;
9. 1.0 credit in GEOG 4906 [1.0] or GEOL 4908 [1.0];

B. Credits Not Included in the Major CGPA (8.0 credits):

10. 2.0 credits in CHEM 1000 [1.0], MATH 1007 and MATH 1107;
11. 1.0 credit in PHYS 1003 and PHYS 1004, or PHYS 1007 and PHYS 1008;
12. 1.0 credit in Mathematics (MATH, STAT) at 2000-level or above; and/or in Computer Science (COMP); (STAT 2507 and COMP 1004 are recommended);
13. 0.5 credits in NSCI 1000 or Approved Arts or Social Sciences;
14. 1.5 credits in Approved Arts or Social Sciences;
15. 2.0 credits in free electives.
16. 0.5 credit in ENSC 2000.

Notes:

1. Students who have taken GEOL 1000 [1.0] (no longer offered) or any two of GEOL 1006, GEOL 1007 or GEOL 1008 may, with permission of the program advisers, substitute these courses for GEOL 1005 [1.0]/Geography GEOG 1005 [1.0].
2. A Human Geography course is recommended in the program.
3. The course ENSC 2000 precludes GEOG 2909.

Geology and Geography: Concentration in Terrain Science B.Sc. Combined Honours (20.0 credits)

A. Credits Included in the Major CGPA (12.5 credits):

1. 1.0 credit in GEOG 2100 and GEOL 1006 (preferred) or GEOL 1007 or GEOG 1008;
2. 2.0 credits in GEOL 2203, GEOL 2205, GEOL 2208, GEOL 2802;
3. 2.0 credit in GEOL 3201, GEOL 3203, GEOL 3205, GEOL 3806;
4. 1.0 credit in Geology at the 4000-level;
5. 0.5 credit in GEOG 2006 or STAT 2507;
6. 1.5 credits in GEOG 2004, GEOG 2007, GEOG 2101;
7. 2.0 credits in GEOG 3002, GEOG 3102, GEOG 3105, GEOG 3108;
8. 1.0 credit in GEOG 4101 and GEOG 4108;
9. 1.0 credit in GEOL 4908 [1.0] or GEOG 4906 [1.0];
10. 0.5 credit in ENSC 2000;

B. Credits Not Included in the Major CGPA (7.5 credits):

11. 1.0 credit in CHEM 1000 [1.0];
12. 1.0 credit in MATH 1007 and MATH 1107;
13. 1.0 credit in (PHYS 1003 and PHYS 1004) or (PHYS 1007 and PHYS 1008);
14. 0.5 credit from COMP 1003, COMP 1004 or COMP 1007;
15. 1.0 credit in Science Faculty Electives at the 2000-level or above;
16. 0.5 credits in NSCI 1000 or Approved Arts or Social Sciences;
17. 1.5 credits in Approved Arts or Social Sciences;
18. 1.0 credit free electives.

Minor in Geography

Open to all undergraduate degree students not in Geography programs.

Requirements (4.0 credits):

1. 1.0 credit in GEOG 1001 [1.0];
2. 0.5 credit in GEOG 2100;
3. 0.5 credit in GEOG 2005;
4. 0.5 credit in GEOG 2101, GEOG 2200 or GEOG 2300;
5. 1.0 credit in Geography at the 3000-level;
6. 0.5 credit in Geography;
7. The remaining requirements of the major discipline(s) and degree must be satisfied.

Minor in Geography: Physical Geography

Open to all undergraduate degree students not in Geography programs.

Requirements (4.0 credits):

1. 0.5 credit in GEOG 2100;
2. 0.5 credit in GEOG 2102;
3. 3.0 credits from:
GEOG 3002, GEOG 3101, GEOG 3102, GEOG 3103, GEOG 3104, GEOG 3105, GEOG 3108, GEOG 4101, GEOG 4104, GEOG 4108, GEOG 4109;

4. The remaining requirements of the major discipline(s) and degree must be satisfied.

Minor in Geography: Resource and Environmental Assessment

Open to all undergraduate degree students not in Geography programs.

Requirements (4.0 credits):

1. 1.0 credit in GEOG 1001 [1.0];
2. 2.0 credits in GEOG 2101, GEOG 3101, GEOG 3306, GEOG 4004;
3. 1.0 credit from:
GEOG 3002, GEOG 3102, GEOG 3103, GEOG 3104, GEOG 3105, GEOG 3108, GEOG 3206, GEOG 3209, GEOG 3300, GEOG 4101, GEOG 4104, GEOG 4108, GEOG 4109, GEOG 4300, GEOG 4400, GEOG 4405, GEOG 4407;
4. The remaining requirements of the major discipline(s) and degree must be satisfied.

Minor in Geographic Information Processing

Open only to undergraduate students who have already completed 1.0 credit in GIP courses with CGPA of 6.50 or better.

Requirements (4.5 credits):

1. 2.0 credit in GEOG 2004, GEOG 2005, GEOG 2007, GEOG 3005;
2. 0.5 credit in either GEOG 2006 or STAT 2507;
3. 2.0 credits from:
GEOG 3002, GEOG 3003, GEOG 3006, GEOG 3007, GEOG 4003, GEOG 4006 or GEOG 4008;
4. The remaining requirements of the major discipline(s) and degree must be satisfied.

Note: familiarity with computers is assumed. Students with little computer experience may wish to take one of the following courses as part of their program of study: BUSI 1402, COMP 1001 or COMP 1004.

Joint Studies between Algonquin College (GIS Technologist Program) and Carleton University (B.A. in Geography)

General Information

This program of joint studies permits students to work concurrently towards an Algonquin College diploma and a Carleton University B.A. General degree. Students in Algonquin College's GIS Technologist program must apply both to Algonquin College and to Carleton University's School of Continuing Education for registration as a Special student.

Admission Requirements

During their program of study at Algonquin College, students will take 5.0 Carleton credits as a Special student, including 2.5 credits in Geography including: GEOG 1001 [1.0], (GEOG 1100 or GEOG 2100) and 1.0 credit from GEOG 2101, GEOG 2200 and GEOG 2300.

After successful completion of the Algonquin College GIS Technologist Diploma, candidates may apply for admission to a B.A. degree in Geography at Carleton University. To be admitted, candidates must:

1. Graduate from Algonquin College with at least an Algonquin G.P.A. of 3.0 in the courses eligible for transfer to Carleton. Candidates should consult with the GIS Technologist adviser at Algonquin College or the B.A. program adviser at Carleton for a list of such courses.
2. Have obtained an overall average in their Carleton courses to meet the requirements for continuation in the B.A. General.

Students admitted to Carleton may receive the following credits on the basis of study at Algonquin College:

GEOG 2004, GEOG 2005, GEOG 2006, GEOG 2007, GEOG 3002, GEOG 3005, GEOG 3006

Social Sciences option ISSC 3xxx, ISSC 4xxx, ISSC 4xxx, ISSC 4xxx

Graduation Requirements

In order to graduate, students must fulfil all University graduation requirements, and all Faculty graduation requirements, and all the Geography B.A. requirements. Consult the *Academic Regulations of the University*, and the *Academic Regulations and Requirements for the Bachelor of Arts Degree* for full details.

Students who have completed the 5.0 Carleton credits as a Special student during concurrent studies and who transfer the 5.0 credits from Algonquin College identified above will be required to complete 5.0 further Carleton credits upon admission to the B.A. General program. Of these 5.0 additional credits, 2.5 must be in Geography, with at least 1.0 credit at the 3000- or 4000-level.