Overview
The Department of Geography and Planning is an integrated department that studies the earth's places, societies, environments and landscapes. The Department is unique in bridging the social sciences and humanities (i.e., human geography) and planning with physical geography. Geography and Planning puts this understanding of social and physical processes within the context of places and regions - recognizing the great differences in cultures, political systems, economies, landscapes, and environments across the world, and the links between them. In physical geography we study natural processes, their interactions, and both naturally and human-generated environmental issues. In the social sciences we study a variety of social problems, with a special focus on the uneven distribution of resources and services at scales from the local to the global. In humanities research we explore how human beings have made, and continue to make, the places (physical, social and metaphorical) in which they live. In all these areas, Queen's Geography and Planning has scholars and teachers of international repute who are dedicated to making a dynamic and innovative research and teaching environment and a warm and supportive interpersonal environment for our students and faculty. Students who choose geography and planning for their degree in either the Bachelor of Arts or Bachelor of Science programs will develop the independent and self-directed learning skills needed to think laterally, critically, and creatively. These are skills that are critical to meeting the demands of the world as they will find it, and over which they may have influence. Geography and Planning provides an ideal framework for integrating other fields of knowledge. It is not surprising that geographers and planners often contribute substantially to the applied management of urban and regional systems, resources, and environments. Students in our program can select from courses in urban, economic, social, historical, and cultural geography, urban planning, as well as physical geography. Students can also take one of our two certificate programs in Geographic Information Science (GIS) and Urban Planning Studies to focus on these two important areas of employment and research. A degree from the Department of Geography and Planning also provides a solid foundation in qualitative and quantitative research methods, remote sensing, and Geographic Information Science (GIS) and Urban Planning Studies to focus on these two important areas of employment and research. Students will be exposed to teamwork, active learning, real-world projects, and research in all aspects of geography.

Departmental Policies
Ancillary Fees
Any student who participates in a Geography and Planning course where there are field trips may be required to pay a fee. Any student who participates in a course that uses the Geographic Information Systems (GIS) Laboratory will be required to pay a GIS access fee to set up a network account in this specialized facility (Mackintosh-Corry Hall, E223) and receive a 24-hour access card. The GIS access fee is fully refundable upon return of the GIS access card.

Advice to Students
Prerequisites
Students wishing to take a course at the 200- or 300-level, for which they lack the stated prerequisites, may appeal to the Course Instructor to have the prerequisites waived. For admission to all 500-level courses, students need the consent of a supervising member of the Department and permission of the Undergraduate Committee based on the submission of a proposal.

Students in GPHY 502 Research and Thesis in Geography I and GPHY 503 Research and Thesis Geography II are required to file a soft-cover, bound copy of their thesis with the Department upon completion of the course. Students in GPHY 503 Research and Thesis Geography II are normally required to present their results orally to the department as a requirement for successful completion of the course. Students in GPHY 502 Research and Thesis in Geography I are encouraged, but not required, to do so.
Study Abroad Option

Students may take one or two terms of study at the Bader International Study Centre (https://www.queensu.ca/bisc/) in their second or third year. Students participating in any international study program are expected to meet all fourth-year prerequisites by the end of third year and need to plan their programs accordingly.

It is often difficult to equate directly courses completed on exchange programs to Queen's courses. Therefore, students planning to participate in a third-year exchange must complete the following courses at Queen's during their first two years:


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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>GPHY 101 &amp; GPHY 102</td>
<td>Human Geography and Physical Geography and Natural Resources</td>
<td>6.00</td>
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<tr>
<td>GPHY 207</td>
<td>Principles Of Biogeography</td>
<td>3.00</td>
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<td>GPHY 208</td>
<td>Surface Processes, Landforms and Soils</td>
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<td>GPHY 209</td>
<td>Weather and Climate</td>
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<td>GEOL 200</td>
<td>Oceanography</td>
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<td>GPHY 247</td>
<td>Introduction to Statistics</td>
<td>3.00</td>
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Select one from the following: 6.00-12.00

- General/Minor (Science) - 6.00 units from CHEM or MATH or PHYS at the 100 level or above
- Major (Science) - 6.00 units from MATH or STAT at the 100 level or above; 6.00 units from CHEM or PHYS at the 100 level of above

Faculty

Programs

- Earth System Science – Specialization (Science) – Bachelor of Science (Honours) (https://queensu-ca-public.courseleaf.com/arts-science/schools-departments-programs/geography-planning/earth-system-science-specialization-science-bs-honours/)
- Geographic Information Science Certificate (https://queensu-ca-public.courseleaf.com/arts-science/schools-departments-programs/geography-planning/geographic-information-science-certificate/)
- Geography – General (Arts) – Bachelor of Arts (https://queensu-ca-public.courseleaf.com/arts-science/schools-departments-programs/geography-planning/geography-general-arts-ba/)
- Geography – General (Science) – Bachelor of Science (https://queensu-ca-public.courseleaf.com/arts-science/schools-departments-programs/geography-planning/geography-general-science-bs/)
- Geography – Major (Arts) – Bachelor of Arts (Honours) (https://queensu-ca-public.courseleaf.com/arts-science/schools-departments-programs/geography-planning/geography-major-arts-bs-honours/)
- Geography – Major (Science) – Bachelor of Science (Honours) (https://queensu-ca-public.courseleaf.com/arts-science/schools-departments-programs/geography-planning/geography-major-science-bs-honours/)
- Geography – Medial (Arts) – Bachelor of Arts (Honours) (https://queensu-ca-public.courseleaf.com/arts-science/schools-departments-programs/geography-planning/geography-medial-arts-bs-honours/)
- Geography – Minor (Science) (https://queensu-ca-public.courseleaf.com/arts-science/schools-departments-programs/geography-planning/geography-minor-science/)

Courses

GPHY 1HUM 100 Level Unspecified Units: 6.00
Offering Faculty: Faculty of Arts and Science

GPHY 1PHY 100 Level Physical Units: 6.00
Offering Faculty: Faculty of Arts and Science

GPHY 1REG 100 Level Regional Units: 6.00
Offering Faculty: Faculty of Arts and Science

GPHY 1TEC 100 Level Techniques&Research Units: 6.00
Offering Faculty: Faculty of Arts and Science

GPHY 2HUM 200 Level Human Geography Units: 6.00
Offering Faculty: Faculty of Arts and Science

GPHY 2PHY 200 Level Physical Units: 6.00
Offering Faculty: Faculty of Arts and Science

GPHY 2REG 200 Level Regional Units: 6.00
Offering Faculty: Faculty of Arts and Science

GPHY 2TEC 200 Level Techniques&Research Units: 6.00
Offering Faculty: Faculty of Arts and Science

GPHY 3HUM 300 Level Human Geography Units: 6.00
Offering Faculty: Faculty of Arts and Science

GPHY 3PHY 300 Level Physical Units: 6.00
Offering Faculty: Faculty of Arts and Science

GPHY 3REG Reg 300 Level Unspecified Units: 6.00
Offering Faculty: Faculty of Arts and Science

GPHY 3TEC 300 Level Techniques&Research Units: 6.00
Offering Faculty: Faculty of Arts and Science

GPHY 4HUM 400 Level Human Units: 6.00
Offering Faculty: Faculty of Arts and Science

GPHY 4PHY 400 Level Physical Units: 6.00
Offering Faculty: Faculty of Arts and Science
GPHY 4TEC 400 Level Techniques & Research Units: 6.00
Offering Faculty: Faculty of Arts and Science

GPHY 101 Human Geography Units: 3.00
The fundamentals of human geography including the meanings of place, the impacts of globalization, multiculturalism, population change and movement, environmental history and politics, cultural geography, issues of uneven resource distribution, the role of colonialism in the modern shape of the world, agricultural geography, and urban geography.
NOTE Field trip: estimated cost $30.
NOTE Also offered online. Consult Arts and Science Online.
LEARNING HOURS 120 (24L;18T;42O;36P).
Requirements: Prerequisite None. Exclusion BISC 100.
Offering Faculty: Faculty of Arts and Science

GPHY 102 Physical Geography and Natural Resources Units: 3.00
This course introduces the major concepts studied in physical geography and natural resources. The processes and interrelationships between the atmosphere, hydrosphere, biosphere, and lithosphere, particularly at, or near the Earth's surface, are investigated to serve as a basis for understanding the nature and distribution of natural resources.
NOTE Field trip: estimated cost $30.
LEARNING HOURS 120 (36L;12T;48P).
Requirements: Prerequisite None.
Offering Faculty: Faculty of Arts and Science

GPHY 105 The Digital Earth: Geospatial Data and Earth Observation Units: 3.00
A vast amount of geospatial data has now become publicly accessible through online tools and smartphones. This course provides a critical introduction to the sources of these geospatial data, and the techniques of their visualization and analysis. Students will, by the end of the course, be able to manipulate and analyze these data in GIS software.
NOTE GPHY 105/3.0 is an option course and will not be a prerequisite for entry into GPHY Plans as are GPHY 101/3.0 and GPHY 102/3.0.
LEARNING HOURS 114 (36L;78P)
Offering Faculty: Faculty of Arts and Science

GPHY 203 Water Resources and Management Units: 3.00
Water resources are coming under increasing pressure due to rising levels of demand and pollution. This course examines dimensions of the world's need for this critical resource. Topics include water distribution and availability, water quality, different water uses and demands, water treatment, and approaches to water management and allocation.
LEARNING HOURS 120 (36L;84P).
Requirements: Prerequisite Level 2 or above or permission of the Department. Equivalency GPHY 103.
Offering Faculty: Faculty of Arts and Science

GPHY 204 Forests as a Global Resource Units: 3.00
Forests are a critical global resource, containing significant biodiversity, regulating CO2 in the atmosphere, and providing cultural and economic benefits to society. Yet forests are threatened by over-harvesting, fire, development and environmental change. This course examines the ecology, distribution, and sustainability of the world's forests.
LEARNING HOURS 120 (36L;30G;54P).
Requirements: Prerequisite Level 2 or above or permission of the Department. Equivalency GPHY 104.
Offering Faculty: Faculty of Arts and Science

GPHY 207 Principles Of Biogeography Units: 3.00
An examination of ecological and earth system processes that affect the dynamics of organisms, their spatial patterns and their variability in time.
LEARNING HOURS 114 (36L;18Pc;12l;48P).
Requirements: Prerequisite (GPHY 102 or [3.0 units from BIOL or GEOL]) or permission of the Department.
Offering Faculty: Faculty of Arts and Science

GPHY 208 Surface Processes, Landforms and Soils Units: 3.00
Explores the structure of, and physical processes responsible for the development of landforms and soils. Understanding these systems is directly relevant to environmental planning, hazard and risk assessment, geology, and surface processes on other planets. Topics include weathering, volcanic, tectonic, mass wasting, glacial, and fluvial processes.
NOTE Field trip: estimated cost $25.
LEARNING HOURS 120 (36L;36Lb;48P).
Requirements: Prerequisite GPHY 102 or permission of the Department.
Offering Faculty: Faculty of Arts and Science
GPHY 209 Weather and Climate Units: 3.00
The weather and climate system will be investigated to provide a background to interpret weather conditions and to understand broader climate and climate change phenomena. Topics include: atmospheric properties, energy and moisture exchanges, weather system evolution, precipitation, climate classification, and forecasting.
LEARNING HOURS 114 (36L;18Pc;60P).
Requirements: Prerequisite GPHY 102 or permission of the Department.
Offering Faculty: Faculty of Arts and Science

GPHY 215 Field Studies in Physical Geography Units: 3.00
This course will introduce students to field methods and techniques used in wide variety of physical geography and related environmental fields. The emphasis will be on hands-on application of field sampling, measuring and mapping approaches. Taught as a field camp in prior to fall term, or after the exam period in April.
NOTE Field trips estimated cost $500. Students will be housed off-campus at QUBS and fees include transportation, housing and meals.
LEARNING HOURS 120 (8O;40Oc;72P).
Requirements: Prerequisite (GPHY 207 or GPHY 208 or GPHY 209) or permission of the Department. Equivalency GPHY 307.
Offering Faculty: Faculty of Arts and Science

GPHY 227 Cities: Geography, Planning and Urban Life Units: 3.00
The city from a geographical and planning perspective. Topics include origins of urbanism; mega; migrant, and global cities; urban competitiveness; land use planning and design; suburbanization and sprawl; new urban identities and culture; retailing transport; public space; private and temporary cities; urban poverty; politics and governance; sustainable urban futures.
NOTE Also offered online. Consult Arts and Science Online. Learning Hours may vary.
LEARNING HOURS 120 (18L;18T;24O;60P).
Requirements: Prerequisite Level 2 or above or permission of Department.
Offering Faculty: Faculty of Arts and Science

GPHY 228 Geographies of the Global Political Economy Units: 3.00
This course examines how geographers understand the global economic system. Topics include globalization, regional economic integration, transnational production and marketing strategies of firms, new patterns of consumption, the rise of the service economy, and work and employment in the new economy.
LEARNING HOURS 129 (36L;9G;24O;60P).
Requirements: Prerequisite Level 2 or above or permission of Department.
Offering Faculty: Faculty of Arts and Science

GPHY 229 Place, Space, Culture and Social Life Units: 3.00
The role of place and space in understanding how social identities (gender, sexuality, race, nationality, class) are constructed and contested. Topics include the spaces and meanings of the body, home, work, leisure and consumption, cultural landscapes, constructions of nature, globalization and issues of knowledge, power and imperialism.
LEARNING HOURS 120 (36L;24O;60P).
Requirements: Prerequisite Level 2 or above or permission of Department.
Offering Faculty: Faculty of Arts and Science

GPHY 230 Introduction to Urban and Regional Planning Units: 3.00
Introduction to histories, concepts, principles and practices of urban and regional planning. Examines how diverse residents of communities are involved in plan preparation, technical analyses behind the plans, implementation tools and guiding infrastructure investment. Includes international precedents but focuses on Canadian community planning.
LEARNING HOURS 120 (36L;84P).
Requirements: Prerequisite Level 2 or above or permission of the Department.
Offering Faculty: Faculty of Arts and Science

GPHY 240 Introduction to Qualitative Methods in Geography Units: 3.00
An introduction to basic issues in research with human participants, and the qualitative methods commonly employed in such research in geography. Where relevant, students may be introduced to computer software used in qualitative research.
LEARNING HOURS 120 (36L;18Lb;66P).
Requirements: Prerequisite (GPHY 101 or GPHY 102 or BISC 100) or permission of the Department. Exclusion BMED 270; HSCI 270; SOCY 210.
Offering Faculty: Faculty of Arts and Science
GPHY 242 Remote Sensing I: Remote Sensing of the Environment  Units: 3.00
The physical principles and practices of collecting, analyzing and interpreting various remote sensing data from the visible, infrared, and microwave regions of the electromagnetic spectrum are examined. In addition, the display, enhancement and interpretation of various digital remote sensing data, from airborne to satellite scales, is emphasized. Enrolment is limited.
LEARNING HOURS 120 (36L;24Lb;60P).
Requirements: Prerequisite (GPHY 101 or GPHY 102 or GPHY 105 or BISC 100) or permission of the Department.
Offering Faculty: Faculty of Arts and Science

GPHY 243 Geographic Information Science  Units: 3.00
An introduction to the basic principles, techniques and applications of Geographic Information Science. Students will learn concepts of Global Positioning Systems (GPS), georeferencing, vector and raster based models and the nature of geospatial data.
LEARNING HOURS 120 (36L;24Pc;60P).
Requirements: Prerequisite ([GPHY 101 or BISC 100] and GPHY 102) or (BIOL 102 and BIOL 103) or (GEOL 104 and GEOL 107) or permission of the Department.
Course Equivalencies: GISC201, GISC410, GPHY243
Offering Faculty: Faculty of Arts and Science

GPHY 247 Introduction to Statistics  Units: 3.00
An introduction to the analysis of data from real life situations. Covers study design, descriptive and inferential statistics. Topics include probability, t-tests, regression, Chi-square tests, analysis of variance. Emphasis is in the foundation of statistical inference and practical application of statistical methods using statistical software.
LEARNING HOURS 126 (12L;18Lb;48O;48P).
Requirements: Prerequisite (GPHY 101 or GPHY 102 or BISC 100) or permission of the Department. Exclusion BIOL 243; CHEE 209; COMM 162; ECON 250; KNPE 251; NURS 323; POLS 202; SOCY 211; STAT 200; STAT 263; STAT 267; STAT 367.
Offering Faculty: Faculty of Arts and Science

GPHY 250 The Geography of Canada  Units: 3.00
A regional examination of how economic, political, cultural, and environmental factors shape relationships between land and people in Canada. Emphasis on geographical patterns of development and on the analytical and historical roots of public policy.
LEARNING HOURS 120 (36L;24O;60P).
Requirements: Prerequisite Level 2 or above or permission of Department.
Offering Faculty: Faculty of Arts and Science

GPHY 254 The Caribbean in Globalizing World  Units: 3.00
The past, present and future role of the Caribbean in the world economy, with an emphasis on the colonial legacy, debt and dependency, the effects of neoliberal reform and the changing geographies, and patterns of uneven development created by increasingly transnational flows of capital, people and culture.
LEARNING HOURS 120 (36L;24O;60P).
Requirements: Prerequisite Level 2 or above or permission of Department.
Offering Faculty: Faculty of Arts and Science

GPHY 257 The Geography of Middle America  Units: 3.00
The lands and peoples of Mexico, Central America, and the West Indies, emphasizing the historical factors that shape contemporary life in the region.
LEARNING HOURS 120 (36L;24O;60P).
Requirements: Prerequisite Level 2 or above or permission of Department.
Offering Faculty: Faculty of Arts and Science

GPHY 258 The Geography of South America  Units: 3.00
The lands and peoples of South America, emphasizing how the colonial experience continues to affect contemporary life in the region.
LEARNING HOURS 120 (36L;24O;60P).
Requirements: Prerequisite Level 2 or above or permission of Department.
Offering Faculty: Faculty of Arts and Science

GPHY 304 Northern and Arctic Environments  Units: 3.00
Advanced study of the physical geography of northern regions, emphasizing the Canadian Arctic.
LEARNING HOURS 126 (36L;60;84P).
Requirements: Prerequisite (GPHY 102 or APSC 151) or permission of the Department.
Offering Faculty: Faculty of Arts and Science

GPHY 305 Applied Cold Regions Science  Units: 3.00
Examining key aspects of cold regions science and processes using field and geospatial techniques applied to real-world case studies. Hands-on application of cold regions science methods will be used to explore major themes related to cold region climates, glaciology, hydrology, permafrost, snow science and resource development.
NOTE Field trips will occur in a given semester with an estimated cost of $75.
LEARNING HOURS 129 (36L;24Lb;9Oc;60P).
Requirements: Prerequisite (Level 3 or above and [GPHY 208 or GPHY 209]) or permission of the Department.
Offering Faculty: Faculty of Arts and Science
GPHY 306 Natural Environmental Change Units: 3.00
An overview of the causes and record of global and regional environmental change during the last 100,000 years. Topics include glaciation, ocean-atmosphere interactions, sea level change, climatic variability, vegetation dynamics and discerning between the impact of human activities and that of natural environmental forcing mechanisms.
LEARNING HOURS 126 (36L;6O;84P).
Requirements: Prerequisite (GPHY 207 or GPHY 208 or GPHY 209) or permission of the Department.
Offering Faculty: Faculty of Arts and Science

GPHY 309 Field School in Geography Units: 3.00
This Field School explores the socio-political, cultural, and biophysical dimensions of human environment interactions. It examines how communities perceive and interact with their environments and how they are, in turn, impacted by change. Students will do readings, seminars, assignments, and participate in a Field School for up to four weeks.
NOTE Field School cost is dependent on location and duration in the field, to a maximum of $3000. Please refer to the Department website for further information.
LEARNING HOURS Learning Hours may vary.
Requirements: Prerequisite (Level 3 or above and registration in a GPHY Plan) or permission of the Department. Note Visit the Department of Geography and Planning website for more information about this course.
Offering Faculty: Faculty of Arts and Science

GPHY 310 Landscape Ecology Units: 3.00
Study of the relationship between spatial pattern and ecological processes. Topics include spatial arrangement of ecosystems and its influence on the flow of energy, materials and biota; agents of pattern and change; methods and techniques for characterizing landscapes and detecting change; applications in resource conservation and management.
NOTE Field trips may apply in certain years; estimated cost $30.
LEARNING HOURS 120 (24L;24Lb;6O;66P).
Requirements: Prerequisite Level 3 or above and (GPHY 207 or [BIOL 201 and BIOL 202] or BIOL 200 or BIOL 111) or permission of the Department. Equivalency GPHY 418.
Offering Faculty: Faculty of Arts and Science

GPHY 311 Biogeochemical Processes Units: 3.00
Knowledge of biogeochemical cycles is key to understanding earth system science. This course examines the processes behind the transfers and transformations of biogeochemical elements (e.g. carbon, nitrogen, phosphorus, sulfur, and metals) between various Earth systems, and explores methods used to investigate and quantify biogeochemical cycles.
LEARNING HOURS 120(24L;12G;84P)
Requirements: PRE Level 3 and 6.0 units in CHEM at the 100 level or above.
Offering Faculty: Faculty of Arts and Science

GPHY 312 Watershed Hydrology Units: 3.00
The course examines the processes that govern the flow and dissolved load in surface waters. Assignments focus on hydrological and hydrochemical data analysis and problem solving. Field projects emphasize hydrological monitoring techniques and methods used to collect and analyze the chemical composition of water samples.
NOTE Field trips: estimated cost $50.
LEARNING HOURS 108 (36L;36Lb;36P).
Requirements: Prerequisite (GPHY 208 or GPHY 209) or permission of the Department.
Course Equivalencies: GPHY308, GPHY312
Offering Faculty: Faculty of Arts and Science

GPHY 313 Glacier Processes and Dynamics Units: 3.00
Examining key aspects of contemporary glacier systems including glacier-climate processes, the mechanics of ice flow, and glacier impacts on human activities. Student-led projects give insight into the variability of glacier response globally, while laboratory exercises focus on field-based and remote-sensing approaches to glacier monitoring.
NOTE Field trips may apply in certain years dependent on snow and ice conditions; maximum cost $75.
LEARNING HOURS 120(36L;36Lb;24O;24P).
Requirements: Prerequisite (Level 3 or above and [GPHY 208 or GPHY 209]) or permission of the Department.
Course Equivalencies: GPHY313, GPHY413
Offering Faculty: Faculty of Arts and Science

GPHY 314 Climate Change Units: 3.00
The study of historical and current climate change, projected future climates emphasizing the effects of global warming, impacts of climate change, and the role of humans as agents of climatic system change.
LEARNING HOURS 120 (36L;12T;72P).
Requirements: Prerequisite Level 3 or above or permission of the Department.
Offering Faculty: Faculty of Arts and Science
GPHY 315  Advanced Field Measurements and their Analysis  Units: 3.00
Introducing advanced techniques in environmental field measurements including the design and deployment of automatic weather stations and customized sensors, and geophysical techniques. Practical work involves the design and implementation of a field experiment, and an introduction to R programming as powerful tool for data analysis.
NOTE Field trips maximum cost $500. Students will be housed off-campus at QUBS and fees include transportation, housing and meals.
LEARNING HOURS 120 (36L;24Lb;60P).
Requirements: Prerequisite Level 3 or above or permission of the Department.
Offering Faculty: Faculty of Arts and Science

GPHY 317  Soil, Environment and Society  Units: 3.00
Soils are a critical resource required by societies. Using a strong methodological approach, this course will examine the important biological, chemical, and physical properties of soils. The course will also explore critical soil-related issues facing society, including salinization, degradation from agriculture, climate change, and erosion.
NOTE Field trips: estimated cost $30.
LEARNING HOURS 120 (36L;36Lb;48P).
Requirements: Prerequisite (GPHY 208 or GPHY 209) or permission of the Department.
Offering Faculty: Faculty of Arts and Science

GPHY 318  Advanced Biogeography  Units: 3.00
An examination of the distributions of plants and animals on global, regional and local scales, their causes and significance.
NOTE Field trip: estimated cost $25.
LEARNING HOURS 116 (36L;8Oc;72P).
Requirements: Prerequisite Level 3 or above and (GPHY 207 or [BIOL 201 and BIOL 202] or BIOL 200 or BIOL 111) or permission of the Department.
Offering Faculty: Faculty of Arts and Science

GPHY 319  Contemporary Energy Resources  Units: 3.00
Fossil and renewable energy resources are reviewed through a geographic lens. Energy supply and demand are discussed in terms of the global energy sector. The environmental, economic, and social impacts of conventional and renewable energy options are considered, as are policies used to drive a transition in our energy mix.
LEARNING HOURS 126 (36L;18G;36O;36P).
Requirements: Prerequisite (Level 3 or above and registration in a GPHY Plan) or permission of the Department.
Offering Faculty: Faculty of Arts and Science

GPHY 320  Energy and Society  Units: 3.00
A broad overview of human history from the earliest hunter-gatherers through the Industrial Revolution as seen through the lens of energy. Considered will be methods of energy generation, and conversion, ranging from the human body to the internal combustion engine, and the interaction of these methods with other aspects of society and economy.
LEARNING HOURS 120 (36L;84P).
Requirements: Prerequisite Level 3 or above or permission of the Department.
Offering Faculty: Faculty of Arts and Science

GPHY 325  Maps and Society  Units: 3.00
A critical study of cartographic representation from the pre-modern era up to and including the political, social, military, and economics roles of maps and geospatial data in the contemporary world.
LEARNING HOURS 120 (36L;84P).
Requirements: Prerequisite Level 3 or above or permission of the Department.
Offering Faculty: Faculty of Arts and Science

GPHY 327  The Geographical Imagination  Units: 3.00
Critical approaches to the role of the geographic, cultural and historical imagination in shaping landscapes, environments and society.
LEARNING HOURS 127 (36L;4G;12O;3Oc;72P).
Requirements: Prerequisite (GPHY 229 or [3.0 units in DEVS at the 200-level or above]) or permission of the Department.
Offering Faculty: Faculty of Arts and Science

GPHY 330  Transportation Geography  Units: 3.00
The course provides a systematic examination of urban transportation in the context of general economic, social and spatial trends. Particular focus is placed on the role of the built environment in explaining travel behaviour. The aim is to provide a fair understanding of transportation planning and policy issues and explore potential solutions.
LEARNING HOURS 120 (36L;84P).
Requirements: Prerequisite Level 3 or above or permission of the Department.
Offering Faculty: Faculty of Arts and Science
**GPHY 332  Cities and Planning for Sustainable Development**  
**Units: 3.00**  
Contemporary community planning and urban development from the perspectives of social sciences, planning and real estate development. Emphasis on understanding actors in the process and creating projects that are socially, environmentally and economically sustainable. Informed by international perspectives, but focused on Canadian cities.  
**NOTE** Case Materials: Approximate $30.  
**NOTE** Optional field trip may be undertaken in some years; approximate cost up to $300.  
**LEARNING HOURS** 120 (36L;84P).  
**Requirements:** Prerequisite (GPHY 227 and (GPHY 228 or GPHY 229 or DEVS 230) or permission of the Department.  
**Offering Faculty:** Faculty of Arts and Science

**GPHY 333  Markets, Environments and Societies**  
**Units: 3.00**  
This course examines the spatial relations (politics, social relations, ecosystems) that shape market exchange and the functioning of economies. We will explore attempts to create markets out of social and environmental 'things' that resist commodification from carbon to care as well as the connections between markets and other aspects of life.  
**LEARNING HOURS** 120 (36L;84P).  
**Requirements:** Prerequisite (Level 3 or above and [GPHY 227 or GPHY 228 or GPHY 229]) or permission of the Department.  
**Offering Faculty:** Faculty of Arts and Science

**GPHY 336  Geography, the Environment and Human Health**  
**Units: 3.00**  
Examines the relationship between human health and built, physical, and social environments. Focus is influence of local environmental conditions on population health outcomes within the North American urban context. Policy and programming options for improving local conditions are explored.  
**LEARNING HOURS** 120 (36L;24I;24O;36P).  
**Requirements:** Prerequisite Level 3 and (3.0 units from BIOL 243; CHEE 209; COMM 162; ECON 250; GPHY 240; GPHY 247; KNPE 251; NURS 323; POLS 385; PSYC 202; SOCY 211; STAM 200; STAT 263; STAT 267; STAT 367) or permission of the Department.  
**Offering Faculty:** Faculty of Arts and Science

**GPHY 337  Regional Development and Planning**  
**Units: 3.00**  
Focus on regional planning and development processes, policies, and theories. Explore methods of regional analysis. Assessment of regional planning and development strategies and policy instruments used primarily in Canada with case examples from other international locations.  
**LEARNING HOURS** 120 (36L;84P).  
**Requirements:** Prerequisite (Level 3 or above and [GPHY 228 or GPHY 227 or GPHY 247 or 3.0 units in DEVS at the 200-level or above]) or permission of the Department.  
**Offering Faculty:** Faculty of Arts and Science

**GPHY 338  Urban Political Geography**  
**Units: 3.00**  
The forces involved in shaping the political environment and spatial structure of urban areas. Emphasis on the significance of decisions concerning public goods in the distribution of income and equity within the city.  
**LEARNING HOURS** 120 (36L;84P).  
**Requirements:** Prerequisite (6.0 units from GPHY 227; GPHY 228; GPHY 229) or permission of the Department.  
**Offering Faculty:** Faculty of Arts and Science

**GPHY 339  Medical Geography**  
**Units: 3.00**  
Current issues in disease ecology and health care delivery systems. Emphasis on patterns of incidence, cultural and environmental associations, spread and control of infectious diseases, comparisons of health care delivery systems, and accessibility to health services.  
**LEARNING HOURS** 120 (36L;24I;24O;36P).  
**Requirements:** Prerequisite Level 3 and (3.0 units from BIOL 243; CHEE 209; COMM 162; ECON 250; GPHY 240; GPHY 247; KNPE 251; NURS 323; POLS 385; PSYC 202; SOCY 211; STAM 200; STAT 263; STAT 267; STAT 367) or permission of the Department.  
**Offering Faculty:** Faculty of Arts and Science

**GPHY 341  Photogrammetry**  
**Units: 3.00**  
An intensive introduction to the art and science of 3D measurement and mapping using photographs, with a particular focus on applications in GIS, Cartography, Cultural Heritage, Urban Planning, Geology and Engineering.  
**LEARNING HOURS** 120 (36L;36Lb;48P).  
**Requirements:** Prerequisite Level 3 or above or permission of the Department. Equivalency CLST 351.  
**Course Equivalencies:** GPHY341; CLST351  
**Offering Faculty:** Faculty of Arts and Science
GPHY 342 Remote Sensing II: Digital Image Processing Units: 3.00
This course represents an extension of GPHY 242, with an in-depth examination of image processing techniques for information extraction. Topics include remote sensor technology, image enhancement, classification, change detection, radiometric and geometric correction and sources and applications of remote sensing data.
NOTE Enrollment limited to 40 students.
LEARNING HOURS 120 (24L;24Pc;72P).
Requirements: Prerequisite (GPHY 242 and GPHY 247) or permission of the Department.
Offering Faculty: Faculty of Arts and Science

GPHY 343 Applications for Geospatial Technology for Business Units: 3.00
This course introduces the practical use of GIS in business and strategic planning decisions. Students will learn how to collect, visualize, and analyze spatial data to address many business, socio-economic, and demographic challenges from a spatial context and present solutions on maps for a wide range of business applications.
LEARNING HOURS 126 (24L;24Lb;24O;54P).
Requirements: Prerequisite GPHY 243 or permission of the Department.
Offering Faculty: Faculty of Arts and Science

GPHY 344 Cartography and Computer Aided Design Units: 3.00
An introduction to the principles of Computer Aided Design (CAD) for the creation, manipulation, and editing of plans and maps. Topics will explore the fundamentals of good map design, best practices for visualizing geographic data, digitizing and georeferencing historic maps and air photos, and importing/exporting CAD drawings to/from GIS software.
Requirements: Prerequisite Level 3 or above or permission of the Department.
Offering Faculty: Faculty of Arts and Science

GPHY 345 Spatial Analysis Units: 3.00
An in-depth exploration of the spatial analysis techniques used in vector GIS. The analysis of geographic primitives of points, lines, areas and surfaces in the context of applications drawn from geography, biology, planning and related disciplines. Emphasis is placed on the use of current GIS software in a hands-on environment.
LEARNING HOURS 120 (24L;24Pc;24G;24O;24P).
Requirements: pre GPHY243 and (stats)
Course Equivalencies: GISC301, GPHY345
Offering Faculty: Faculty of Arts and Science

GPHY 346 GIS and Modelling for Environmental Applications Units: 3.00
Study of the techniques of Geographic Information Systems and their applications in solving physical and environmental problems. Topics include data representation and models, spatial interpolation, raster-based analysis and modeling, surface models and terrain analysis, data visualization, temporal analysis, error and accuracy, and other algorithms and analytical procedures.
LEARNING HOURS 120 (24L;24Pc;24G;24O;24P).
Requirements: Prerequisite (GPHY 243 and [3.0 units from GPHY 247; ECON 250; KNPE 251; PHED 251; POLS 385; PSYC 202; SOCY 211; STAT 263; STAT 267; STAT 367]) or permission of the Department.
Course Equivalencies: GISC302, GPHY346
Offering Faculty: Faculty of Arts and Science

GPHY 347 Multivariate and Spatial Statistics Units: 3.00
This course offers an introduction to the theory and application of multivariate statistics to geographical data. Topics include regression and correlation analysis, ANOVA, spatial autocorrelation and other spatial statistics as well as geostatistical operations in GIS software.
LEARNING HOURS 120 (24L;24Pc;24G;24P).
Requirements: Prerequisite 3.0 units from GPHY 247; ECON 250; KNPE 251; PHED 251; POLS 385; PSYC 202; SOCY 211; STAT 263; STAT 267; STAT 367.
Offering Faculty: Faculty of Arts and Science

GPHY 348 Application Design and Customization in GIS Units: 3.00
An introduction to customization of GIS and database software with an emphasis on spatial analysis tool development for desktop and Web-based GIS. Students will learn concepts of user requirements analysis, software requirements preparation, interface and software design, and computer programming while they develop customized GIS applications.
LEARNING HOURS 120 (24L;24Pc;24G;24O;24P).
Requirements: Prerequisite GPHY 243 or (3.0 units from GPHY 247; ECON 250; KNPE 251; PHED 251; POLS 385; PSYC 202; SOCY 211; STAT 263; STAT 267; STAT 367) or permission of the Department.
Course Equivalencies: GISC303, GPHY348
Offering Faculty: Faculty of Arts and Science
GPHY 349  GiScience and Public Health  Units: 3.00
This course examines contemporary applications of geographic information science (GiScience) and geographic information system (GIS) in public health, including disease mapping, environmental hazards, spatial epidemiology, and problems of accessibility to and siting of health services.
LEARNING HOURS 120 (24L;24P; 72P).
Requirements: Prerequisite (GPHY 243 and GPHY 247) or permission of the Department.
Offering Faculty: Faculty of Arts and Science

GPHY 351  Geographies of Indigenous and Settler Relations  Units: 3.00
An overview of selected elements of the geographies of Aboriginal peoples in Canada with a focus on the relationship between Aboriginal peoples and their environments, urbanization and culture change, and colonialism.
LEARNING HOURS 120 (36L;84P).
Requirements: Prerequisite (Level 3 or above and [6.0 units from GPHY 227; GPHY 228; GPHY 229] or [3.0 units at the 200-level or above in DEVS or GNDS]) or permission of the Department.
Offering Faculty: Faculty of Arts and Science

GPHY 352  Gender and the City  Units: 3.00
Gender in relationship to the spatial organization of contemporary cities. Emphasis on the diversity of gendered experiences as they relate to the urban: housing, violence, social movements, work, and gender symbols
LEARNING HOURS 120 (36L;84P).
Requirements: Prerequisite (6.0 units from GPHY 227; GPHY 228; GPHY 229) or (3.0 units at the 200-level or above in GNDS) or permission of the Department.
Offering Faculty: Faculty of Arts and Science

GPHY 362  Human Migration  Units: 3.00
The movement of people across the surface of the earth from early times to the present, focusing on contemporary issues of immigration, refugees, human rights, social integration and barriers to integration including discussions of racism, citizenship, multiculturalism, and community infrastructure.
LEARNING HOURS 120 (36L;84P).
Requirements: Prerequisite (GPHY 227 or GPHY 228 or GPHY 229) or permission of the Department.
Offering Faculty: Faculty of Arts and Science

GPHY 355  Geography, Development, and Environment in the 'Third World'  Units: 3.00
The geographical implications of the incorporation of the Third World into the global economy. Emphasis will be upon issues relating to both the physical and human environments in reference to development, ecological alteration, cultural change, and spatial readjustment.
LEARNING HOURS 120 (36L;120;72P).
Requirements: Prerequisite (Level 3 or above and [6.0 units from GPHY 227; GPHY 228; GPHY 229] or [3.0 units at the 200-level or above in DEVS or GNDS] or [ENSC 103 or ENSC 203]) or permission of the Department.
Offering Faculty: Faculty of Arts and Science

GPHY 368  Environments and Society  Units: 3.00
A critical evaluation of the changing relationships between nature and society.
LEARNING HOURS 127 (36L;4G;12O;3Oc;72P).
Requirements: Prerequisite (6.0 units from GPHY 227; GPHY 228; GPHY 229) or permission of the Department.
Offering Faculty: Faculty of Arts and Science

GPHY 369  Urban Natures  Units: 3.00
This course examines how interlocking systems of power produce urban environmental issues such as water access, climate disaster, infectious disease, sanitation systems, and foodscapes. It draws on feminist, political economic, Indigenous, and decolonial systems of thought to consider urban environments across the Global North and South.
NOTE Field trip fees may apply in certain years. See departmental webpage for info. Cost will vary depending on location, but not exceed $150 per year.
LEARNING HOURS 123 (36L;3Oc;84P).
Requirements: Prerequisite (6.0 units from GPHY 227; GPHY 228; GPHY 229) or permission of the Department.
Offering Faculty: Faculty of Arts and Science

GPHY 370  Special Topics in Human Geography  Units: 3.00
Course offered by visiting faculty on Geography topics related to their research interests. Consult the departmental homepage for further details of specific course offerings each academic year.
LEARNING HOURS 120 (36L;84P).
Requirements: Prerequisite (Level 3 or above and registration in a GPHY Plan) or permission of the Department.
Offering Faculty: Faculty of Arts and Science
GPHY 371 Special Topics in Earth System Science  Units: 3.00
Course offered by visiting faculty on Geography topics related to their research interests. Consult the departmental homepage for further details of specific course offerings each academic year.
LEARNING HOURS 120 (36L;84P).
Requirements: Prerequisite (Level 3 or above and registration in a GPHY Plan) or permission of the Department.
Offering Faculty: Faculty of Arts and Science

GPHY 372 Special Topics Geographic Information Science  Units: 3.00
This course provides intensive coverage of a topic in Geographic Information Science and will be offered periodically by visiting professors. Consult the Departmental homepage for details on specific course offerings each year.
LEARNING HOURS 120 (36L;84P).
Requirements: Prerequisite (Level 3 or above and registration in a GPHY Plan) or permission of the Department.
Course Equivalencies: GISC390, GPHY372
Offering Faculty: Faculty of Arts and Science

GPHY 401 Honours Seminar in Human Geography I  Units: 3.00
Seminars offered by regular and visiting faculty on Geography topics related to their research interests. Consult the departmental homepage for further details of specific course offerings each academic year.
NOTE Field trip fees may apply in certain years. See departmental webpage for more information. Cost will vary depending on location, but not likely to exceed $300 per year.
LEARNING HOURS 132 (36S;24Oc;72P).
Requirements: Prerequisite Level 4 or above and registration in a (GPHY Major [Arts] or Medial Plan) and (a minimum GPA of 2.60 in 24.0 units in GPHY). Exclusion GPHY 402; GPHY 403.
Offering Faculty: Faculty of Arts and Science

GPHY 402 Honours Seminar in Human Geography II  Units: 3.00
Seminars offered by regular and visiting faculty on Geography topics related to their research interests. Consult the departmental homepage for further details of specific course offerings each academic year.
NOTE Field trip fees may apply in certain years. See departmental webpage for more information. Cost will vary depending on location, but not likely to exceed $300 per year.
LEARNING HOURS 132 (36S;24Oc;72P).
Requirements: Prerequisite Level 4 or above and registration in a (GPHY Major [Arts] or Medial Plan) and (a minimum GPA of 2.60 in 24.0 units in GPHY). Exclusion GPHY 401; GPHY 403.
Offering Faculty: Faculty of Arts and Science

GPHY 403 Honours Seminar in Human Geography III  Units: 3.00
Seminars offered by regular and visiting faculty on Geography topics related to their research interests. Consult the departmental homepage for further details of specific course offerings each academic year.
NOTE Field trip fees may apply in certain years. See departmental webpage for more information. Cost will vary depending on location, but not likely to exceed $300 per year.
LEARNING HOURS 132 (36S;24Oc;72P).
Requirements: Prerequisite Level 4 or above and registration in a (GPHY Major [Arts] or Medial Plan) and (a minimum GPA of 2.60 in 24.0 units in GPHY). Exclusion GPHY 401; GPHY 402.
Offering Faculty: Faculty of Arts and Science

GPHY 413 Water, Energy and Carbon Cycling in the Biosphere  Units: 3.00
The study of the interaction of the atmosphere with the surface in terms of radiative, heat, water, and trace gas fluxes.
NOTE Field trip fees may apply in certain years. See departmental webpage for more information. Cost will vary depending on location, but not likely to exceed $175 per year.
LEARNING HOURS 120 (36L;12Lb;72P).
Requirements: Prerequisite Level 4 or above and registration in a (GPHY Major [Science] or EGPY Specialization Plan) and (6.0 units from MATH at the 100-level or above) and (6.0 units from BIOL or CHEM or PHYS at the 100-level or above) and a (minimum GPA of 1.90 in 30.0 units from GPHY).
Course Equivalencies: GPHY313, GPHY413
Offering Faculty: Faculty of Arts and Science
PHY 415  Advanced Analysis of Earth Surface Processes Units: 6.00
A fourth year Honours capstone project course exploring a contemporary geographic issue by integrating advanced knowledge and skills in physical geography and geographic information science. Focus will be on integration of field and laboratory methods, and how they are used to explore contemporary geographic or environmental issues. NOTE Field trips within the Province of Ontario during the year. Costs will vary depending on location, but not likely to exceed $175 per year. LEARNING HOURS 240 (12L;12S;36Lb;12G;24Oc;144P).
Requirements: Prerequisite Level 4 or above and registration in a (PHY Major [Science] or EGPY Specialization Plan) and (6.0 units from MATH at the 100-level or above) and (6.0 units from CHEM or PHYS at the 100-level or above) and (minimum GPA of 1.90 in 30.0 units from PHY).
Offering Faculty: Faculty of Arts and Science

PHY 417  Land-Use Change in the Earth System  Units: 3.00
Changes in land use and land cover represent significant changes to the dynamics of the earth system. This course will explore the methods used to quantify rates of land-use and land-cover change, and also the biophysical consequences of these changes. The goal of the course is to develop a framework for evaluating the biophysical and societal trade-offs associated with land-use decisions. NOTE Field trip fees may apply in certain years. See departmental webpage for more information. Cost will vary depending on location, but not likely to exceed $175 per year. LEARNING HOURS 131 (30L;41Oc;60P).
Requirements: Prerequisite Level 4 or above and registration in a (PHY Major [Science] or EGPY Specialization Plan) and (6.0 units from MATH at the 100-level or above) and (6.0 units from CHEM or PHYS at the 100-level or above) and (minimum GPA of 1.90 in 30.0 units from PHY).
Offering Faculty: Faculty of Arts and Science

PHY 493  Hon. Sem. Geographic Research  Units: 3.00
Offering Faculty: Faculty of Arts and Science

PHY 494  Hon Sem Earth System Science  Units: 3.00
Offering Faculty: Faculty of Arts and Science

PHY 501  Special Studies in Geography  Units: 3.00
Open to fourth-year students who have an average of A- or greater in those courses which form their concentration for admission to Honours in Geography. Special consideration will be given to requests from students with an average of B or more in those courses which form their concentration for admission to Honours. The student will arrange a program of study with a specific member of the Department. LEARNING HOURS 120 (24;96P).
Requirements: Prerequisite (Level 4 or above and registration in a [PHY Major or Medial Plan or EGPY Specialization Plan] and a [minimum GPA of 3.50 in 24.0 units in PHY] and [consent of a supervising member of the Department]) or by permission of the Departmental Undergraduate Committee. Exclusion PHY 502; PHY 503.
Offering Faculty: Faculty of Arts and Science

PHY 502  Research and Thesis in Geography I  Units: 3.00
Research project in Geography supervised by a member of the faculty. Research involving the amount of work associated with other senior 3.0 unit courses will be done as PHY 502. NOTE Admission is subject to the availability of supervisors. LEARNING HOURS 120 (24;96P).
Requirements: Prerequisite (Level 4 or above and registration in a [PHY Major or Medial Plan or EGPY Specialization Plan] and a [minimum GPA of 3.50 in 24.0 units in PHY] and [consent of a supervising member of the Department]) or by permission of the Departmental Undergraduate Committee. Exclusion PHY 501; PHY 502.
Offering Faculty: Faculty of Arts and Science

PHY 503  Research and Thesis in Geography II  Units: 6.00
Research project in Geography supervised by a member of the faculty. Research involving the amount of work associated with larger research projects with work comparable to a 6.0 unit course (including work completed during summer) may be done as PHY 503. NOTE Admission is subject to the availability of supervisors. LEARNING HOURS 240 (48;192P).
Requirements: Prerequisite (Level 4 or above and registration in a [PHY Major or Medial Plan or EGPY Specialization Plan] and a [minimum GPA of 3.50 in 24.0 units in PHY] and [consent of a supervising member of the Department]) or by permission of the Departmental Undergraduate Committee. Exclusion PHY 501; PHY 502.
Offering Faculty: Faculty of Arts and Science

PHY 594  Independent Study  Units: 3.00
Offering Faculty: Faculty of Arts and Science

PHY 595  Independent Study  Units: 6.00
Offering Faculty: Faculty of Arts and Science

PHY 596  Independent Study  Units: 12.00
Offering Faculty: Faculty of Arts and Science
GPHY 597 Independent Study Units: 18.00
Offering Faculty: Faculty of Arts and Science

GPHY 800 Bibliographie Units: 3.00
Offering Faculty: Faculty of Arts and Science

GPHY 801 Concept. & Method. Basis Of Ge Units: 3.00
A discussion of the major concepts, methodology, and research traditions of geography and the relationship of the discipline to the theory and methods of the natural sciences and of the social sciences. Three term-hours.
Requirements: GPHY PHD students
Offering Faculty: Faculty of Arts and Science

GPHY 811 Slope Studies Units: 3.00
Offering Faculty: Faculty of Arts and Science

GPHY 818 Seminar In Landscape Ecology Units: 3.00
Landscape ecology emphasizes the interaction between spatial pattern and ecological processes. This seminar course will examine the theory and practice of landscape ecology, and explore how composition and spatial patterning of landscapes affects ecological processes. Topics include: theoretical aspects of scaling, methods of quantifying landscape structure, and the effects of landscape structure and temporal dynamics on ecosystem functions such as succession, movement of biota, and fluxes of nutrients, energy, and trace gases all in the context of Earth System Science.
Offering Faculty: Faculty of Arts and Science

GPHY 819 Systems Modelling Units: 3.00
Research in Geography and Planning, and many other disciplines, often involves measuring and understanding the complex interaction of a variety of processes in both natural (e.g. a forest) and human-dominated (e.g. a city) systems. This course provides students with the skills and tools necessary to develop, analyze, and test simulation models of complex systems containing multiple interacting processes. These models are useful for synthesizing information, testing hypotheses, and guiding the development of research questions and policy. Three term-hours. PREREQUISITES: None EXCLUSIONS: None
Requirements: Gphy Surp students
Offering Faculty: Faculty of Arts and Science

GPHY 823 Environmental Biogeochemistry Units: 3.00
This course explores the impact of climatic change and anthropogenic activities on biogeochemical processes. Emphasis is placed on understanding how the resulting changes in atmospheric chemistry, the cryosphere, landuse, geomorphology, and hydrological processes alter the biogeochemical cycling of Carbon, Nitrogen, and Sulphur, and selected contaminants in terrestrial and aquatic systems. Three term-hours.
Requirements: GPHY Master's students
Offering Faculty: Faculty of Arts and Science

GPHY 824 Processes in Northern Regions Units: 3.00
An advanced investigation of the current state of knowledge of processes related to the physical environment in northern settings, with the emphasis on permafrost, water and landscape interactions. Themes will include: climate and permafrost dynamics, periglacial geomorphology, hydrology, limnology.
Requirements: Gphy Surp students
Offering Faculty: Faculty of Arts and Science

GPHY 836 Critical Methods of Inquiry Units: 3.00
Through readings, dialogue, and practice, this course ponders how qualitative, participatory, and Indigenous modes of inquiry open up possibilities for research by confronting the sociopolitico-historical power relations of knowledge production, studying the how and why of everyday lived experiences and the structures that shape/are shaped by them. Offered jointly with EPID-836*.
EXCLUSION: EPID-836*
Requirements: GPHY Master's students, Exclusion EPID 836
Offering Faculty: Faculty of Arts and Science

GPHY 841 Measurement In Climatology Units: 3.00
The measurement of Essential Climate Variables is examined within the context of the global climate system. Students gain hands-on experience with automatic weather stations, and are responsible for the design, programming, and deployment of a station near Kingston. Students will be introduced to 'R', an open-source language, to support the statistical analysis, modelling, and visualization of data. Field Trip Fee: $75-$100.
Requirements: Gphy Surp students
Offering Faculty: Faculty of Arts and Science
**GPHY 842  Remote Sensing of Environment  Units: 3.00**  
This course examines methods and techniques for collecting, processing and analysing remote sensing data. An emphasis will be placed on how these methods are applied to address earth and environmental issues across a range of spatial scales. Special emphasis will be placed on airborne (including UAVs) and satellite sensors operating in the visible, infrared and microwave regions of the spectrum.  
**Requirements:** Gphy Surp students  
**Offering Faculty:** Faculty of Arts and Science

**GPHY 845  Spatial Data Measurement and Collection  Units: 3.00**  
This course examines the application of one or more geomatics techniques to problems in earth measurement. Topics may include Total Station Surveying, Satellite Positioning, Aerial Photography, Photogrammetry, LiDAR, methods of field data collection, and deformation monitoring. Specific applications may be drawn from fields such as archaeology, architecture, geomorphology, and regional mapping.  
**Requirements:** Gphy Surp students  
**Offering Faculty:** Faculty of Arts and Science

**GPHY 849  Seminar In Gphy. Info Science  Units: 3.00**  
The goal of this course is to provide an in-depth discussion on topics related to geographic information science and explore innovative GIS applications. Topics may include some, or all of the following: (i) GIS database models and structures, design, and implementation, (ii) data visualization, generalization, and representation, (iii) data mining, (iv) cognition, (v) spatial analysis, (vi) internet mapping, (vii) uncertainty and error analysis, and (viii) societal issues. Three term hours.  
**Offering Faculty:** Faculty of Arts and Science

**GPHY 850  Seminar In Map Design  Units: 3.00**  
**Offering Faculty:** Faculty of Arts and Science

**GPHY 851  Grad Seminar-Map Communication  Units: 3.00**  
**Offering Faculty:** Faculty of Arts and Science

**GPHY 854  Approaches To Data Gphy Enquir  Units: 3.00**  
A survey and assessment of the methods of acquisition, editing, management, organization, retrieval and display of different types of data used in research in geography. Emphasis on data organization and management in both mainframe and microcomputing environments. Three term-hours.  
**Offering Faculty:** Faculty of Arts and Science

**GPHY 855  Spatial Analysis  Units: 3.00**  
A review of descriptive and inferential statistics and quantitative methods appropriate for the description and analysis of spatial distribution and processes. Topics include point pattern analysis, measures of spatial association, classification, analysis of spatial and temporal data series and simulation methods in spatial analysis. Applications will focus on population and diffusion processes. Three term-hours.  
**Requirements:** Gphy Surp students  
**Offering Faculty:** Faculty of Arts and Science

**GPHY 857  Geography Research Seminar  Units: 3.00**  
This is a seminar course required of all graduate students in the M.A. and M.Sc. programs in geography, in addition to their standard course load. The objective of this course is to introduce Master's students to a range of research approaches in the discipline of geography. The course also provides an opportunity for professional development and for the development of a Master's thesis proposal. Full year, 3.0 credit units.  
**Requirements:** GPHY Master's students  
**Offering Faculty:** Faculty of Arts and Science

**GPHY 860  Anti-Colonial Urbanism  Units: 3.00**  
This course examines the colonial and anti-colonial processes that shape urbanization and city life. It analyzes systems of racialization, capitalism, heteronormativity, and colonialism, and focuses on practices of resistance. The course considers cities in both the North and South and centres the work of racialized and Indigenous scholars.  
**PREREQUISITE:** enrollment in a GPPL graduate program or permission of the instructor.  
**Offering Faculty:** Faculty of Arts and Science

**GPHY 865  Transport Networks  Units: 3.00**  
**Offering Faculty:** Faculty of Arts and Science

**GPHY 866  Gender & Globalization  Units: 3.00**  
Examination of the ways that political, economic, cultural globalization processes disrupt and transform existing social constructions of gender difference and patterns of gender inequality. Fall term. Dr. B. Mullings  
**Requirements:** Gphy Surp students  
**Offering Faculty:** Faculty of Arts and Science
GPHY 868 Philosophies Of Place & Space Units: 3.00
This course explores the meaning of two of Geography’s most fundamental concepts: place and space. Recent scholarship in both philosophy (Jeff Malpas) and the history of science (Edward Casey) has explored the meaning of both place and space. But there is an older literature in Geography around these questions (Tuan, Relph, Entrikin, Sack, Massey, Porteous and Smith, etc.), in addition to a significant literature outside Geography (Eliade, Lefebvre, de Certeau, Foucault, Heidegger, and Bachelard). This course will look at these theoretical approaches to place and space, consider their implications for research, and will also trace how geographers and other social scientists and artists have incorporated a critical approach to place and space into their work.

Offering Faculty: Faculty of Arts and Science

GPHY 869 Space Embodiment & Emotion Units: 3.00
This course critically examines constructions of health, gender, embodiment and emotion. Students will investigate the impact of, and intersections between these key concepts at various geographical and experiential scales (e.g. individual/family/community/society).

Offering Faculty: Faculty of Arts and Science

GPHY 870 Historical and Cultural Issues in Fieldwork Units: 3.00
This course explores the histories and cultural meanings of fieldwork. Geographical fieldwork is considered historically along with conceptions of the “field” in allied disciplines such as ecology and anthropology. Constructions of the “field” are addressed in terms of empire, nationalism, pedagogy, the lab-field border, and in relations to its role as a gendered and affective space of knowledge and activity.

Requirements: Gphy Surp students

Offering Faculty: Faculty of Arts and Science

GPHY 874 Seminar In Cultural Geography Units: 3.00
A lecture and seminar course in which developments in the field of cultural geography are examined, assessed and placed in a disciplinary and interdisciplinary context. Three term-hours.

Requirements: Gphy Surp students

Offering Faculty: Faculty of Arts and Science

GPHY 875 Seminar In Historical Geog. Units: 3.00
A lecture and seminar course in which developments in the field of historical geography are examined, assessed and placed in a disciplinary and interdisciplinary context. Three term-hours.

Offering Faculty: Faculty of Arts and Science

GPHY 8775 The Geography Of Energy Units: 3.00
Historical, current and projected distribution of energy production and use in Canada. Topics include the development of our total primary energy supply, the rise of renewable energy sources, and future options for the development of Canada’s energy resources, as linked to our societal needs.

Requirements: Gphy Surp students

Offering Faculty: Faculty of Arts and Science

GPHY 880 The Political Geography Of City Regions Units: 3.00
An examination of the importance of city regions as fundamental spatial units in the global economy and as important political actors. The processes of worldwide economic integration and accelerated urban growth have led to new urban challenges and new ways of thinking about city-region governance. Key concepts include: the re-scaling of political economy, the role of the state, economic competitiveness, innovation and governance reforms, intercity networks, global cities, new regional policies and politics, rising inequality, social diversity, power, local democracy and citizenship. While international in scope, the primary focus will be on city-regions in North America. Three term-hours.

Offering Faculty: Faculty of Arts and Science

GPHY 882 The Political Economy Of Urbanization Units: 3.00
This seminar introduces political economic methods of understanding processes of urbanization as well as current debates within the fields of urban geography and urban planning. Contemporary trends in urban development are analyzed using different critical theoretical toolkits such as Marxism, racial capitalism, and feminist geography.

Requirements: Gphy Surp students

Offering Faculty: Faculty of Arts and Science

GPHY 884 Economics, Politics and Space Units: 3.00
This seminar examines economic spaces as not only sites of production, exchange, and circulation but also as shaped by sociopolitical struggles over economic futures, the politics of place, and daily life. This will be accomplished through the discussion of key political economic texts and of current debates in the field of economic geography.

Offering Faculty: Faculty of Arts and Science

GPHY 885 Pol. Economy Of Urbanization Units: 3.00
This seminar introduces political economic methods of understanding processes of urbanization as well as current debates within the fields of urban geography and urban planning. Contemporary trends in urban development are analyzed using different critical theoretical toolkits such as Marxism, racial capitalism, and feminist geography.

Requirements: Gphy Surp students

Offering Faculty: Faculty of Arts and Science

GPHY 886 Pol. Economy Of Urbanization Units: 3.00
This seminar introduces political economic methods of understanding processes of urbanization as well as current debates within the fields of urban geography and urban planning. Contemporary trends in urban development are analyzed using different critical theoretical toolkits such as Marxism, racial capitalism, and feminist geography.

Requirements: Gphy Surp students

Offering Faculty: Faculty of Arts and Science

GPHY 887 Gphy. Of Health & Health Care Units: 3.00
In a seminar format, selected themes in the geography of health and health care are examined. Epidemiological and social theories, analytic methods, and planning and policy implications of health and health care are emphasized. Three term-hours.

Requirements: Gphy Surp students

Offering Faculty: Faculty of Arts and Science
GPHY 889  The Geography Of Citizenship  Units: 3.00
An examination of recent changes in the Canadian population and the social/spatial negotiation of citizenship. As Canadian society becomes more diverse, new concepts of citizenship and new developments in human rights provision counter historic forms of oppression ('race', class, gender), to result in changes that are mediated by public policy initiatives, citizenship movements, and the reorganization of capital. Key concepts: citizenship, multiculturalism, migration, racialization, gender, transnationalism, globalization, democracy. Three term-hours.
Requirements: Gphy Surp students
Offering Faculty: Faculty of Arts and Science

GPHY 890  Earth Systems Science I  Units: 3.00
Selected specialized topics in earth system science. Normally, this course will take the form of a reading course in the area of the instructor's expertise. Three term-hours.
Offering Faculty: Faculty of Arts and Science

GPHY 891  Earth Systems Science II  Units: 3.00
Selected specialized topics in earth system science. Normally, this course will take the form of a reading course in the area of the instructor's expertise. Three term-hours.
Offering Faculty: Faculty of Arts and Science

GPHY 893  Studies In Human Geography I  Units: 3.00
Selected topics in various fields of human geography. This may be held as a seminar or a reading course in the area of the instructor's expertise. Three term-hours.
Offering Faculty: Faculty of Arts and Science

GPHY 894  Studies In Human Geography II  Units: 3.00
Selected topics in various fields of human geography. This may be held as a seminar or a reading course in the area of the instructor's expertise. Three term-hours.
Offering Faculty: Faculty of Arts and Science

GPHY 899  Master's Thesis Research  Units: 6.00
Requirements: GPHY Master's students
Offering Faculty: Faculty of Arts and Science

GPHY 999  Ph.D. Thesis Research  Units: 6.00
Requirements: GPHY PHD students
Offering Faculty: Faculty of Arts and Science

SURP 800  Master's Research Proposal  Units: 1.00
Students work with thesis/project supervisors to prepare a detailed Master's thesis/report proposal. The proposal should include a well-defined research question, appropriate method(s), and a tentative project schedule. The proposal should be grounded in relevant literature and must include an annotated bibliography in support of the topic. Course evaluation is Pass/Fail. (1.0 credit units). PREREQUISITE: Completion of first year of Master's studies and permission of instructor. COREQUISITE: SURP-898 or SURP-899
Requirements: Surp 800 coreq Surp 898 or 899, 2nd yr SURP std
Offering Faculty: Faculty of Arts and Science

SURP 801  Survey Research Methods  Units: 1.00
Requirements: Only SURP students
Offering Faculty: Faculty of Arts and Science

SURP 802  Indigenous Peoples and Planning  Units: 1.00
This course module offers an introduction to approaches to planning with Indigenous Peoples in Canada. Skills-based activities critically examine historical and contemporary planning and policy practices within the context of settler colonialism. 1.0 credit units. PREREQUISITE: Permission of Instructor.
Requirements: Only SURP students
Offering Faculty: Faculty of Arts and Science

SURP 803  Employment Analysis  Units: 1.00
Requirements: Only SURP students
Offering Faculty: Faculty of Arts and Science

SURP 804  Implementation  Units: 1.00
Requirements: Only SURP students
Offering Faculty: Faculty of Arts and Science

SURP 805  Negotiation  Units: 1.00
An introduction to negotiation and alternative dispute resolution mainly within the context of public sector disputes. Learning materials approx. $30. PREREQUISITE: Permission of Instructor. EXCLUSION: GPHY 332
Requirements: Only SURP students
Offering Faculty: Faculty of Arts and Science

SURP 806  Population Forecasting  Units: 1.00
Requirements: Only SURP students
Offering Faculty: Faculty of Arts and Science

SURP 807  Special Topic  Units: 1.00
Topic "Participation Techniques".
Requirements: Only SURP students
Offering Faculty: Faculty of Arts and Science

SURP 808  Special Topic  Units: 1.00
Topic "Transit".
Requirements: Only SURP students
Offering Faculty: Faculty of Arts and Science
**Geography and Planning**

**SURP 809 Special Topics** Units: 1.00
**Requirements:** Only SURP students
**Offering Faculty:** Faculty of Arts and Science

**SURP 810 Special Topic** Units: 1.00
Topic "Planning for Multiculturalism"
**Requirements:** Only SURP students
**Offering Faculty:** Faculty of Arts and Science

**SURP 811 Normative Decision-Making** Units: 3.00
This course addresses ways of looking at normative decisions and focuses on ethical and economic analyses of planning issues. Ethics, or moral philosophy, is examined in relation to economic (and other) justifications for planning and policy decisions. Concepts such as equity, justice, care, value, supply and demand, market potentials and failures, etc. are introduced. The intent is to introduce methods and concepts used in analyzing prescriptive questions in planning. Learning Materials - approx. $35
**Offering Faculty:** Faculty of Arts and Science

**SURP 812 Qualitative Methods Planning** Units: 3.00
This course is an introduction to various qualitative research methods used in planning. Theoretical and ethical issues regarding qualitative research methods are also discussed. Students will have opportunities to critically explore the development of a planning project from posing a research question through to the presentation of findings.
**Requirements:** Year 1 SURP students
**Offering Faculty:** Faculty of Arts and Science

**SURP 813 Current Approaches to Planning** Units: 3.00
This course introduces students to some of the key concepts that are explored in greater depth within the three areas of concentration in the MPL degree. The course may include a field trip to observe how these concepts are applied through urban and regional planning. Learning materials for field trip expenses up to $200.00. 3.0 credit units.
**PREREQUISITE:** Permission of Instructor.
**Requirements:** Year 1 SURP students
**Offering Faculty:** Faculty of Arts and Science

**SURP 814 Legal and Governmental Processes** Units: 3.00
This course examines the relationships among planning processes and their legal, governmental and administrative contexts. Matters considered include the meaning and sources of law, the Canadian constitution, division of powers, the organization of government into legislative, executive and judicial branches, judicial review and governmental action, and the role of municipal government. From this context arise issues of power, the roles of the planner, the relationships between and among planners, citizens, elected officials and bureaucracy, and the processes and institutions of policy-making.
**Requirements:** Year 1 SURP students
**Offering Faculty:** Faculty of Arts and Science

**SURP 815 Land Use Law** Units: 3.00
An intensive study of the Planning Act of Ontario including a close examination of the evolution of the Act, its purposes and its interpretation by the courts. The Act is considered for its effectiveness in providing a legal basis for controlling the use of land as a means of achieving community planning goals. Comparative approaches are also considered as a means of identifying inadequacies in Ontario law. A central issue in the course is the matter of insuring a high degree of justice and fairness among the interested parties in the resolution of land use control conflicts.
**Requirements:** SURP 816 prereq: 815
**Offering Faculty:** Faculty of Arts and Science

**SURP 817 An Intellectual History of Urban and Regional Planning** Units: 3.00
This course will provide a thematic history of major ideas informing on the planning of built, social and ecological environments of communities and cities. The ideas and concepts promoted by theorists and practitioners from around the world will be introduced. The emergence and application of these ideas in Canadian planning practice will be emphasized.
**Requirements:** Year 1 SURP students
**Offering Faculty:** Faculty of Arts and Science

**SURP 818 Physical Planning** Units: 3.00
An introduction to physical planning approaches, methods and techniques. The course examines how physical design relates to urban and regional planning. Students will be introduced to topics which include site and building survey and analysis, built and natural environment survey and analysis, design interpretation of planning and other regulations, visual analysis, costing, choice of design alternatives, urban and regional plans, etc. Development of graphic skills in analysis and presentation will be emphasized. Learning materials approx. $30
**Requirements:** Year 1 SURP students
**Offering Faculty:** Faculty of Arts and Science

**SURP 819 Quantitative Methods** Units: 3.00
This course introduces students to basic methods of quantitative analysis used by urban and regional planners. It introduces methods for exploring and presenting data, analyzing relationships between variables and testing hypotheses. Students will also become familiar with statistical software.
**Offering Faculty:** Faculty of Arts and Science
**SURP 823 Health & Social Project**  **Units: 6.00**  
Project Course (Health- and social-oriented). Learning materials: $100-$200, depending upon funding, for transportation and course materials. (6.0 credit units)  
PREREQUISITE: Permission of Instructor  
Requirements: Year 2 SURP students  
Offering Faculty: Faculty of Arts and Science

**SURP 824 Land Use & Real Estate Project**  **Units: 6.00**  
Project Course (Physical-oriented). Learning Materials: $100-$200, depending upon funding, for transportation and course materials. (6.0 credit units) PREREQUISITE: Permission of Instructor  
Requirements: Year 2 SURP students  
Offering Faculty: Faculty of Arts and Science

**SURP 825 Environmental Services Project**  **Units: 6.00**  
Project Course (Environmental-oriented). Learning Materials: $100-$200, depending upon funding, for transportation and course materials. (6.0 credit units) PREREQUISITE: Permission of Instructor  
Requirements: Year 2 SURP students  
Offering Faculty: Faculty of Arts and Science

**SURP 826 Special Field Project**  **Units: 6.00**  
Learning Materials: $100-$200, depending upon funding for transportation and course materials. (6.0 credit units) PREREQUISITE: Permission of Instructor  
Requirements: Year 2 SURP students  
Offering Faculty: Faculty of Arts and Science

**SURP 827 International Planning Project**  **Units: 6.00**  
Learning Materials and fees approximately $500-$1000, plus transportation and living expenses. (6.0 credit units) PREREQUISITE: Permission of Instructor  
Requirements: Year 2 SURP students  
Offering Faculty: Faculty of Arts and Science

**SURP 830 Affordable Housing**  **Units: 1.00**  
This module provides an overview of programs and policies for affordable housing in Canada. It discusses current approaches to affordable housing and homelessness in a local planning context as well as the redevelopment of existing social housing.  
Requirements: Only SURP students  
Offering Faculty: Faculty of Arts and Science

**SURP 831 International Urban Planning**  **Units: 1.00**  
This course will introduce students to the urban issues and planning processes/methods in non-Western countries, with special emphasis on their cultural contexts. Each module will focus on a particular country. These may include, but are not limited to China, India, Indonesia, and other Asia-Pacific countries.  
Offering Faculty: Faculty of Arts and Science

**SURP 840 Land Use Planning**  **Units: 3.00**  
Survey of theories and concepts in land-use planning at both urban and regional scale; examination of institutional framework and practice; formats and contents of plans; land-use principles and standards; and instruments for implementation. Learning materials plus lab fees: approx. $100.00  
Requirements: Only SURP students  
Offering Faculty: Faculty of Arts and Science

**SURP 841 Real Estate Decision Making**  **Units: 3.00**  
This course is an introduction to the concepts, planning principles and analytical methods involved in making key decisions regarding commercial real estate. Designed to complement SURP-844*, the emphasis is on evaluating the investment merits of large, existing income-generating properties spanning key asset classes. Teaching methods include case studies, group exercises, guest speakers from industry and student analysis of real properties. Learning materials approx. $28  
Requirements: Only SURP students  
Offering Faculty: Faculty of Arts and Science

**SURP 842 Economics of Land Development and Planning**  **Units: 3.00**  
This course examines the forces that shape cities. It examines the factors that determine land value and land uses. It presents models of urban spatial structure and discusses issues in land development, planning and taxation.  
Requirements: Only SURP students  
Offering Faculty: Faculty of Arts and Science

**SURP 844 Real Estate Plan & Development**  **Units: 3.00**  
This course examines real estate market research, project planning finance and development techniques. Residential, retail and office market analysis and development are studied through lectures and case study discussions. Learning materials approx. $30.  
Requirements: Gphy Surp students  
Offering Faculty: Faculty of Arts and Science

**SURP 848 Community Design**  **Units: 3.00**  
This course examines analytic techniques and design approaches used in physical planning (topography, activity, circulation, etc.). The application of these techniques and methods will be demonstrated through specific community design projects such as subdivision design, re-zoning and visual images. 3.0 credit units. PREREQUISITE: Permission of Instructor  
Offering Faculty: Faculty of Arts and Science
SURP 849 Public-Private Partnerships Units: 3.00
This course examines how the public and non-profit sectors can implement projects in an era of abruptly reduced funding from taxpayers. It considers redevelopment of public lands by requests for proposals by private developers. Case studies and group projects are set in waterfronts, downtowns and suburbs of North American and European cities.
Requirements: Only SURP students
Offering Faculty: Faculty of Arts and Science

SURP 851 Environmental Policy Units: 3.00
This course will examine environmental policies in urban and regional contexts. Tools used by policy makers (e.g. risk assessment and management, quality indices, evaluation, impact assessment, mitigation and compensation) and the constraints they encounter (e.g. uncertainty, legal and administrative constraints and financial costs) will be reviewed. Substantive areas to be examined will be focused on the relationship between the built environment and the quality of air and water as well as the use of land resources. Specific cases will vary from year to year. The scope of policies and readings will range from local to global; integration will be stressed.
Requirements: Only SURP students
Offering Faculty: Faculty of Arts and Science

SURP 853 Environmental Services Units: 3.00
This course will focus on the relationships between environmental services and quality of life in cities and regions. It includes a critical examination of the development, delivery and evaluation of environmental technologies and services. There is an emphasis on water, open space, and solid waste. Case studies and field trips will supplement a lecture/seminar format.
Requirements: Only SURP students
Offering Faculty: Faculty of Arts and Science

SURP 855 Environ. Planning & Management Units: 3.00
This course examines planning and management issues and tools in environmental services, such as inventory management, needs assessment, demand management, and investment decisions. The emphasis is on planning, management and financing options and their relationship to land use and urban form.
Requirements: Only SURP students
Offering Faculty: Faculty of Arts and Science

SURP 856 Environmental Assessment Units: 3.00
This course will explore the theoretical and practical aspects of environmental assessment processes. The focus will be on project level environmental assessment including biophysical, social and cumulative effects assessment along with public consultation.
Requirements: Only SURP students
Offering Faculty: Faculty of Arts and Science

SURP 858 Heritage Conservation Units: 3.00
Concepts and issues of heritage conservation, together with policies and strategies for achieving a balanced heritage conservation program are discussed. Methods for identification of heritage buildings and techniques for preservation and restoration will be explored.
Requirements: Only SURP students
Offering Faculty: Faculty of Arts and Science

SURP 861 Healthy Community Planning Units: 3.00
This course will introduce students to links between urban planning and public health, with a focus on the North American context. Various dimensions of communities and cities, such as urban form and sprawl, transportation, community design, and housing, will be interrogated for their health-promoting and impeding qualities; while students will gain important skills in planning for healthy communities.
Requirements: Only SURP students
Offering Faculty: Faculty of Arts and Science

SURP 865 Urban Transportation & Health Units: 3.00
This course provides an understanding of the association between urban transportation, environment, and public health. Emphasis will be placed on the role of built environment in shaping travel behavior and its subsequent impact on environment and health outcomes. The course also examines planning and policy interventions to address the key issues.
Requirements: Only SURP students
Offering Faculty: Faculty of Arts and Science

SURP 866 Urban Transportation Policy Units: 3.00
Requirements: Only SURP students
Offering Faculty: Faculty of Arts and Science

SURP 870 Human Services Planning Units: 3.00
This course is an introduction to the theory and practice of planning for human services with an emphasis on needs assessments, asset-based community development and program evaluation skills. Client and service provider perspectives and current debates are included.
3.0 credit units. PREREQUISITE: Permission of Instructor.
Requirements: Only SURP students
Offering Faculty: Faculty of Arts and Science

SURP 871 Social Planning Units: 3.00
This course focuses on planning practices for community social and economic development. Approaches to the design and delivery of social programs and plans at the organizational or neighbourhood scale are developed and implemented with and/or for specific populations. 3.0 credit units. PREREQUISITE: Permission of Instructor.
Requirements: Only SURP students
Offering Faculty: Faculty of Arts and Science
SURP 874  Housing Policy  Units: 3.00
This course assesses housing policy options and the contributions planners can make to the supply of affordable, adequate and appropriate housing. It presents the many factors influencing the housing market and analyzes public and private initiatives affecting the provision of housing. It shows the interdependence between housing and social service planning and analyzes issues regarding the choices among housing and other social policies. Current policies targeted at specific groups in need of assistance will be reviewed.
Requirements: Only SURP students
Offering Faculty: Faculty of Arts and Science

SURP 875  Community Practicum in Service Delivery  Units: 3.00
This course is meant to develop an understanding of policy and program delivery mechanisms for community services. The focus of the course is on how individuals and communities as clients of these programs experience their effects. The course will be structured around individualized field placements in public and non-profit agencies. The observations and experiences of the field assignment in concert with faculty supervision will be the primary mode of learning in this course. (Offered contingent upon finding an appropriate supervisor).
Requirements: Only SURP students
Offering Faculty: Faculty of Arts and Science

SURP 881  Gis In Urban Planning  Units: 3.00
This course is provided for students with little or no prior knowledge of GIS software. It will explore the basic concepts and techniques of GIS software required to create effective maps for urban planning purposes. Specific components include: how to interpret graphic and tabular data, geocoding, using queries and browsing, displaying maps, creating thematic maps and editing attribute and graphical data. Learning Materials: approx. $13
Requirements: Only SURP students
Offering Faculty: Faculty of Arts and Science

SURP 882  Computer Aided Design Software  Units: 3.00
This course will explore the principles of land development and planning by using computer aided design software. The application of computer aided design software for graphic presentation and analysis of regional plans, subdivisions and a variety of other planning exercises is the primary goal of this course. Learning materials plus lab fees approx. $80.
Requirements: Gphy Surp students
Offering Faculty: Faculty of Arts and Science

SURP 883  Planning In The Third World  Units: 3.00
A critical examination of urban and regional development efforts in selected developing countries through case studies. The course will have a comparative perspective and it will attempt to identify transferable experience from various developing to developed countries, particularly bearing on problems of economically poor and ethnically distinct regions. The emphasis will be on exploring assumptions, contents and implementation of various planning strategies with the objective of finding out the conditions necessary for successful planning. Special attention will be given to the planning approaches employed in dealing with problems of urban growth, infrastructure developments, housing, land markets, and regional inequalities.
Requirements: Gphy Surp students
Offering Faculty: Faculty of Arts and Science

SURP 884  Functional Planning  Units: 3.00
Requirements: Gphy Surp students
Offering Faculty: Faculty of Arts and Science

SURP 886  Functional Planning  Units: 3.00
Topic: "ADR in Public Disputes"
Requirements: Gphy Surp students
Offering Faculty: Faculty of Arts and Science

SURP 887  Functional Planning  Units: 3.00
Topic: "Urban Policy".
Requirements: Gphy Surp students
Offering Faculty: Faculty of Arts and Science

SURP 888  Adv. Social Planning & Program  Units: 3.00
Topic: "Healthy Communities"
Requirements: Gphy Surp students
Offering Faculty: Faculty of Arts and Science

SURP 889  Adv. Regional Policy Analysis  Units: 3.00
Topic: "Sustainable Transportation."
Requirements: Gphy Surp students
Offering Faculty: Faculty of Arts and Science

SURP 890  Topics In Research Methods  Units: 3.00
Critical review of research methods and strategies applicable to specific topics in planning and policy making. The choice of fields or topics will be determined by the student's interests. Case studies of research strategies in similar projects will be carried out. Students will prepare a research design related to their master's thesis or report.
Requirements: Only SURP students
Offering Faculty: Faculty of Arts and Science

SURP 891  Directed Study in Advanced Aspects of Urban and Regional Planning  Units: 3.00
(Offered contingent upon finding an appropriate supervisor).
Requirements: Only SURP students
Offering Faculty: Faculty of Arts and Science
SURP 892 Directed Study in Advanced Aspects of Urban and Regional Planning  Units: 3.00  
(Offer contingent on finding and appropriate supervisor)  
**Requirements:** Gphy Surp students  
**Offering Faculty:** Faculty of Arts and Science

SURP 893 Internship  Units: 0.00  
This non-credit course allows students to combine their formal academic studies with on-the-job experience, normally through a four-month placement with a government department or other organization. The internship is scheduled following a student’s completion of at least two terms of academic study and is open only to students registered in the M.PL. full-time program.  
**Requirements:** Gphy Surp students  
**Offering Faculty:** Faculty of Arts and Science

SURP 898 Master’s Report  Units: 6.00  
**PREREQUISITE:** Permission of instructor. **COREQUISITE:** SURP-800 Master’s Research Proposal  
**Requirements:** Only SURP students  
**Offering Faculty:** Faculty of Arts and Science

SURP 899 Master’s Thesis  Units: 12.00  
**PREREQUISITE:** Permission of instructor. **COREQUISITE:** SURP-800 Master’s Research Proposal  
**Requirements:** Only SURP students  
**Offering Faculty:** Faculty of Arts and Science