Geography

This section presents the requirements for programs in:

- M.A. Geography
- M.A. Geography with Collaborative Specialization in Accessibility
- M.A. Geography with Collaborative Specialization in African Studies
- M.A. Geography with Collaborative Specialization in Climate Change
- M.Sc. Geography with Collaborative Specialization in Climate Change
- M.A. Geography with Collaborative Specialization
 in Data Science
- M.A. Geography with Collaborative Specialization in Latin American and Caribbean Studies
- M.Sc. Geography
- M.Sc. Geography with Collaborative Specialization
 in Data Science
- · Ph.D. Geography
- Ph.D. Geography with Collaborative Specialization in Political Economy

Program Requirements

M.A. Geography (5.0 credits)

Requirements - Thesis pathway

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1.	0.5 credit in:		0.5
	GEOG 5000 [0.5]	Approaches to Geographical Inquiry	
2.	2.5 credits in:		2.5
	GEOG 5909 [2.5]	M.A. Thesis (which must be defended at an oral examination)	
3.	0.5 credit in:		0.5
	GEOG 5905 [0.5]	Masters Research Workshop	
4. 1.0 credit in approved GEOG/GEOM courses. With departmental permission, up to 1.0 credit may be taken from other units in the Faculty of Arts and Social Sciences/ Faculty of Public Affairs. Coursework must fulfil the "Graduate-level Course Requirements" in the Graduate Regulations.			1.0
R	egulations.		
	0.5 credit in free e	lective	0.5
5. 6. re	0.5 credit in free e In addition to the for	rmal requirements, M.A. students are Departmental Seminar series, and	0.5
5. 6. re th	0.5 credit in free e In addition to the for quired to attend the	rmal requirements, M.A. students are Departmental Seminar series, and	0.5 5.0
5. re th To	0.5 credit in free e In addition to the for quired to attend the e Graduate Field Ca tal Credits	rmal requirements, M.A. students are Departmental Seminar series, and	
5. re th To R	0.5 credit in free e In addition to the for quired to attend the e Graduate Field Ca tal Credits	mal requirements, M.A. students are Departmental Seminar series, and mp.	
5. re th To R	0.5 credit in free e In addition to the for quired to attend the e Graduate Field Ca otal Credits equirements - Rese	mal requirements, M.A. students are Departmental Seminar series, and mp.	5.0
5. re th Tc R 1.	0.5 credit in free e In addition to the for quired to attend the e Graduate Field Ca otal Credits equirements - Rese 0.5 credit in:	mal requirements, M.A. students are Departmental Seminar series, and mp. arch essay pathway: Approaches to Geographical	5.0
5. re th Tc R 1.	0.5 credit in free e In addition to the for quired to attend the e Graduate Field Ca otal Credits equirements - Rese 0.5 credit in: GEOG 5000 [0.5]	mal requirements, M.A. students are Departmental Seminar series, and mp. arch essay pathway: Approaches to Geographical	5.0 0.5
5. re th To 1.	0.5 credit in free e In addition to the for quired to attend the e Graduate Field Ca tal Credits equirements - Rese 0.5 credit in: GEOG 5000 [0.5] 1.0 credit in:	mal requirements, M.A. students are Departmental Seminar series, and mp. arch essay pathway: Approaches to Geographical Inquiry	5.0 0.5

 4. 3.0 credits in approved GEOG/GEOM courses. With
 3.0

 departmental permission, up to 1.0 credit may be taken
 from other units in the Faculty of Arts and Social Sciences/

 Faculty of Public Affairs. Coursework must fulfil the
 "Graduate-level Course Requirements" in the Graduate

 Regulations.
 Regulations.

5. In addition to the formal requirements, M.A. students are required to attend the Departmental Seminar series, and the Graduate Field Camp.

Total Credits

M.A. Geography with Collaborative Specialization in Accessibility (5.5 credits)

5.0

Requirements:

1. 1.0 credit in:		1.0
ACCS 5001 [0.5]	Critical Disability Studies	
ACCS 5002 [0.5]	Accessibility and Inclusive Design Seminar	
2. 1.0 credit in:		1.0
GEOG 5000 [0.5]	Approaches to Geographical Inquiry	
GEOG 5905 [0.5]	Masters Research Workshop	
3. 2.5 credits in:		2.5
GEOG 5909 [2.5]	M.A. Thesis (in the specialization and including oral examination of the thesis)	
4. 1.0 credit in appro	oved graduate-level electives	1.0
	rmal requirements, MA students are Departmental Seminar series, and amp	
Total Credits		5.5
M.A. Geography with Collaborativ Studies (5.0 cred	ve Specialization in African	
with Collaboration Studies (5.0 cred Requirements - The	ve Specialization in African	0.5
with Collaboration Studies (5.0 cred	ve Specialization in African dits)	0.5
with Collaboration Studies (5.0 cred Requirements - The 1. 0.5 credit in:	ve Specialization in African dits) sis pathway (5.0 credits) African Studies as a Discipline:	
with Collaboration Studies (5.0 cred Requirements - The 1. 0.5 credit in: AFRI 5000 [0.5]	ve Specialization in African dits) sis pathway (5.0 credits) African Studies as a Discipline:	
with Collaboration Studies (5.0 cred Requirements - The 1. 0.5 credit in: AFRI 5000 [0.5] 2. 0.0 credit in:	African Studies as a Discipline: Historical and Current Perspectives Scholarly Preparation in African	0.0
with Collaboration Studies (5.0 cred Requirements - The 1. 0.5 credit in: AFRI 5000 [0.5] 2. 0.0 credit in: AFRI 5800 [0.0]	African Studies as a Discipline: Historical and Current Perspectives Scholarly Preparation in African	0.0
with Collaboration Studies (5.0 cred Requirements - The 1. 0.5 credit in: AFRI 5000 [0.5] 2. 0.0 credit in: AFRI 5800 [0.0] 3. 1.0 credit in:	African Studies as a Discipline: Historical and Current Perspectives Scholarly Preparation in African Studies	0.0
with Collaboration Studies (5.0 creat Requirements - The 1. 0.5 credit in: AFRI 5000 [0.5] 2. 0.0 credit in: AFRI 5800 [0.0] 3. 1.0 credit in: GEOG 5000 [0.5]	African Studies as a Discipline: Historical and Current Perspectives Scholarly Preparation in African Studies Approaches to Geographical Inquiry	0.0
with Collaboration Studies (5.0 creat Requirements - The 1. 0.5 credit in: AFRI 5000 [0.5] 2. 0.0 credit in: AFRI 5800 [0.0] 3. 1.0 credit in: GEOG 5000 [0.5] GEOG 5905 [0.5]	African Studies as a Discipline: Historical and Current Perspectives Scholarly Preparation in African Studies Approaches to Geographical Inquiry	0.0
with Collaboration Studies (5.0 cred Requirements - The 1. 0.5 credit in: AFRI 5000 [0.5] 2. 0.0 credit in: AFRI 5800 [0.0] 3. 1.0 credit in: GEOG 5905 [0.5] 4. 2.5 credits in: GEOG 5909 [2.5]	African Studies as a Discipline: Historical and Current Perspectives Scholarly Preparation in African Studies Approaches to Geographical Inquiry Masters Research Workshop M.A. Thesis (in the specialization and including oral examination of	0.0 1.0 2.5
 with Collaboration Studies (5.0 cred) Requirements - Their 1. 0.5 credit in: AFRI 5000 [0.5] 2. 0.0 credit in: AFRI 5800 [0.0] 3. 1.0 credit in: GEOG 5000 [0.5] GEOG 5905 [0.5] 4. 2.5 credits in: GEOG 5909 [2.5] 5. 1.0 credit in approx 6. In addition to the formation 	African Studies as a Discipline: Historical and Current Perspectives Scholarly Preparation in African Studies Approaches to Geographical Inquiry Masters Research Workshop M.A. Thesis (in the specialization and including oral examination of the thesis)	0.5 0.0 1.0 2.5

M.A. Geography with Collaborative Specialization in Climate Change (5.5 credits)

Requirements:

1. 1.0 credit in:		1.0
CLIM 5000 [1.0]	Climate Collaboration	
2. 0.0 credit in:		0.0
CLIM 5800 [0.0]	Climate Seminar Series	
3. 1.0 credit in:		1.0
GEOG 5000 [0.5]	Approaches to Geographical Inquiry	
GEOG 5905 [0.5]	Masters Research Workshop	
4. 2.5 credits in:		2.5
GEOG 5909 [2.5]	M.A. Thesis (in the specialization and including oral examination of the thesis)	
5. 1.0 credit in appro	ved graduate-level electives	1.0
	mal requirements, MA students are Departmental Seminar series, and mp.	

Total Credits

M.Sc. Geography with Collaborative Specialization in Climate Change (5.5 credits)

Requirements:

0 credit in: IM 5000 [1.0] 0 credit in: IM 5800 [0.0] 0 credit in: EOG 5001 [0.5] EOG 5905 [0.5] 5 credit in Physi EOG 5002 [0.5] EOG 5103 [0.5] EOG 5104 [0.5] EOG 5107 [0.5]	Climate Collaboration Climate Seminar Series Modeling Environmental Systems Masters Research Workshop ical Geography selected from: Quantitative Analysis for Geographical Research Hydrologic Principles and Methods Advanced Biogeography Field Study and Methodological	1.0 0.0 1.0
0 credit in: IM 5800 [0.0] 0 credit in: EOG 5001 [0.5] EOG 5905 [0.5] 5 credit in Physi EOG 5002 [0.5] EOG 5103 [0.5] EOG 5104 [0.5]	Climate Seminar Series Modeling Environmental Systems Masters Research Workshop ical Geography selected from: Quantitative Analysis for Geographical Research Hydrologic Principles and Methods Advanced Biogeography	1.0
LIM 5800 [0.0] 0 credit in: EOG 5001 [0.5] EOG 5905 [0.5] 5 credit in Physi EOG 5002 [0.5] EOG 5103 [0.5] EOG 5104 [0.5]	Modeling Environmental Systems Masters Research Workshop ical Geography selected from: Quantitative Analysis for Geographical Research Hydrologic Principles and Methods Advanced Biogeography	1.0
0 credit in: EOG 5001 [0.5] EOG 5905 [0.5] 5 credit in Physi EOG 5002 [0.5] EOG 5103 [0.5] EOG 5104 [0.5]	Modeling Environmental Systems Masters Research Workshop ical Geography selected from: Quantitative Analysis for Geographical Research Hydrologic Principles and Methods Advanced Biogeography	
EOG 5001 [0.5] EOG 5905 [0.5] 5 credit in Physi EOG 5002 [0.5] EOG 5103 [0.5] EOG 5104 [0.5]	Masters Research Workshop ical Geography selected from: Quantitative Analysis for Geographical Research Hydrologic Principles and Methods Advanced Biogeography	
EOG 5905 [0.5] 5 credit in Physi EOG 5002 [0.5] EOG 5103 [0.5] EOG 5104 [0.5]	Masters Research Workshop ical Geography selected from: Quantitative Analysis for Geographical Research Hydrologic Principles and Methods Advanced Biogeography	0.5
5 credit in Physi EOG 5002 [0.5] EOG 5103 [0.5] EOG 5104 [0.5]	ical Geography selected from: Quantitative Analysis for Geographical Research Hydrologic Principles and Methods Advanced Biogeography	0.5
EOG 5002 [0.5] EOG 5103 [0.5] EOG 5104 [0.5]	Quantitative Analysis for Geographical Research Hydrologic Principles and Methods Advanced Biogeography	0.5
EOG 5103 [0.5] EOG 5104 [0.5]	Geographical Research Hydrologic Principles and Methods Advanced Biogeography	
EOG 5104 [0.5]	Advanced Biogeography	
	0 0 1 3	
EOG 5107 [0.5]	Field Study and Methodological	
	Research	
EOG 5303 [0.5]	Geocryology	
EOG 5307 [0.5]	Soil Resources	
EOG 5803 [0.5]	Seminar in Geomatics	
EOG 5804 [0.5]	Geographic Information Systems	
EOG 5900 [0.5]	Graduate Tutorial	
to 0.5 credit in 0 th departmental a	GEOG or GEOM at the 4000 level, approval	
0 credits in:		3.0
EOG 5906 [3.0]	M.Sc. Thesis (in the specialization and including oral examination of the thesis)	
addition to the fo	the DGES Departmental Seminar	
equired to attend	late Field Camp.	
	equired to attend	-

M.A. Geography with Collaborative Specialization in Data Science (5.0 credits)

Requirements:		
1. 0.5 credit in:		0.5
DATA 5000 [0.5]	Data Science Seminar	
2. 0.5 credit in:		0.5
GEOG 5000 [0.5]	Approaches to Geographical Inquiry	
3. 2.5 credits in:		2.5
GEOG 5909 [2.5]	M.A. Thesis (in the specialization and including oral examination of the thesis)	
4. 0.5 credit in:		0.5
GEOG 5905 [0.5]	Masters Research Workshop	
5. 1.0 credit in appro	ved graduate-level electives	1.0
	mal requirements, M.A. students are Departmental Seminar series, and mp.	
Total Credits		5.0

M.A. Geography with Collaborative Specialization in Latin American and Caribbean Studies (5.0 credits)

Requirements - Thesis pathway (5.0 credits)

5.5

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1. 0.5 credit in:		0.5
LACS 5000 [0.5]	Interdisciplinary Approaches to Latin American and Caribbean Studies	
2. 0.0 credit in:		0.0
LACS 5800 [0.0]	Scholarly Preparation in Latin American and Caribbean Studies	
3. 1.0 credit in:		1.0
GEOG 5000 [0.5]	Approaches to Geographical Inquiry	
GEOG 5905 [0.5]	Masters Research Workshop	
4. 2.5 credits in:		2.5
GEOG 5909 [2.5]	M.A. Thesis (in the specialization and including oral examination of the thesis)	
5. 1.0 credit in approv	ved graduate-level electives	1.0
6. In addition to the formal requirements, MA students are required to attend the Departmental Seminar series, and the Graduate Field Camp.		
Total Credits		5.0
M.Sc. Geography	v (5.0 credits)	
Requirements:		
1. 0.5 credit in:		0.5

R	equirements:		
1.	0.5 credit in:		0.5
	GEOG 5001 [0.5]	Modeling Environmental Systems	
2.	0.5 credit in:		0.5
	GEOG 5905 [0.5]	Masters Research Workshop	
3.	3.0 credits in:		3.0
	GEOG 5906 [3.0]	M.Sc. Thesis (must be defended at an oral examination)	
4.	0.5 credit in Physic	cal Geography selected from:	0.5
	GEOG 5002 [0.5]	Quantitative Analysis for Geographical Research	
	GEOG 5103 [0.5]	Hydrologic Principles and Methods	

GEOG 5104 [0.5]	Advanced Biogeography
GEOG 5107 [0.5]	Field Study and Methodological Research
GEOG 5303 [0.5]	Geocryology
GEOG 5307 [0.5]	Soil Resources
GEOG 5803 [0.5]	Seminar in Geomatics
GEOG 5804 [0.5]	Geographic Information Systems
GEOG 5900 [0.5]	Graduate Tutorial
GEOG 4004 [0.5]	Environmental Impact Assessment
GEOG 4013 [0.5]	Cold Region Hydrology
GEOG 4017 [0.5]	Global Biogeochemical Cycles
GEOG 4101 [0.5]	Two Million Years of Environmental Change
GEOG 4103 [0.5]	Water Resources Engineering
GEOG 4104 [0.5]	Microclimatology
GEOG 4108 [0.5]	Permafrost
GEOM 4003 [0.5]	Remote Sensing of the Environment
GEOM 4008 [0.5]	Advanced Topics in Geographic Information Systems
Or from courses off of Science	ered by departments in the Faculty
5. 0.5 credit in free e	lective
	mal requirements, M.Sc. students the Departmental Seminar Series.

6 are required to attend the Departmental Seminar Series, and the Graduate Field Camp.

Total Credits

Notes

- 1. Only 0.5 credit towards the program may be obtained in GEOG 5900 Graduate Tutorial
- 2. Only 0.5 credit may be obtained at 4000 level.

M.Sc. Geography with Collaborative Specialization in Data Science (5.0 credits)

Requirements:

1.	0.5 credit in:		0.5
	DATA 5000 [0.5]	Data Science Seminar	
2.	0.5 credit in:		0.5
	GEOG 5001 [0.5]	Modeling Environmental Systems	
3.	0.5 credit in:		0.5
	GEOG 5905 [0.5]	Masters Research Workshop	
4.	0.5 credit in Physic	cal Geography selected from:	0.5
	GEOG 5002 [0.5]	Quantitative Analysis for Geographical Research	
	GEOG 5103 [0.5]	Hydrologic Principles and Methods	
	GEOG 5104 [0.5]	Advanced Biogeography	
	GEOG 5107 [0.5]	Field Study and Methodological Research	
	GEOG 5303 [0.5]	Geocryology	
	GEOG 5307 [0.5]	Soil Resources	
	GEOG 5803 [0.5]	Seminar in Geomatics	
	GEOG 5804 [0.5]	Geographic Information Systems	
	GEOG 5900 [0.5]	Graduate Tutorial	
	up to 0.5 credit in G with departmental a	EOG or GEOM at the 4000 level, pproval	
5	3.0 credits in:		3.0

	GEOG 5906 [3.0]	M.Sc. Thesis (in the specialization and including oral examination of the thesis)	
ar		mal requirements, M.Sc. students the DGES Departmental Seminar ate Field Camp.	
	tal Credits	I	5.0
Dł	n.D. Geography	(2.0 credits)	
	equirements: 1.0 credit in:		1.0
1.	GEOG 6000 [0.5]	Doctoral Core Seminar:	1.0
	&	Geography, Society and the	
	GEOG 6001 [0.5]	Environment	
		Doctoral Core Seminar: Research and Professional Practice	
2.	1.0 credit from:		1.0
	GEOG 6003 [0.5]	Field Seminar: Geography of	
	&	Societal Change	
	GEOG 6004 [0.5]	Field Seminar: Geography of Societal Change	
	GEOG 6006 [0.5]	Field Seminar: Geography of -	
	&	Environmental Change	
	GEOG 6007 [0.5]	Field Seminar: Geography of -	
3	Presentation and or	Environmental Change al defence of the thesis proposal as	
	tlined below		
4.	0.0 credit from:		
	GEOG 6906 [0.0]	Comprehensive Examination: The - Geography of Societal Change	
	GEOG 6907 [0.0]	Comprehensive Examination: The Geography of Environmental Change	
		is which must be defended at an	0.0
ora	al examination		
6		Ph.D. Thesis	
ar		mal requirements, Ph.D. students the Departmental Seminar series d Camp.	
	tal Credits		2.0
wi		e Specialization in Political	
	conomy (2.0 cre	dits)	
	equirements:		
1.	1.0 credit in:		1.0
	GEOG 6000 [0.5]	Doctoral Core Seminar: Geography, Society and the Environment	
	GEOG 6001 [0.5]	Doctoral Core Seminar: Research and Professional Practice	
2.	0.5 credit in:		0.5
	PECO 6000 [0.5]	Political Economy: Core Concepts	<u> </u>
3.	0.5 credit from:	Field Sominary Cooperative of	0.5
	GEOG 6003 [0.5]	Field Seminar: Geography of Societal Change	
4	GEOG 6004 [0.5]	Field Seminar: Geography of Societal Change	0.0
4.	0.0 credit in: GEOG 6906 [0.0]	Comprehensive Examination: The -	0.0
		Comprehensive Examination. The -	

5. 3.0 credits in:

0.5

5.0

Geography of Societal Change

5. Presentation and oral defence of the thesis proposal as outlined below

6. 0.0 credits in:		0.0
GEOG 6909 [0.0]	Ph.D. Thesis (in the specialization, must be defended at an oral examination)	
7. In addition to the formal requirements, Ph.D. students are required to attend the Departmental Seminar series		

Total Credits

Comprehensive Examination

and the Graduate Field Camp.

Each doctoral candidate is required to write one comprehensive examination: GEOG 6906 or GEOG 6907, according to the chosen field of specialization

The comprehensive examination must be completed after course requirements for the Ph.D. have been completed. The examination will occur no later than the fourth term of registration in the Ph.D. program. Failure to complete the examination successfully will result in denial of permission to continue in the program.

Thesis Proposal

Candidates normally register in the thesis on entry to the program and work actively to define their research topic during the first term of registration. The thesis proposal is normally presented after comprehensive requirements have been fulfilled. Candidates submit and defend the thesis proposal at an oral examination no later than the end of the 5th term of registration in the Ph.D. program. Continuous registration is required after initial registration in the thesis.

Residence Requirements

All Ph.D. candidates must be registered full time in a minimum of six terms to satisfy the residence requirement.

Regulations

See the General Regulations section of this Calendar.

Admission Requirements

The requirement for admission into the master's program is a B.A.(Honours) or B.Sc. (Honours) in Geography or a related discipline, with at least B+ standing.

In exceptional cases, pertinent work experience may be considered in support of an application to the Department. Students entering the program from other disciplines or with academic deficiencies may be required to take additional courses.

Accelerated Pathway

The accelerated pathway in the M.A. Geography program is a flexible and individualized plan of graduate study. Students in their final year of a Carleton B.A. or BSc. Honours degree in Geography, Geomatics, Environmental Studies or related discipline with demonstrated academic excellence and aptitude for research may qualify for this option.

Students in their third-year of study should consult with both their Undergraduate Program Coordinator and the Department of Geography & Environmental Studies Graduate Program Supervisor to determine if the accelerated pathway is appropriate for them and to confirm their selection of courses for their final year of undergraduate studies.

Accelerated Pathway Requirements

- 1. At least 0.5 credit in GEOG courses (5000 level) with a grade of B+ or higher excluding GEOG 5000, 5001 and 5905.
- 2. Minimum overall CGPA of A-.

2.0

Students may receive advanced standing with transfer of credit of up to 1.0 credit which can reduce their time to completion.

Admission Requirements

The normal requirement for admission into the M.Sc. program in Geography is a B.Sc. (Honours) or B.A. (Honours) in Physical Geography or a related discipline, with at least B+ standing.

Students entering the program from other disciplines or with academic deficiencies may be required to take additional courses.

The intended research area must be eligible for NSERC support.

Applicants for admission must provide an outline of their proposed project, which must be suitable for the M.Sc. program.

Accelerated Pathway

The accelerated pathway in the M.Sc. Geography program is a flexible and individualized plan of graduate study. Students in their final year of a Carleton B.A. or BSc. Honours degree in Geography, Geomatics, Environmental Studies or related discipline with demonstrated academic excellence and aptitude for research may qualify for this option.

Students in their third-year of study should consult with both their Undergraduate Program Coordinator and the Department of Geography & Environmental Studies Graduate Program Supervisor to determine if the accelerated pathway is appropriate for them and to confirm their selection of courses for their final year of undergraduate studies.

Accelerated Pathway Requirements

- 1. At least 0.5 credit in GEOG courses (5000 level) with a grade of B+ or higher excluding GEOG 5000, GEOG 5001 and GEOG 5905.
- 2. Minimal overall CGPA of A-.

Students may receive advanced standing with transfer of credit of up to 1.0 credit, which can reduce their time to completion.

Admission

The normal requirement for admission to the Ph.D. program is a master's degree (or the equivalent) in geography, with at least an A- average.

A student already registered in the M.A. or M.Sc. program who shows outstanding academic performance and research promise may be permitted to transfer to the Ph.D. program with a recommendation by the Departmental graduate committee.

Applicants whose academic preparation has deficiencies in certain areas may be admitted to the Ph.D. program with the requirement that they complete additional course work.

Admission to the Ph.D. program is granted on a full-time basis in September for the fall term.

Geography (GEOG) Courses

GEOG 5000 [0.5 credit]

Approaches to Geographical Inquiry

A review of the major philosophical perspectives shaping research and explanation by geographers. Particular attention is paid to interpretations of social structure and human action, the nature of the biophysical universe, and the interaction between human beings and their environments.

Includes: Experiential Learning Activity

GEOG 5001 [0.5 credit] Modeling Environmental Systems

Methods and problems of research on the physical environment, with illustrative material taken from the atmospheric and surface earth sciences. Topics include: the identification and behaviour of environmental systems, temporal and spatial scale, experimental method under field conditions, and simulation and model development. Includes: Experiential Learning Activity

GEOG 5002 [0.5 credit]

Quantitative Analysis for Geographical Research

Quantitative techniques and methods for research on the natural and cultural environment. Topics include sampling, experimental design, replication, variance, correlation, time series analysis, statistical uncertainty, simulation, calibration, validation.

Includes: Experiential Learning Activity

GEOG 5003 [0.5 credit]

Critical Approaches to Qualitative Inquiry

Development of critical skills in qualitative research by considering the relationship between theory and method. Engaged scholarship and participatory, community-based, action research. Practical experience with select methods including: interviews, personal narratives, focus groups, participant observation, archival research, discourse analysis, and visual methodologies. Includes: Experiential Learning Activity

GEOG 5005 [0.5 credit]

Global Environmental Change: Human Implications Global environmental change: its significance for societies, economies and international relations. Value systems underlying environmental discourse; political economy of the environment; sustainability and security. Environmental diplomacy and grassroots

environmentalism. Regionalized impacts of pressures on natural environments; challenges of adaptation. Includes: Experiential Learning Activity Also listed as INAF 5701.

GEOG 5006 [0.5 credit]

Special Topics in Geography of the Environment

Research seminar on a selected theme within geographical approaches to environmental analysis. Topics will vary from year to year. Consult departmental web site for current details. Includes: Experiential Learning Activity

GEOG 5103 [0.5 credit] Hydrologic Principles and Methods

Advanced physical hydrology with emphasis on atmospheric moisture, precipitation, evaporation, infiltration, soil water physics, snow hydrology and runoff generation. Analytical approaches and methods to solve practical hydrological problems. Includes: Experiential Learning Activity

GEOG 5104 [0.5 credit] Advanced Biogeography

Current methods and theories in paleoecology are examined: dendrochronology, paleolimnology and other techniques for examining past climates and environmental condition. Numerical approaches to climate change studies.

Includes: Experiential Learning Activity

GEOG 5107 [0.5 credit]

Field Study and Methodological Research Field acquisition and analysis of geographic material; supervised field observations and methodology. (Individual or group basis, by special arrangement.). Includes: Experiential Learning Activity

GEOG 5201 [0.5 credit]

Special Topics in the Geography of Development Research seminar within geographical approaches to development focusing on a selected theme or region. Topics vary from year to year. Consult departmental web site for current details.

Includes: Experiential Learning Activity

GEOG 5303 [0.5 credit] Geocryology

Development of ground ice in permafrost regions of Canada; ice segregation and pore-water expulsion during ground freezing; analytical and numerical approaches to modeling permafrost conditions. Includes: Experiential Learning Activity Prerequisite(s): GEOG 4108 or permission of the Department.

GEOG 5307 [0.5 credit] Soil Resources

Physical, mineralogical, chemical, and other properties of soils will be studied in agricultural, environmental, geomorphological and/or geotechnical contexts, as relevant to the students enrolled. Includes: Experiential Learning Activity

GEOG 5400 [0.5 credit]

Territory and Territoriality

Contemporary geographical and international relations theorizing is challenging notions of boundaries and territories in the political organization of modernity. Using contemporary writings on geopolitics, security, sovereignty, self-determination and identity politics this course investigates territoriality as a political and intellectual strategy.

Includes: Experiential Learning Activity Also listed as INAF 5402.

GEOG 5406 [0.5 credit]

Special Topics in Cultural Geography

Research seminar on a selected theme within cultural (including historical) geography. Topic varies from year to year. Consult departmental web site for current details. Includes: Experiential Learning Activity

GEOG 5500 [0.5 credit] Special Topics in the Study of Cities and Urbanization

Research seminar on a selected theme within geographical approaches to the study of cities and urbanization. Topics will vary from year to year. Consult departmental website for current details. Includes: Experiential Learning Activity

GEOG 5502 [0.5 credit]

Special Topics in Geography of Globalization

Research seminar on a selected theme within geographical aspects of globalization. Topic varies from year to year. Consult departmental web site for current details.

Includes: Experiential Learning Activity

GEOG 5600 [0.5 credit] Empire and Colonialism

Theoretical approaches to empire and colonialism: postcolonial, feminist, Indigenous, anti-racist, queer, decolonizing, and political-economic approaches. Consideration of a range of sites of imperial and colonial formation, including land, territory, nature, the body, sexuality, gender, and race, as well as forms of resistance, resurgence, and decolonization. Includes: Experiential Learning Activity

GEOG 5701 [0.5 credit] Topics in Northern Human Geography

Political, social, economic, cultural, and environmental geographies of the Canadian North and/or circumpolar North. Topics may include climate change, resource development, politics and governance, knowledge and expertise, geopolitics, sovereignty, colonialism, Indigenous knowledge, Indigenous self-determination, conservation and wildlife, environmental politics.

Includes: Experiential Learning Activity

GEOG 5803 [0.5 credit] Seminar in Geomatics

Current research issues in geomatics, including remote sensing, geographic information systems, geographic positioning, and cartography. Topics will focus on combined interests of enrolled students and departmental faculty.

Includes: Experiential Learning Activity Prerequisite(s): prior experience with GIS, GPS, remote sensing or cartography and permission of the department.

GEOG 5804 [0.5 credit] **Geographic Information Systems**

GIS for students with no previous experience. Includes data formats and structures, input/output and analysis capabilities, and GIS applications. Includes: Experiential Learning Activity

GEOG 5900 [0.5 credit] Graduate Tutorial

Tutorial, directed reading or research, offered on an individual basis, to meet specific program needs; may be taken in one of the areas of specialization of the Department.

Includes: Experiential Learning Activity

GEOG 5905 [0.5 credit] Masters Research Workshop

A workshop which focuses on the challenges of research design in the various sub-fields of geography. The workshop will culminate with the development and defence of a thesis research proposal. Includes: Experiential Learning Activity

GEOG 5906 [3.0 credits] M.Sc. Thesis

Thesis supervision will be given in Physical Geography, as listed in the introductory section of this department's program description.

Includes: Experiential Learning Activity

GEOG 5908 [1.0 credit] M.A. Maior Research Essav

Supervised research essay offered on an individual basis, to meet M.A. Major Research Essay pathway program needs; may be taken in one of the areas of specialization of the Department. Includes: Experiential Learning Activity.

Includes: Experiential Learning Activity Prerequisite(s): Permission of the Department.

GEOG 5909 [2.5 credits] M.A. Thesis

Thesis supervision will be given in all areas of specialization of the Department, as listed in the introductory section of this department's program description.

Includes: Experiential Learning Activity

GEOG 6000 [0.5 credit]

Doctoral Core Seminar: Geography, Society and the Environment

Examination of the production and use of geographical knowledge, including underlying philosophies, key theoretical concepts, and methodological approaches. Discussion and integrative approaches to understanding the geographies of environmental and social change. Provides an opportunity for students to locate their research interests within broader intellectual contexts. Includes: Experiential Learning Activity

GEOG 6001 [0.5 credit]

Doctoral Core Seminar: Research and Professional Practice

Geographical research situated within broader disciplinary and institutional context. Exploration of various aspects of professional practice (academic and non-academic careers, pedagogical style, etc.). Research impact, knowledge mobilization, engaged scholarship. Early thesis proposal development.

Includes: Experiential Learning Activity

GEOG 6003 [0.5 credit]

Field Seminar: Geography of Societal Change

Analysis of current geographical and related research into the three themes of global political economy: restructuring and the environment; geographies of socio-cultural evaluation; and feminist geographies. Includes: Experiential Learning Activity

GEOG 6004 [0.5 credit]

Field Seminar: Geography of Societal Change

Analysis of current geographical and related research into the three themes of global political economy: restructuring and the environment; geographies of socio-cultural evaluation; and feminist geographies. Includes: Experiential Learning Activity

GEOG 6006 [0.5 credit]

Field Seminar: Geography of Environmental Change

Analysis of geographical and related research into the appraisal and societal management of environmental resources, and environmental processes and anthropogenic impacts. Includes: Experiential Learning Activity

GEOG 6007 [0.5 credit]

Field Seminar: Geography of Environmental Change Analysis of geographical and related research into the appraisal and societal management of

environmental resources, and environmental processes and anthropogenic impacts. Includes: Experiential Learning Activity

GEOG 6906 [0.0 credit] Comprehensive Examination

Comprehensive Examination: The Geography of Societal Change

This examination focuses on research challenges in theory and methodology in the themes of global political economy: restructuring and the environment; geographies of socio-cultural evaluation; feminist geographies. A specific theme will be identified for each candidate. Includes: Experiential Learning Activity

GEOG 6907 [0.0 credit] Comprehensive Examination: The Geography of Environmental Change

This examination focuses on research challenges in theory and methodology associated with the appraisal and societal management of environmental resources, and environmental processes and anthropogenic impacts. A specific theme will be identified for each candidate. Includes: Experiential Learning Activity

GEOG 6909 [0.0 credit] Ph.D. Thesis

Includes: Experiential Learning Activity