

GEOGRAPHY (GEOG)

Updated March 28, 2017

Note: The department/program code GEOG replaces the former code 23. Students cannot hold credit in GEOG-xxxx and the former 23.xxxx having the same course number (e.g., GEOG-1102(3) and 23.1102(3)).

Chair: Associate Professor Marc Vachon; Professors: D. Blair, B. Buhay, E. Cloutis; Associate Professors: J. Binyamin, J. Distasio, P. Fitzpatrick, I. Mauro, C. Storie, J. Storie; Assistant Professors: N. Casson, M. Dyce, G. Sylvestre; Instructors: B.R. McGregor, M. Krawetz; Cartographer: W. Hiebert; Lab Technician: K. Monson; Map Librarian: B. Russell; Department Assistant: Tania N. Guevara Sandoval; Adjunct Professor: L. Fishback.

DEGREES/PROGRAMS OFFERED

3-Year BA

4-Year BA

4-Year BA (UW/RRC)

Honours BA

3-Year BSc

3-Year BSc (Business Stream)

4-Year BSc

4-Year BSc (Business Stream)

4-Year BSc (UW/RRC)

Honours BSc

Minor - Human Geography

Minor - Physical Geography

INTRODUCTION

The study of Geography is concerned with the Earth in two ways - as the science of interaction between natural elements of the environment, such as weather, plants, soils, and landforms and, secondly, as the science of the distribution and activities of the Earth's population in response to various social and environmental factors. Systematic studies in Geography examine the locations, distributions, arrangements, and associations between groups of interrelated features. In contrast, regional studies examine the totality of geographic phenomena in a particular area. No matter what approach is taken, there are certain skills and techniques that are of particular geographic relevance (e.g., remote sensing, cartography, Geographic Information Systems).

As a reflection of the diversity that exists within the study of Geography and the special skills required, the Department offers courses within five areas of study: General, Physical Geography, Geomatics (formerly Techniques), Systematic Human Geography, and Regional Geography. One may earn either the 3-Year or 4-Year Bachelor's degree in Arts or Science, as well as the BA Honours or BSc Honours degree. Students pursuing a 3-year or 4-year BSc also have the opportunity to take a Business Stream – a set of core courses in the Faculty of Business that will provide them with the skills needed to enter and succeed in industry and business. See the "Science with a Business Stream" section of this Course Calendar. Students may also earn a 4-Year BA or BSc degree in a joint program in Geography/Geographic Information Systems with Red River College.

Geography offers a considerable variety of career opportunities. High schools require a continuing supply of Geography teachers. Various federal and provincial agencies dealing with conservation, urban planning, recreation, landscape architecture, and resource use also provide opportunities, especially to those with Honours or graduate work in Geography. Undergraduate training in the subject is often required for certain business careers, especially in surveying, market assessment, and location and general commercial development. Training in Geographical Information Systems is especially in demand.

REQUIREMENTS FOR A 3-YEAR BA IN GEOGRAPHY

ADMISSION REQUIREMENT	Students must consult with a member of the Department in planning their course of study.
GRADUATION REQUIREMENT	90 credit hours
RESIDENCE REQUIREMENT	
Degree:	Minimum 30 credit hours
Major:	Minimum 18 credit hours
GENERAL DEGREE REQUIREMENT	
Humanities:	12 credit hours in Humanities
Science:	6 credit hours in Science
Writing:	Minimum 3 credit hours of Academic Writing.
Indigenous:	3 credit hours in designated Indigenous requirement courses
Maximum Introductory Courses:	Students may use a maximum of 42 credit hours at the 1000 level. Of these, maximum of 6 credit hours may be below the 1000 level.
Distribution:	Minimum three (3) credit hours from each of five (5) different subjects.
MAJOR REQUIREMENT	
Single Major:	Minimum 30 credit hours/Maximum 48 credit hours.
Double Major:	30 credit hours in Geography and specified number of credit hours in other Major subject or program.

Required Courses:

Common Geography Requirement (12 credit hours)

- GEOG-1102(3)** Introductory Human Geography: People, Culture and Environment
- GEOG-1103(3)** Introductory Human Geography: Population, Place and Development
- GEOG-1201(3)** Introductory Atmospheric Science
- GEOG-1202(3)** Introductory Earth Science

Regional Geography Requirement (6 credit hours)

- GEOG-3509(3)** Canada's Physical and Human Environments

Three (3) credit hours from among the following:

- GEOG-2503(3)** Manitoba's Physical and Human Environments
- GEOG-3216(3)** Arctic Environments
- GEOG-3508(3)** Geographical Issues in the Developing World
- GEOG-3510(3)** Prairie Landscapes
- GEOG-3511(3)** Topical Regions in Geography
- GEOG-3512(3)** The Human Geography of Northern Canada (fulfils the Indigenous Requirement)

Systematic Human Geography Requirement (6 credit hours)

Minimum of 6 credit hours from the Systematic Human Geography group

Electives (6 credit hours)

Minimum 6 additional credit hours from any area of Geography

Combined Major: Minimum 48 credit hours from 2 different Majors with not less than 18 credit hours from each major subject

Prescribed Courses:

- GEOG-1102(3)** Introductory Human Geography: People, Culture and Environment
- GEOG-1103(3)** Introductory Human Geography: Population, Place and Development
- GEOG-1201(3)** Introductory Atmospheric Science
- GEOG-1202(3)** Introductory Earth Science
- GEOG-3509(3)** Canada's Physical and Human Environments

3 additional credit hours from the Physical Geography Group

REQUIREMENTS FOR A 3-YEAR BSc IN GEOGRAPHY

ADMISSION REQUIREMENT Students must consult with a member of the Department in planning their course of study.

GRADUATION REQUIREMENT 90 credit hours

RESIDENCE REQUIREMENT

Degree: Minimum 30 credit hours
Major: Minimum 18 credit hours

GENERAL DEGREE REQUIREMENT

Humanities: 12 credit hours in Humanities
Writing: Minimum 3 credit hours of Academic Writing.
Indigenous: 3 credit hours in designated Indigenous requirement courses
Maximum Introductory Courses: Students may use a maximum of 42 credit hours at the 1000 level. Of these, a maximum of 6 credit hours may be below the 1000 level.
Distribution: Minimum three (3) credit hours from each of five (5) different subjects.

MAJOR REQUIREMENT

Single Major: Minimum 36 credit hours/Maximum 48 credit hours.
Double Major: Minimum 36 credit hours in Geography and specified number of credit hours in other Major subject or program.

Required Courses:

Common Geography Requirement (12 credit hours)

- GEOG-1102(3)** Introductory Human Geography: People, Culture and Environment
- GEOG-1103(3)** Introductory Human Geography: Population, Place and Development
- GEOG-1201(3)** Introductory Atmospheric Science
- GEOG-1202(3)** Introductory Earth Science

Regional Geography Requirement (3 credit hours)

- GEOG-3509(3)** Canada's Physical and Human Environments

Physical Geography/Geomatics Requirement (24 credit hours)

GEOG-2304(3) Computer Mapping or **GEOG-2309(3)** Statistical Techniques in Environmental Analysis Analysis or STAT-1301(3) Statistical Analysis or the former STAT-1201(6) Introduction to Statistical Analysis

12 credit hours from among:

- GEOG-2207(3)** Climatology
- GEOG-2210(3)** Meteorology
- GEOG-2213(3)** Introductory Soil Science
- GEOG-2214(3)** Soil-Vegetation Systems
- GEOG-2215(3)** Mineralogy and Petrology
- GEOG-2216(3)** Physical Geology
- GEOG-2218(3)** Fluvial and Hillslope Processes
- GEOG-2219(3)** Glacial and Periglacial Processes
- GEOG-3210(3)** Hydrology

Minimum 9 additional credit hours from the Physical Geography or Geomatics groups (i.e., where the second digit of the course number is a 2 or 3)

External Science Requirement (18 credit hours)

Minimum of 18 credit hours selected from at least two (2) of the Departments of Biology, Applied Computer Science, Chemistry, Mathematics, Physics, and Statistics.

The following courses do not qualify:

- ACS-1453(3)** Introduction to Computers
- ACS-1803(3)** Introduction to Computer-based Systems
- BIOL-1102(6)** Biology and Human Concerns
- BIOL-1103(6)** Human Biology
- BIOL-1005(6)** Concepts in Science
- BIOL-1106(3)** Environmental Biology
- CHEM-0100(3)** Foundations of Chemistry
- CHEM-1801(3)** Headline Chemistry
- CHEM-2801(3)** Chemistry and Society
- MATH/PHIL-2305(3)** Philosophy and Mathematics
- MATH-2901(3)** History of Calculus
- MATH-2902(3)** Mathematics Prior to 1640
- MATH-2903(3)** Mathematics for Early/Middle Years Teachers I
- MULT-1005(6)** Concepts in Science
- PHYS- 1005(6)** Concepts in Science
- PHYS-1501(6)** Modern Technology
- PHYS-1701(6)** Astronomy
- PHYS-2705(6)** Cosmology: Science Fact to Science Fiction
- PHYS-2812(3)** The Physics of Music

Combined Major: Minimum 48 credit hours from 2 different Majors with not less than 18 credit hours from each major subject

Prescribed Courses:

- GEOG-1102(3)** Introductory Human Geography: People, Culture and Environment
- GEOG-1103(3)** Introductory Human Geography: Population, Place and Development
- GEOG-1201(3)** Introductory Atmospheric Science
- GEOG-1202(3)** Introductory Earth Science
- GEOG-3509(3)** Canada's Physical and Human Environments

3 additional credit hours from the Physical Geography Group

REQUIREMENTS FOR THE 3-YEAR BSc IN GEOGRAPHY WITH A BUSINESS STREAM

Students must complete the requirements of the 3-year BSc in Geography degree (see previous section) and the set of core courses indicated in the "Science with a Business Stream" section of the Calendar.

REQUIREMENTS FOR A 4-YEAR BA IN GEOGRAPHY

ADMISSION REQUIREMENT Students must consult with the Department Advisor in planning their studies.

GRADUATION REQUIREMENT 120 credit hours

RESIDENCE REQUIREMENT

Degree: Minimum 60 credit hours
Major: Minimum 30 credit hours

GENERAL DEGREE REQUIREMENT

Humanities: 12 credit hours
Science: 6 credit hours
Social Science: 12 credit hours
Writing: Minimum 3 credit hours of Academic Writing.
Indigenous: 3 credit hours in designated Indigenous requirement courses
Maximum Introductory Courses: Students may use a maximum of 42 credit hours at the 1000 level. Of these, a maximum of 6 credit hours may be below the 1000 level.
Distribution: Minimum three (3) credit hours from each of five (5) different subjects.

MAJOR REQUIREMENT

Single Major: Minimum 48 credit hours/Maximum 66 credit hours.
Double Major: Minimum 48 credit hours in each Major subject as specified by the department/program.

Required Courses:

Common Geography Requirement (12 credit hours)

GEOG-1102(3) Introductory Human Geography: People, Culture and Environment
GEOG-1103(3) Introductory Human Geography: Population, Place and Development
GEOG-1201(3) Introductory Atmospheric Science
GEOG-1202(3) Introductory Earth Science

Regional Geography Requirement (6 credit hours)

GEOG-3509(3) Canada's Physical and Human Environments

Three (3) credit hours from among the following:

GEOG-2503(3) Manitoba's Physical and Human Environments
GEOG-3216(3) Arctic Environments
GEOG-3508(3) Geographical Issues in the Developing World
GEOG-3510(3) Prairie Landscapes
GEOG-3511(3) Topical Regions in Geography
GEOG-3512(3) The Human Geography of Northern Canada (fulfills the Indigenous Requirement)

Systematic Human Geography Requirement (6 credit hours)

Minimum of 6 credit hours in Systematic Human Geography

Geomatics Requirement (12 credit hours)

GEOG-2304(3) Computer Mapping
GEOG-2306(3) Introduction to Geographic Information Systems
GEOG-2309(3) Statistical Techniques in Environmental Analysis Analysis or STAT-1301(3) Statistical Analysis or the former STAT-1201(6) Introduction to Statistical Analysis
GEOG-3330(3) Research Methods in Geography

Other Requirements

Students must complete a minimum of 48 credit hours in Geography. From the requirements listed, students must ensure to have taken a minimum of 12 credit hours at the upper level (3000 and 4000) Systematic Human or Geomatics courses with a minimum of 6 of those credit hours at the 4000 level.

Combined Major: Minimum 60 credit hours from two (2) different Majors with not less than 24 credit hours from each major subject.

Prescribed Courses:

GEOG-1102(3) Introductory Human Geography: People, Culture and Environment
GEOG-1103(3) Introductory Human Geography: Population, Place and Development
GEOG-1201(3) Introductory Atmospheric Science
GEOG-1202(3) Introductory Earth Science
GEOG-3509(3) Canada's Physical and Human Environments

3 additional credit hours from the Physical Geography Group

REQUIREMENTS FOR A 4-YEAR BSc IN GEOGRAPHY

ADMISSION REQUIREMENT	Students must consult with the department advisor in planning their studies.
GRADUATION REQUIREMENT	120 credit hours, that is, 90 credit hours meeting the requirements for the 3-Year BSc plus an additional 30 credit hours.
RESIDENCE REQUIREMENT	
Degree:	Minimum 60 credit hours
Major:	Minimum 30 credit hours
GENERAL DEGREE REQUIREMENT	
Humanities:	12 credit hours
Writing:	Minimum 3 credit hours of Academic Writing.
Indigenous:	3 credit hours in designated Indigenous requirement courses
Maximum Introductory Courses:	Students may use a maximum of 42 credit hours at the 1000 level. Of these, a maximum of 6 credit hours may be below the 1000 level.
Distribution:	Minimum three (3) credit hours from each of five (5) different subjects.
MAJOR REQUIREMENT	
Single Major:	Minimum 57 credit hours/Maximum 78 credit hours.
Double Major:	Minimum 57 credit hours in Geography and specified number of courses in other Major.

Required Courses:

Common Geography Requirement (12 credit hours)

- GEOG-1102(3)** Introductory Human Geography: People, Culture and Environment
- GEOG-1103(3)** Introductory Human Geography: Population, Place and Development
- GEOG-1201(3)** Introductory Atmospheric Science
- GEOG-1202(3)** Introductory Earth Science

Regional Geography Requirement (3 credit hours)

- GEOG-3509(3)** Canada's Physical and Human Environments

Physical Geography/Geomatics Requirement (27 credit hours)

- GEOG-2304(3)** Computer Mapping
- GEOG-2306(3)** Introduction to Geographic Information Systems
- GEOG-2309(3)** Statistical Techniques in Environmental Analysis Analysis or **STAT-1301(3)** Statistical Analysis or the former **STAT-1201(6)** Introduction to Statistical Analysis
- GEOG-2316(3)** Remote Sensing
- GEOG-3330(3)** Research Methods in Geography

12 credit hours from among

- GEOG-2207(3)** Climatology
- GEOG-2210(3)** Meteorology
- GEOG-2213(3)** Introductory Soil Science
- GEOG-2214(3)** Soil-Vegetation Systems
- GEOG-2215(3)** Mineralogy and Petrology
- GEOG-2216(3)** Physical Geology
- GEOG-2218(3)** Fluvial and Hillslope Processes
- GEOG-2219(3)** Glacial and Periglacial Processes
- GEOG-3210(3)** Hydrology

Additional Requirements (15 credit hours)

Minimum of 3 additional credit hours from the Physical or Geomatics groups.
Minimum of 6 credit hours from the Systematic Human group at the 3000 level
Minimum of 6 credit hours at the 4000 level also from the Systematic Human Group.

External Science Requirement (24 credit hours)

Minimum of 24 credit hours selected from at least two (2) of the Departments of Biology, Applied Computer Science, Chemistry, Mathematics, Physics, and Statistics.

The following courses do *not* qualify:

- ACS-1453(3)** Introduction to Computers
- ACS-1803(3)** Introduction to Computer-based Systems
- BIOL-1005(6)** Concepts in Science
- BIOL-1102(6)** Biology and Human Concerns
- BIOL-1103(6)** Human Biology
- BIOL-1106(3)** Environmental Biology
- CHEM-0100(3)** Foundations of Chemistry

CHEM-1801(3)	Headline Chemistry
CHEM-2801(3)	Chemistry and Society
MATH/PHIL-2305(3)	Philosophy and Mathematics
MATH-2901(3)	History of Calculus
MATH-2902(3)	Mathematics Prior to 1640
MATH-2903(3)	Mathematics for Early/Middle Years Teachers I
MULT-1005(6)	Concepts in Science
PHYS-1005(6)	Concepts in Science
PHYS-1501(6)	Modern Technology
PHYS-1701(6)	Astronomy
PHYS-2705(6)	Cosmology: Science Fact to Science Fiction
PHYS-2812(3)	The Physics of Music

Combined Major: Minimum 60 credit hours from 2 different Majors with not less than 24 credit hours from each major subject.

Prescribed Courses:

GEOG-1102(3)	Introductory Human Geography: People, Culture and Environment
GEOG-1103(3)	Introductory Human Geography: Population, Place and Development
GEOG-1201(3)	Introductory Atmospheric Science
GEOG-1202(3)	Introductory Earth Science
GEOG-3509(3)	Canada's Physical and Human Environments

3 additional credit hours from the Physical Geography Group

REQUIREMENTS FOR THE 4-YEAR BSc IN GEOGRAPHY WITH A BUSINESS STREAM

Students must complete the requirements of the 4-year BSc in Geography degree (see previous section) and the set of core courses indicated in the "Science with a Business Stream" section of the Calendar.

REQUIREMENTS FOR AN HONOURS BA IN GEOGRAPHY

ADMISSION REQUIREMENT

Students must have completed a minimum of 30 credit hours to qualify for entry into the Honours program.

Entry, continuing and graduation minimum GPA is 3.0 (B) in Honours Subject courses and 2.5 (C+) in Non-Honours Subject courses.

The minimum 3.0 GPA (B) will be based on all attempts (including course repeats and failures) in Honours Subject courses.

The minimum 2.5 GPA (C+) in all Non-Honours Subject courses will be calculated as for the general degree (i.e., Fs are not included, and in the case of repeated courses, only the highest grade will be used).

GRADUATION REQUIREMENT Minimum 120 credit hours

RESIDENCE REQUIREMENT
Degree: Minimum 60 credit hours

GENERAL DEGREE REQUIREMENT

Humanities:	12 credit hours in Humanities
Science:	6 credit hours in Science
Writing:	Minimum 3 credit hours of Academic Writing.
Indigenous:	3 credit hours in designated Indigenous requirement courses

Maximum Introductory Courses: Students may use a maximum of 42 credit hours at the 1000 level. Of these, a maximum of 6 credit hours may be below the 1000 level.

Distribution: Minimum three (3) credit hours from each of five (5) different subjects.

HONOURS REQUIREMENT

Single Honours:	Minimum 54 credit hours/Maximum 78 credit hours Minimum 21 credit hours in upper level (3000 and 4000) Honours subject courses of which a minimum of 15 credit hours must be at the 4000 level (including Thesis).
Double Honours:	Student must satisfy the requirements for both the Honours BA in Geography and the requirements for the Honours BA in the second Honours department in consultation with the Geography Department Chair.

Required Courses:

<u>Common Geography Requirement</u> (12 credit hours)	
GEOG-1102(3)	Introductory Human Geography: People, Culture and Environment
GEOG-1103(3)	Introductory Human Geography: Population, Place and Development
GEOG-1201(3)	Introductory Atmospheric Science
GEOG-1202(3)	Introductory Earth Science

Regional Geography Requirement (6 credit hours)
GEOG-3509(3) Canada's Physical and Human Environments

Three (3) credit hours from among the following:

- GEOG-2503(3)** Manitoba's Physical and Human Environments
- GEOG-3216(3)** Arctic Environments
- GEOG-3508(3)** Geographical Issues in the Developing World
- GEOG-3510(3)** Prairie Landscapes
- GEOG-3511(3)** Topical Regions in Geography
- GEOG-3512(3)** The Human Geography of Northern Canada (fulfils the Indigenous Requirement)

Systematic Human Geography Requirement (6 credit hours)
Minimum of 6 credit hours in Human Geography

Geomatics Requirement (12 credit hours)
GEOG-2304(3) Computer Mapping
GEOG-2306(3) Introduction to Geographic Information Systems
GEOG-2309(3) Statistical Techniques in Environmental Analysis or STAT-1301(3) Statistical Analysis or the former STAT-1201(6) Introduction to Statistical Analysis
GEOG-3330(3) Research Methods in Geography

Thesis Requirement (6 credit hours)
GEOG-4901(6) Honours Geography Thesis - 6 credit hours with a prerequisite of **GEOG-3330(3)** (Research Methods in Geography), 36 credit hours completed in Geography, and a Geography GPA of 3.0.

Other Requirements

Students must complete 54 credit hours in Geography for the major.
Minimum 21 credit hours in upper level (3000 and 4000) Honours subject courses of which a minimum of 15 credit hours (including the thesis) must be at the 4000 level.
Average of 2.5 GPA in non-Geography courses and 3.00 GPA on all attempts in Geography courses (exit requirement).

REQUIREMENTS FOR AN HONOURS BSc IN GEOGRAPHY

ADMISSION REQUIREMENT

Students must have completed a minimum of 30 credit hours to qualify for entry into the Honours program.
Entry, continuing and graduation minimum GPA is 3.0 (B) in Honours Subject courses and 2.75 in Non-Honours Subject courses. The minimum 3.0 GPA (B) will be based on all attempts (including course repeats and failures) in Honours Subject courses. The minimum 2.75 GPA in all Non-Honours Subject courses will be calculated as for the general degree (i.e., Fs are not included, and in the case of repeated courses, only the highest grade will be used).

GRADUATION REQUIREMENT Minimum 120 credit hours

RESIDENCE REQUIREMENT
Degree: Minimum 60 credit hours

GENERAL DEGREE REQUIREMENT

Humanities: 12 credit hours in Humanities

Writing: Minimum 3 credit hours of Academic Writing.
Indigenous: 3 credit hours in designated Indigenous requirement courses

Maximum Introductory Courses: Students may use a maximum of 42 credit hours at the 1000 level. Of these, a maximum of 6 credit hours may be below the 1000 level.

Distribution: Minimum three (3) credit hours from each of five (5) different subjects.

HONOURS REQUIREMENT

Single Honours: Minimum 63 credit hours/Maximum 78 credit hours
Minimum 30 credit hours in upper level (3000 and 4000) Honours Subject courses of which a minimum of 15 credit hours must be at the 4000 level (including Thesis).

Double Honours: Students must satisfy the requirements for both the Honours BSc in Geography and the requirements for the Honours BSc in the second Honours department, in consultation with the Geography Department Chair.

Required Courses

Common Geography Requirement (12 credit hours)
GEOG-1102(3) Introductory Human Geography: People, Culture and Environment
GEOG-1103(3) Introductory Human Geography: Population, Place and Development
GEOG-1201(3) Introductory Atmospheric Science
GEOG-1202(3) Introductory Earth Science

Regional Geography Requirement (3 credit hours)
GEOG-3509(3) Canada's Physical and Human Environments

Physical Geography/Geomatics Requirements (45 credit hours)

- GEOG-2304(3)** Computer Mapping
- GEOG-2306(3)** Introduction to Geographic Information Systems
- GEOG-2309(3)** Statistical Techniques in Environmental Analysis or STAT-1301(3) Statistical Analysis or the former STAT-1201(6) Introduction to Statistical Analysis
- GEOG-2316(3)** Remote Sensing
- GEOG-3330(3)** Research Methods in Geography

12 credit hours from the following:

- GEOG-2207(3)** Climatology
- GEOG-2210(3)** Meteorology
- GEOG-2213(3)** Introductory Soil Science
- GEOG-2214(3)** Soil-Vegetation Systems
- GEOG-2215(3)** Mineralogy and Petrology
- GEOG-2216(3)** Physical Geology
- GEOG-2218(3)** Fluvial and Hillslope Processes
- GEOG-2219(3)** Glacial and Periglacial Processes
- GEOG-3210(3)** Hydrology

Minimum of 15 additional credit hours of upper level (3000 and 4000) Physical Geography or Geomatics courses (excluding Thesis) with a minimum of 9 credit hours at the 4000 level (excluding Thesis).

Thesis Requirement (6 credit hours)

- GEOG-4901(6)** Honours Geography Thesis - 6 credit hours with a prerequisite of **GEOG-3330 (3)** (Research Methods in Geography), 36 credit hours completed in Geography, and a Geography GPA of 3.0

External Science Courses (24 credit hours)

Minimum of 24 credit hours selected from at least two(2) of the Departments of Biology, Applied Computer Science, Chemistry, Mathematics, Physics, and Statistics, of which 12 credit hours must be at or above the 2000-level.

The following courses do *not* qualify:

- ACS-1453(3)** Introduction to Computers
- ACS-1803(3)** Introduction to Computer-based Systems
- BIOL-1005(6)** Concepts in Science
- BIOL-1102(6)** Biology and Human Concerns
- BIOL-1103(6)** Human Biology
- BIOL-1106(3)** Environmental Biology
- CHEM-0100(3)** Foundations of Chemistry
- CHEM-1801(3)** Headline Chemistry
- CHEM-2801(3)** Chemistry and Society
- MATH/PHIL-2305(3)** Philosophy and Mathematics
- MATH-2901(3)** History of Calculus
- MATH-2902(3)** Mathematics Prior to 1640
- MATH-2903(3)** Mathematics for Early/Middle Years Teachers I
- MULT-1005(6)** Concepts in Science
- PHYS-1005(6)** Concepts in Science
- PHYS-1501(6)** Modern Technology
- PHYS-1701(6)** Astronomy
- PHYS-2705(6)** Cosmology: Science Fact to Science Fiction
- PHYS-2812(3)** The Physics of Music

Grade Point Requirement

GPA of 2.75 in non-Geography courses and 3.00 on all attempts in Geography courses (exit requirement).

Suggested Patterns:

Year 1: **GEOG-1102(3)** Introductory Human Geography; **GEOG-1103(3)** Introductory Human Geography; **GEOG-1201(3)** Introductory Atmospheric Science; **GEOG-1202(3)** Introductory Earth Science

Year 2: 12-18 credit hours in Geography. Recommended: **GEOG-2309(3)** Statistical Techniques in Environmental Analysis and **GEOG-2304(3)** Computer Mapping
Prerequisite course(s) for planned Honours courses.

Year 3: 3-6 credit hours at the 4000 level in Geography.

Year 4: 9-12 credit hours at the 4000 level in Geography, including the Thesis.

4000-level courses from other Departments may be credited toward the Geography Honours Major with ADVANCE WRITTEN APPROVAL from the Department Chair.

Students must consult with the Department Chair to determine whether they fulfill the general regulations for the Honours program.

Students must complete the Honours application form before EACH registration in a 4000-level course.

Students planning to complete a Double Honours degree in Geography must consult with the Department Chair for further details.

REQUIREMENTS FOR THE UNIVERSITY OF WINNIPEG / RED RIVER COLLEGE 4-YEAR BA (JOINT PROGRAM IN GEOGRAPHY / GEOGRAPHIC INFORMATION SYSTEMS)

INTRODUCTION

This is a joint program of study whereby students are required to take courses at both The University of Winnipeg and Red River College. The program is intended to integrate a 4-year University of Winnipeg BA in Geography with the 1-year Red River College Advanced Diploma in Geographic Information Systems, effectively compressing five years of study into four years. The program has been specifically designed to prepare students for careers in industry where practical and theoretical skills are necessary.

Students are normally enrolled at The University of Winnipeg in years one, two, and four, and at Red River College for year three. Students who successfully complete the entire program will receive a 4-Year BA Degree from The University of Winnipeg and an Advanced Diploma from Red River College.

Students are required to complete a minimum of 51 credit hours of study at the University of Winnipeg before starting the Diploma program at Red River College. Student may apply during their second year provided the hours requirement will be met before starting at Red River College. It is recommended that students complete 60 credit hours within their first two years to ensure a smooth transition back to the University of Winnipeg.

Please consult the Chair of the Department of Geography for assistance with degree planning. For information concerning the Red River College component of the program contact Roger Hamelin at 632-2983 or rhamelin@rrc.mb.ca.

ADMISSION REQUIREMENT

Students must meet the entrance requirements for admission to The University of Winnipeg. Application to the program in Geography/Geographic Information Systems must be completed through the Admissions Office of The University of Winnipeg by March 1st in order to enter the program in September.

GRADUATION REQUIREMENT

120 credit hours, that is, 90 credit hours meeting the requirements for the BA General plus 30 additional credit hours.

RESIDENCE REQUIREMENT

Degree: Minimum 60 credit hours
Major: Minimum 30 credit hours

GENERAL DEGREE REQUIREMENT

Humanities: 12 credit hours in Humanities
Social Science: 12 credit hours
Science: 6 credit hours
Writing: Minimum 3 credit hours of Academic Writing
Indigenous: 3 credit hours in designated Indigenous requirement courses
Maximum Introductory Courses: Students may use a maximum of 42 credit hours at the 1000 level. Of these, a maximum of 6 credit hours may be below the 1000 level.
Distribution: Minimum of three (3) credit hours from each of five (5) different subjects
4000-level Courses: Minimum of six (6) credit hours

MAJOR REQUIREMENT FOR THIS JOINT PROGRAM

Single Major: Minimum 57 credit hours/Maximum 66 credit hours

UNIVERSITY OF WINNIPEG COURSES

REQUIRED CORE COURSES (30 credit hours):

GEOG-1102(3) Introductory Human Geography: People, Culture and Environment
GEOG-1103(3) Introductory Human Geography: Population, Place and Development
GEOG-1201(3) Introductory Atmospheric Science
GEOG-1202(3) Introductory Earth Science
GEOG-2304(3) Computer Mapping
GEOG-2306(3) Introduction to Geographic Information Systems (should be taken before entering RRC Diploma program)
GEOG-2309(3) Statistical Techniques in Environmental Analysis or STAT-1301(3) Statistical Analysis or the former STAT-1201(6) Introduction to Statistical Analysis
GEOG-2316(3) Remote Sensing (should be taken before entering RRC Diploma program)
GEOG-3306(3) Advanced Geographic Information Systems or **GEOG-3319(3)** Advanced Remote Sensing (should be taken after RRC Diploma Program)
GEOG-3330(3) Research Methods in Geography

OTHER REQUIREMENTS FOR THE 4-YR BA JOINT UW/RRC PROGRAM IN GEOGRAPHY/GIS (27 credit hours):

GROUP A COURSES: Select nine (9) credit hours from this group:
GEOG-2212(3) Natural Hazards

GEOG-2216(3) Physical Geology
GEOG-2213(3) Introductory Soil Science
GEOG-2214(3) Soil-Vegetation Systems
GEOG-3210(3) Hydrology
GEOG-3215(3) Biogeography

GROUP B COURSES: Select six (6) credit hours from this group:

GEOG-2204(3) Human Impact on the Environment
GEOG-2401(3) Agricultural Geography
GEOG-2407(3) Recreation Geography
GEOG-3408(3) Water Resources
GEOG-3508(3) Geographical Issues in the Developing World

GROUP C COURSES: Select six (6) credit hours from this group:

GEOG-3306(3) Advanced GIS (cannot be used for both the required core and Group C courses)
GEOG-3307(3) Advanced Computer Mapping
GEOG-3310(3) Spatial Analysis
GEOG-3319(3) Advanced Remote Sensing (cannot be used for both the required core and Group C courses)
GEOG-4320(3) Projects in Geomatics
GEOG-4321(3) Topics in Geomatics I or
GEOG-4322(3) Topics in Geomatics II

GROUP D COURSES: Select six (6) credit hours from this group:

GEOG-2414(3) The Urban Environment
GEOG-2415(3) An Introduction to Urban Development
GEOG-3402(3) Urbanization in the Developing World
GEOG-4403(3) Urban Land Use: Developmental Processes
GEOG-4404(3) Field Research in Urban Geography
GEOG-4407(3) Advanced Tourism and Recreation Geography

4-YR BA GEOGRAPHY MAJOR REQUIREMENTS: All students in the 4-Yr BA Joint program are reminded that they must meet the requirements of the general 4-Yr BA in Geography, including 6 credit hours of Regional Geography and an overall minimum of 12 credit hours of upper-level (3000 or 4000) Systematic Human or Geomatics courses with a minimum of 6 credit hours at the 4000 level.

RED RIVER COLLEGE COURSES

<u>TERM 1</u>		RRC credit hours
CIVG-4021	Remote Sensing	6
CIVG-4022	Statistics for GIS	3
CIVG-4024	Cartography	4
CIVG-4025	GIS Fundamentals	7
CIVG-4026	Programming 1	6
CIVG-4030	Project Management Fundamental	2
CIVG-4032	Surveying	2
CIVG-4034	GIS Applications 1	3
<u>TERM 2</u>		
CIVG-4027	GIS Modeling	4
CIVG-4028	Applied Remote Sensing	3
CIVG-4029	Programming 2	6
CIVG-4031	Spatial Database Management	5
CIVG-4033	Thesis Project	12
CIVG-4035	GIS Applications 2	3

REQUIREMENTS FOR THE UNIVERSITY OF WINNIPEG / RED RIVER COLLEGE 4-YEAR BSc (JOINT PROGRAM IN GEOGRAPHY / GEOGRAPHIC INFORMATION SYSTEMS)

INTRODUCTION

This is a joint program of study whereby students are required to take courses at both The University of Winnipeg and Red River College. The program is intended to integrate a 4-year University of Winnipeg BSc in Geography with the 1-year Red River College Advanced Diploma in Geographic Information Systems, effectively compressing five years of study into four years. The program has been specifically designed to prepare students for careers in industry where practical and theoretical skills are necessary.

Students are normally enrolled at The University of Winnipeg in years one, two, and four and at Red River College for year three. Students who successfully complete the entire program will receive a 4-Year BSc Degree from The University of Winnipeg and an Advanced Diploma from Red River College.

Students are required to complete a minimum of 51 credit hours of study at the University of Winnipeg before starting the Diploma program at Red River College. Student may apply during their second year provided the hours requirement will be met before starting at Red River College. It is recommended that students complete 60 credit hours within their first two years to ensure a smooth transition back to the University of Winnipeg.

Please consult the Chair of the Department of Geography for assistance with degree planning. For information concerning the Red River College component of the program contact Roger Hamelin at 632-2983 or rhamelin@rrc.mb.ca.

ADMISSION REQUIREMENT

Students must meet the entrance requirements for admission to The University of Winnipeg. Application to the program in Geography/Geographic Information Systems must be completed through the Admissions Office of The University of Winnipeg by March 1st in order to enter the program in September.

GRADUATION REQUIREMENT

120 credit hours, that is, 90 credit hours meeting the requirements for the BSc General plus 30 additional credit hours.

RESIDENCE REQUIREMENT

Degree: Minimum 60 credit hours
Major: Minimum 30 credit hours

GENERAL DEGREE REQUIREMENT

Humanities: 12 credit hours in Humanities
Writing: Minimum 3 credit hours of Academic Writing
Indigenous: 3 credit hours in designated Indigenous requirement courses
Maximum Introductory Courses: Students may use a maximum of 42 credit hours at the 1000 level. Of these, a maximum of 6 credit hours may be below the 1000 level.
Distribution: Minimum of three (3) credit hours from each of five (5) different subjects
4000-level Courses: Minimum of six (6) credit hours

MAJOR REQUIREMENT

Single Major: Minimum 57 credit hours/Maximum 66 credit hours

UNIVERSITY OF WINNIPEG COURSES

REQUIRED CORE COURSES (30 credit hours):

GEOG-1102(3) Introductory Human Geography I: People, Culture and Environment
GEOG-1103(3) Introductory Human Geography II: Population, Place and Development
GEOG-1201(3) Introductory Atmospheric Science
GEOG-1202(3) Introductory Earth Science
GEOG-2304(3) Computer Mapping
GEOG-2306(3) Introduction to Geographic Information Systems (should be taken before entering RRC Diploma Program)
GEOG-2309(3) Statistical Techniques in Environmental Analysis Analysis or STAT-1301(3) Statistical Analysis or the former STAT-1201(6) Introduction to Statistical Analysis
GEOG-2316(3) Remote Sensing (should be taken before entering RRC Diploma program)
GEOG-3306(3) Advanced Geographic Information Systems or **GEOG-3319(3)** Advanced Remote Sensing (should be taken after RRC Diploma Program)
GEOG-3330(3) Research Methods in Geography

OTHER REQUIREMENTS FOR THE 4-YR BSc JOINT UW/RRC PROGRAM IN GEOGRAPHY/GIS (27 credit hours):

GROUP A COURSES: Select twelve (12) credit hours from this group:

GEOG-2207(3) Climatology
GEOG-2210(3) Meteorology
GEOG-2213(3) Introductory Soil Science
GEOG-2214(3) Soil-Vegetation Systems
GEOG-2215(3) Mineralogy and Petrology
GEOG-2216(3) Physical Geology
GEOG-2218(3) Fluvial and Hillslope Processes
GEOG-2219(3) Glacial & Periglacial Processes

GROUP B COURSES: Select three (3) credit hours from this group:

GEOG-2212(3) Natural Hazards
GEOG-3210(3) Hydrology
GEOG-3215(3) Biogeography

GROUP C COURSES: Select three (3) credit hours from this group:

GEOG-4203(3) Topics in Climatology
GEOG-4212(3) Topics in Earth Science
GEOG-4231(3) Topics in Biogeography

GEOG-4232(3) Conservation

GROUP D COURSES: Select three (3) credit hours from this group:

GEOG-3306(3) Advanced GIS (cannot be used for both the required core and Group D courses)

GEOG-3307(3) Advanced Computer Mapping

GEOG-3310(3) Spatial Analysis

GEOG-3319(3) Advanced Remote Sensing (cannot be used for both the required core and Group D courses)

GEOG-4320(3) Projects in Geomatics

GEOG-4321(3) Topics in Geomatics I or

GEOG-4322(3) Topics in Geomatics II

NON-GEOGRAPHY SCIENCE REQUIREMENTS

Minimum of 24 credit hours selected from at least two of the Departments of Biology, Applied Computer Science, Chemistry, Mathematics, Physics, and Statistics (for some restrictions, refer to the General Calendar)

4-YR BSc GEOGRAPHY MAJOR REQUIREMENTS:

All students in the 4-Yr BSc Joint program are reminded that they must meet the requirements of the general 4-Yr BSc in Geography, including an overall minimum of 12 credit hours of upper-level (3000 or 4000) Physical Geography or Geomatics courses with a minimum of 6 credit hours at the 4000 level.

RED RIVER COLLEGE COURSES

TERM 1

	RRC credit hours
CIVG-4021 Remote Sensing	6
CIVG-4022 Statistics for GIS	3
CIVG-4024 Cartography	4
CIVG-4025 GIS Fundamentals	7
CIVG-4026 Programming 1	6
CIVG-4030 Project Management Fundamental	2
CIVG-4032 Surveying	2
CIVG-4034 GIS Applications 1	3

TERM 2

CIVG-4027 GIS Modeling	4
CIVG-4028 Applied Remote Sensing	3
CIVG-4029 Programming 2	6
CIVG-4031 Spatial Database Management	5
CIVG-4033 Thesis Project	12
CIVG-4035 GIS Applications 2	3

REQUIREMENTS FOR A MINOR IN GEOGRAPHY

Degree: Students completing any undergraduate degree program are eligible to complete the Minor.
Minor: 18 credit hours in the Minor subject, with a minimum of 12 credit hours above the 1000-level
Residence Requirement: Minimum 12 credit hours in the Minor subject

Required courses for Human Geography Minor:

GEOG-1102 Introductory Human Geography: People, Culture and Environment (3 credit hours)
GEOG-1103 Introductory Human Geography: Population, Place and Development (3 credit hours)
GEOG-2304 Computer Mapping (3 credit hours)

Elective:

Any six (6) credit hours at the 2000 level in Human Geography, Regional, or Geomatics
Any three (3) credit hours at the 3000 level or higher in Human Geography, Regional or Geomatics

Required courses for Physical Geography Minor:

GEOG-1202 Introductory Atmospheric Science (3 credit hours)
GEOG-1203 Introductory Earth Science (3 credit hours)
GEOG-2304 Computer Mapping (3 credit hours)

Elective

Any six (6) credit hours at the 2000 level in Physical Geography or Geomatics
Any three (3) credit hours at the 3000 level or higher in Physical Geography or Geomatics

GENERAL INFORMATION

Geography Courses Which Satisfy the Science Requirement

The Science requirement for BA, BBA and BKin degrees will be satisfied by 6 credit hours from the following courses:

GEOG-1201(3)	Introductory Atmospheric Science	GEOG-2306(3)	Introduction to Geographic Information System
GEOG-1202(3)	Introductory Earth Science	GEOG-2316(3)	Introduction to Remote Sensing
GEOG-2201(6)	Geomorphology	GEOG-3215(3)	Biogeography
GEOG-2207(3)	Climatology	GEOG-3306(3)	Advanced Geographic Information System
GEOG-2210(3)	Meteorology	GEOG-3307(3)	Advanced Computer Mapping
GEOG-2213(3)	Introductory Soil Science	GEOG-3319(3)	Advanced Remote Sensing
GEOG-2214(3)	Soil-Vegetation Systems	GEOG-4203(3)	Topics in Climatology
GEOG-2215(3)	Mineralogy and Petrology	GEOG-4212(3)	Topics in Earth Sciences
GEOG-2216(3)	Physical Geology	GEOG-4231(3)	Topics in Biogeography
GEOG-2218(3)	Fluvial and Hillslope Processes	GEOG-4320(3)	Projects in Geomatics
GEOG-2219(3)	Glacial and Periglacial Processes	GEOG-4321(3)	Topics in Geomatics I
GEOG-3210(3)	Hydrology	GEOG-4322(3)	Topics in Geomatics II
GEOG-2304(3)	Computer Mapping		

Geography Courses Which Satisfy the Social Science Requirement for 4-year BA, BBA and BKin degrees

The Social Science requirement will be satisfied by 12 credit hours from courses in Systematic Human and/or Regional Geography (i.e. courses for which the second digit of the course number is a 4 or 5).

4000-Level Courses: Minimum 3.0 GPA (B) in major courses (students lacking the requisite 3.0 GPA should consult the department concerned regarding eligibility to take 4000-level courses). Permission of the department is required for each 4000-level course.

COURSE LISTINGS

Geography courses are categorized into five major groups: General, Physical, Geomatics, Human, and Regional. Courses are distinguished by the use of the second digit in the course number as follows:

General	Second digit is 1 (e.g. 1102(3) Introductory Human Geography: People, Culture and Environment)
Physical	Second digit is 2 (e.g. 1201(3) Introductory Atmospheric Science)
Geomatics	Second digit is 3 (e.g. 2309(3) Statistical Techniques in Environmental Analysis)
Human	Second digit is 4 (e.g. 2407(3) Recreation Geography)
Regional	Second digit is 5 (e.g. 2503(3) Manitoba's Physical and Human Environments)

Beyond the minimum requirements for each degree, students may choose courses which provide a coherent specialization within the discipline. Guidelines to assist in this selection are included in the Departmental brochure, which is published annually and available from the Department secretary in 5L02.

INTRODUCTORY AND GENERAL COURSES

GEOG-1102(3)	Introductory Human Geography: People, Culture and Environment
GEOG-1103(3)	Introductory Human Geography: Population, Place and Development
GEOG-1201(3)	Introductory Atmospheric Science
GEOG-1202(3)	Introductory Earth Science

PHYSICAL GEOGRAPHY COURSES

GEOG-2204(3)	Human Impact on the Environment
GEOG-2207(3)	Climatology
GEOG-2210(3)	Meteorology
GEOG-2212(3)	Natural Hazards
GEOG-2213(3)	Introductory Soil Science
GEOG-2214(3)	Soil-Vegetation Systems
GEOG-2215(3)	Mineralogy and Petrology
GEOG-2216(3)	Physical Geology
GEOG-2218(3)	Fluvial and Hillslope Processes
GEOG-2219(3)	Glacial and Periglacial Processes
GEOG-3204(3)	Climate Change and Variability
GEOG-3210(3)	Hydrology
GEOG-3211(3)	Karst and Coastal Geomorphology
GEOG-3213(3)	Sedimentology
GEOG-3215(3)	Biogeography
GEOG-3216(3)	Arctic Environments
GEOG-3217(3)	Tropical Environments
GEOG-3219(3)	Quaternary Environments
GEOG-4203(3)	Topics in Climatology
GEOG-4212(3)	Topics in Earth Sciences

GEOG-4231(3)	Topics in Biogeography
GEOG-4702(3)	Directed Readings in Physical Geography
GEOG-4801(3)	Physical Geography Field Seminar
GEOG-4901(6)	Honours Geography Thesis

GEOMATICS COURSES

GEOG-2304(3)	Computer Mapping
GEOG-2306(3)	Introduction to Geographic Information Systems
GEOG-2309(3)	Statistical Techniques in Environmental Analysis
GEOG-2316(3)	Remote Sensing
GEOG-3306(3)	Advanced Geographic Information Systems
GEOG-3307(3)	Advanced Computer Mapping
GEOG-3319(3)	Advanced Remote Sensing
GEOG-3330(3)	Research Methods in Geography
GEOG-4320(3)	Projects in Geomatics
GEOG-4321(3)	Topics in Geomatics I
GEOG-4322(3)	Topics in Geomatics II
GEOG-4703(3)	Directed Readings in Geomatics

SYSTEMATIC HUMAN GEOGRAPHY COURSES

GEOG-2401(3)	Agricultural Geography
GEOG-2407(3)	Recreation Geography
GEOG-2408(3)	Environmental Perception and Human Behaviour
GEOG-2409(6)	Energy, Resources and Economic Development

GEOG-2410(3)	Selling Places: Geography of Marketing Tourism	GEOG-3415(3)	Contested Space: A Geography of Place
GEOG-2411(3)	Geography of Globalization	GEOG-3430(3)	Housing and the Neighbourhood
GEOG-2412(3)	A Geographical Perspective on Tourism	GEOG-3432(3)	Urban and Community Planning
GEOG-2414(3)	The Urban Environment	GEOG-3443(3)	Advanced Tourism
GEOG-2415(3)	An Introduction to Urban Development	GEOG-4445(3)	Power, Knowledge, Geography
GEOG-2416(3)	Sex, Gender, Space and Place	GEOG-4403(3)	Urban Land Use: Developmental Processes
GEOG-2417(3)	An Introduction to Economic Geography	GEOG-4404(3)	Field Research in Urban Geography
GEOG-2431(3)	Population Geography	GEOG-4409(3)	Architecture and City Planning
GEOG-3402(3)	Urbanization in the Developing World	GEOG-4441(3)	Advanced Studies in Environmental Perception
GEOG-3408(3)	Water Resources	GEOG-4443(3)	Advanced Tourism
GEOG-3411(3)	Heritage Conservation and Tourism	GEOG-4445(3)	Power, Knowledge, Geography
GEOG-3413(3)	Urban Revitalization: Rebuilding of Decaying Cities	GEOG-4450(3)	Environment and Sustainability I
GEOG-3431(3)	Health Geography	GEOG-4701(3)	Directed Readings in Human Geography
	GEOG-3432(3) Urban and Community Planning	GEOG-4901(6)	Honours Geography Thesis

EXPERIMENTAL COURSES

GEOG-2419(3)	Resource Development and the Canadian Environment
GEOG-3218(3)	Global Biogeochemical Cycles
GEOG-4215(3)	Projects in Earth Science
GEOG-4219(3)	Physical Geography Seminar

REGIONAL GEOGRAPHY COURSES

Students are reminded that Geography 1102(3) and 1103(3), 1201(3), and 1202(3) provide appropriate background for all regional courses. Students lacking first year geography and wishing to take a regional course should consult the Instructor concerned.

GEOG-2503(3)	Manitoba's Physical and Human Environments
GEOG-3508(3)	Geographical Issues in the Developing World
GEOG-3509(3)	Canada's Physical and Human Environments (Required for all Geography degrees, except the GIS Joint programs)
GEOG-3510(3)	Prairie Landscapes
GEOG-3511(3)	Topical Regions in Geography
GEOG-3512(3)	The Human Geography of Northern Canada

COURSE DESCRIPTIONS

All course descriptions for all undergraduate programs can now be found in the back portion of the print Undergraduate Academic Calendar. They are also available in one large PDF in the "Academic Calendar" section of the University website:

<http://uwinnipeg.ca/academics/calendar/index.html>