ENVIRONMENTAL GEOSCIENCE, B.SC. MAJOR

Degree Regulations for B.Sc. (Major) in Geology, Geophysics or Environmental Geoscience

To qualify for the degree, a student must complete a minimum of 120 credit hours with passing grades ('D' or better) in each course and with a minimum degree grade point average of 2.50 as indicated in the Graduation Requirements Table. Students must complete all Faculty requirements as well as the University Written English and Mathematics requirement (https://catalog.umanitoba.ca/undergraduate-studies/general-academic-regulations/)in the General Academic Regulations (https://catalog.umanitoba.ca/undergraduate-studies/general-academic-regulations/), in this Calendar.

Students admitted to the Major program will normally have completed six credit hours of courses from the Faculty of Arts. Students who do not meet this requirement within their first 30 credit hours must do so within the Major program.

Minor in Another Department

Students in the B.Sc. have the opportunity to complete a Minor in a subject field that is different than that of the declared major, and which normally consists of 18 credit hours from a department offering this option at the University of Manitoba. Students in the B.Sc. are not permitted to complete a Minor in Earth Sciences. The Minor requirements are found in the Faculty Regulations (https://catalog.umanitoba.ca/undergraduate-studies/environment-earth-resources/#facultyacademicregulationstext). Contact the department and/or a Riddell Faculty student advisor (https://umanitoba.ca/environment-earth-resources/student-experience/#support-for-students) in the Faculty Dean's Office for further information about eligible Minors.

Entrance to the Major

To enter a Major program in Geology, Geophysics or Environmental Geoscience, a student must have completed at least 24 credit hours with a minimum Degree Grade Point Average of 2.50 as stipulated in Entrance and Continuation Requirements Table. In addition, the student must attain the minimum grade requirements specified for individual Year 1 courses according to the program tables for the Major in Geology (https://catalog.umanitoba.ca/undergraduate-studies/environment-earth-resources/earth-sciences/geology-bsc-major/), the Major in Geophysics (https://catalog.umanitoba.ca/undergraduate-studies/environment-earth-resources/earth-sciences/geophysics-bsc-major/) or the Major in Environmental Geoscience (p. 1).

Continuation in the Major

A student's academic performance is assessed first with his/her application for admission to the Riddell Faculty and then following each term in which the student is registered. To be in **good standing** and permitted to continue in the degree program, a student must maintain a minimum degree Grade Point Average of 2.50 as stipulated in the Entrance and Continuation Requirements Table. Students who do not meet the minimum performance requirement will be required to withdraw from the Major program and will be placed in the General program provided their Degree Grade Point Average is 2.00 or above. Students will have the notation 'Required to Withdraw from the Major Program', recorded on their transcript.

If below 2.00, students will be placed on academic warning, probation or academic suspension as outlined in the Faculty Regulations (https://catalog.umanitoba.ca/undergraduate-studies/environment-earth-resources/#facultyacademicregulationstext).

Failed courses: Students cannot exceed 18 credit hours of failed courses (F's) as calculated on courses applicable to the degree program (DGPA).

Repeating GEOL 4920: The course may be repeated only once after a grade of F.

Program Approval

A Riddell Faculty student advisor (https://umanitoba.ca/environment-earth-resources/student-experience/#support-for-students) in the Faculty Dean's Office must approve a student's Major program each term. Students must also obtain departmental approval for all revisions to their programs. The Advanced/Major/Honours Program Approval forms are available on the Riddell Faculty web page (https://umanitoba.ca/environment-earth-resources/student-experience/#:~:text=Academic%20Calendar-,Student%20Forms,-Advanced/Major/Honours).

Graduation in the Major

In order to graduate from the Geology, Geophysics or Environmental Geoscience Major program, students must complete all degree program and faculty requirements as stipulated in the Faculty Regulations and in the additional regulations for Earth Sciences (https://catalog.umanitoba.ca/undergraduate-studies/environment-earth-resources/geological-sciences/#Degree%20Regulations)Students must also achieve the minimum performance requirements as outlined in the Graduation Requirements Table. This is defined as a minimum Degree Grade Point Average of 2.50 on 120 credit hours which constitute the degree.

Residence Requirement for Major Students

A student must successfully complete a minimum of 60 credit hours at the University of Manitoba. The courses used to satisfy the requirement must be acceptable for credit in the Clayton H. Riddell Faculty of Environment, Earth, and Resources. Residence requirements apply both to first and second-degree students.

Recognition of Academic Merit

DEGREE WITH DISTINCTION

To obtain a degree with distinction a student must achieve a minimum 3.50 Degree Grade Point Average on all courses constituting the Major degree. The term 'Degree with Distinction' will appear both on the parchment and on the student's transcript.

Earth Sciences Advanced Entry Entrance and Continuation Requirements

Degree Program	Minimum Degree GPA Entrance	Minimum Degree GPA Continuation
Major (Geology, Environmental Geoscience)	2.50[1]	2.50[1]
Major (Geophysics)	2.50[1]	2.50[1]
Honours (Geology, Environmental Geoscience)	3.00[1]	3.00[1]

Honours (Geophysics)	2.80[1]	2.80[1]
General (Earth Sciences)	2.00[1]	2.00[1]

Earth Sciences Graduation Requirements

Degree Program	Minimum Degree Grade Point Average
Major (Geology, Environmental Geoscience) (120)	2.50
Major (Geophysics) (120)	2.50
Honours (Geology, Environmental Geoscience) (120)	3.00
Honours (Geophysics) (120)	2.80
General (Earth Sciences) (90)	2.00

Degree Requirements[1]

Course	Title	Hours
Year 1		
GEOL 1340	The Dynamic Earth (C+)	3
GEOL 1400	Time-Trekker's Travelog: Our Evolving Earth	3
ENVR 1000	Environmental Science 1 - Concepts (C+)	3
MATH 1500	Introduction to Calculus (C) [2]	3
CHEM 1100	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics (C)	3
CHEM 1120	Introduction to Chemistry Techniques [3]	3
PHYS 1020	General Physics 1 [4]	3
STAT 1000	Basic Statistical Analysis 1 [5]	3
6 credit hours from the Faculty of Arts, including a required "W" course		6
	Hours	**30**
Year 2		
GEOL 2390	Environmental Geology	3
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 2770	Principles of Inorganic Geochemistry	3
GEOL 2800	Optics and Spectroscopy of Minerals	3
GEOL 2060	Introductory Geophysics	3
6 credit hours of electives		6
	Hours	**30**
Year 3		
GEOL 3130	Communication Methods in the Geological Sciences	3
GEOL 3420	Engineering Geology	3
GEOL 3450	Hydrogeology	3
GEOL 3490	Glacial Geology	3
GEOL 3910	Introduction to Field Mapping [6]	3
SOIL 3600	Soils and Landscapes in Our Environment	3
GEOG 3730	Geographic Information Systems (TS)	3
9 credit hours of electives		9
	Hours	**30**
Year 4		
GEOL 3810	Applied Geophysics	3
GEOL 4260	Applied Geophysics Field Course [6]	3
15 credit hours of Earth Science Environmental Geoscience Electives		15
9 credit hours of electives		9
	Hours	**30**
	Total Hours	**120**

1. The courses required in this program will satisfy the University Mathematics requirement.
2. MATH 1230, MATH 1510 or the former MATH 1520 may be used in lieu of MATH 1500.
3. CHEM 1122 and CHEM 1126 may be used in lieu of CHEM 1120.
4. PHYS 1050 may be used in lieu of PHYS 1020.
5. STAT 1150 may be used in lieu of STAT 1000.
6. Students will register for GEOL 3910 and GEOL 4260 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.

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 Earth 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.

Earth Sciences Environmental Geoscience Electives

Course List

Course	Title	Hours
GEOL 3900	Sedimentology	3
GEOL 4270	Advanced Studies in Earth Sciences	3
GEOL 4280	Instrumental Techniques in Geology	3
GEOL 4370	Global Change	3
GEOL 4810	Geophysical Data Analysis	3
ENVR 2180	Introductory Toxicology	3

ENVR 2550	Environmental Chemistry	3
ENVR 3160	Environmental Responsibilities and the Law	3
ENVR 3250	Environmental Assessment	3
ENVR 4180	Ecotoxicological Risk Characterization	3
ENVR 4550	Aquatic Chemistry	3
GEOG 2310	Introduction to Process Hydrology (PS)	3
GEOG 2930	Introduction to Oceanography	3
GEOG 3200	Introduction to Remote Sensing (TS)	3