GEOLOGY, B.SC. HONOURS

Degree Requirements

Course	Title	Hours
Year 1		
GEOL 1340	The Dynamic Earth (B)	3
GEOL 1400	Time-Trekker's Travelog: Our Evolving Earth	3
MATH 1500	Introduction to Calculus (C) [1]	3
PHYS 1020	General Physics 1 [2]	3
CHEM 1100	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics (C) [3]	3
CHEM 1120	Introduction to Chemistry Techniques [3]	3
6 credit hours from the Faculty of Arts		6
6 credit hours of elective credit		6
	Hours	**30**
Year 2		
GEOL 2440	Structural Geology 1	3
GEOL 2500	Introduction to Mineralogy	3
GEOL 2520	Igneous and Metamorphic Petrology	3
GEOL 2530	Introductory Sedimentary Petrology and Stratigraphy	3
GEOL 2800	Optics and Spectroscopy of Minerals	3
GEOL 2770	Principles of Inorganic Geochemistry	3
GEOL 3910	Introduction to Field Mapping [4]	3
9 credit hours of elective credit		9
	Hours	**30**
Year 3		
GEOL 2060	Introductory Geophysics	3
GEOL 3110	Petrogenesis of Igneous Rocks	3
GEOL 3130	Communication Methods in the Geological Sciences	3
GEOL 3310	Paleontology	3
GEOL 3440	Structure and Metamorphism	3
GEOL 3450	Hydrogeology	3
GEOL 3490	Glacial Geology	3
GEOL 3900	Sedimentology	3
GEOL 4910	Advanced Field Mapping [4]	3
3 credit hours of Earth Sciences Geology Electives – Group A		3
	Hours	**30**
Year 4		
GEOL 4300	Mineral Deposits	3
GEOL 4520	Petroleum Geology	3
GEOL 4670	Global Tectonics	3
GEOL 4870	Honours Thesis	6
6 credit hours of Earth Sciences Geology Electives –Group A		6
9 credit hours of elective credit		9
	Hours	**30**
	Total Hours	**120**

1 MATH 1230 or MATH 1510 or the former MATH 1520 may be used in lieu of MATH 1500.

2 PHYS 1050 may be used in lieu of PHYS 1020.

3 The former CHEM 1300 may be used in lieu of CHEM 1100 and CHEM 1120. CHEM1122 and CHEM 1126 may be used in lieu of CHEM 1120.

4 Students will register for GEOL 3910 and GEOL 4910 in Summer term. NOTE: Students should be aware that they are expected to contribute to transportation and accommodation costs. See the department office at the beginning of each year for information.

The courses required in this program will satisfy the University Mathematics requirement (https://catalog.umanitoba.ca/undergraduate-studies/general-academic-regulations/#Residence-Written-English)and the University Written English requirement (https://catalog.umanitoba.ca/undergraduate-studies/general-academic-regulations/#Residence-Written-English).

Important: The Honours and Major programs need not be completed in the manner prescribed in the chart above. The chart indicates one possible arrangement of the required courses and is meant to be a guide around which students can plan their program. (Letters in brackets indicate the minimum prerequisite standing in a specific course required for entry to the program.

GEOL 1400 is highly recommended to be taken in Year 1, but will not be considered when assessing entrance requirements to the program. If this requirement is not fulfilled in Year 1, it must be completed by the end of Year 2.

Notes:

- To fulfil prerequisite requirements, a grade of 'C' must be achieved in any course stipulated as prerequisite to a further course in Geological Sciences, unless a higher prerequisite is stipulated in a course description.
- All courses are not offered every year. The course schedule for the current academic term is available from the Class Schedule in Aurora.
- Students registering in certain courses may be required to pay a portion of the costs associated with field trips. For details, contact the Department general office.
- Equivalent courses offered through Université de Saint Boniface may be used in lieu of the specified courses identified in the degree program chart.

Geological Sciences Geology Electives

- Honours students are required to complete a minimum of 9 credit hours from Group A;
- Major students must complete 18 credit hours consisting of 3 credit hours from Group B with the remaining 15 credit hours from Group A or B.

Group A

Course	Title	Hours
GEOL 2390	Environmental Geology	3
GEOL 2570	Energy and Mineral Resources	3
GEOL 3140	Gemology	3
GEOL 3420	Engineering Geology	3
GEOL 3740	Exploration Seismology	3
GEOL 3750	Geology and Geophysics of the Planets	3
GEOL 3810	Applied Geophysics	3
GEOL 4260	Applied Geophysics Field Course	3
GEOL 4270	Advanced Studies in Earth Sciences	3
GEOL 4280	Instrumental Techniques in Geology	3

GEOL 4310	Paleontologic Principles	3
GEOL 4360	Mineral Exploration Techniques	3
GEOL 4370	Global Change	3
GEOL 4380	Mineral Resource Development	3
GEOL 4740	Geophysics Field Course	6
GEOL 4890	Basin Analysis	3
GEOL 4920	Technical Report	3
ENVR 2180	Introductory Toxicology	3
ENVR 2550	Environmental Chemistry	3
GEOG 2310	Introduction to Process Hydrology (PS)	3
GEOG 2550	Geomorphology (PS)	3
GEOG 2930	Introduction to Oceanography	3
GEOG 3200	Introduction to Remote Sensing (TS)	3
GEOG 3730	Geographic Information Systems (TS)	3

Group B

Course	Title	Hours
GEOL 3450	Hydrogeology	3
GEOL 4300	Mineral Deposits	3
GEOL 4520	Petroleum Geology	3

Note: With departmental approval, up to 6 credit hours of 2000-level or higher courses from Science departments may be substituted to satisfy professional registration (EGM) requirements.