



PGO Knowledge Requirements

The core entry requirement for admission to professional practice is a 4-year bachelor of science degree in an area of geoscience awarded by a Canadian university which meets the entry level knowledge requirements set by the PGO Registration Committee and as approved by the Council. An equivalent credential may be recognized by the PGO Registration Committee. All credentials are assessed against the specified knowledge requirements to determine if the PGO minimum criteria for admission to professional practice have been met. The following pages set out the entry level knowledge requirements for admission to the profession.

This level of geoscience education is considered to meet the minimum knowledge requirements recommended by Geoscientists Canada for admission to practice professional geoscience and for interprovincial mobility. No specific university program is designated as a standard because the contents of present or past geoscience university programs in Ontario and Canada are not similar. Applicants for professional registration may hold degrees in areas other than geoscience, may have been educated outside of Canada, or may have gained specific knowledge outside of the degree format.

The basic unit utilized in a knowledge requirement assessment is an education unit or EU. Each EU may only be utilized once in an assessment.

One EU is defined as formal instruction equivalent to a one-semester (13-week or 0.5 credit course) in a typical Bachelor of Science or Baccalaureate Degree (B.Sc.) in geoscience at a Canadian university. For example, one EU could consist of three hours of lectures or equivalent per week, with or without a lab component, for 13 weeks. An EU can be considered to be the equivalent of one three-credit-hour course in a 120-credit hour, four-year degree program.

The following is a summary of knowledge requirements that are detailed in the next 4 pages:

- 1A - Compulsory Foundation Science (3 EUs)
- 1B - Additional Foundation Science (6 EUs)
- 2A - Compulsory Foundation Geoscience (4 EUs)
- 2B - Additional Foundation Geoscience (5 EUs)
- 2C - Other Geoscience/Science (9 EUs)

Note: EUs for sections 1A and 1B must be a first year or higher university level course acceptable for credit towards a degree in science, applied science or engineering. Remedial secondary school level courses, such as algebra, chemistry, geometry, physics or trigonometry will not be accepted.

Note: EUs for sections 2A, 2B, and 2C must be a second year or higher university level course acceptable for credit towards a degree in science, applied science or engineering. All courses must be credited and a mark received. Audited courses will not be accepted.

Note: For section 2C the representative streams are not exclusive as professional geoscientists in Ontario are not registered into or by specialties. Content may be found in any of the streams. Please note that certain streams do have specific requirements that must be met. These requirements are noted in the tables on the following pages.

PGO Knowledge Requirements

Name: _____ University(s): _____
 Degree(s): _____

Recommended Requirements	Geology	Course #	Environmental Geoscience	Course #	Geophysics	Course #
1A Compulsory Foundation Science * (Total 3 EUs - 1 in each area required)	Chemistry		Chemistry		Chemistry	
	Math (Calculus)		Math (Calculus)		Math (Calculus)	
	Physics		Physics		Physics	
	Total EUs 1A:		Total EUs 1A:		Total EUs 1A:	
1B Additional Foundation Science* (Total 6 EUs - No more than 2 EUs in any of the six subject areas)	Biology		Biology*		Biology	
	Computer Programming		Computer Programming		Computer Programming	
	Chemistry		Chemistry		Chemistry	
	Mathematics		Mathematics		Mathematics	
	Physics		Physics		Physics	
	Statistics		Statistics		Statistics	
	Total EUs 1B:		Total EUs 1B:		Total EUs 1B:	
2A Compulsory Foundation Geoscience (Total 4 EUs - 1 in each area required)	Field Techniques		Field Techniques		Field Techniques	
	Mineralogy and Petrology		Mineralogy and Petrology		Mineralogy and Petrology	
	Sedimentation and Stratigraphy		Sedimentation and Stratigraphy		Sedimentation and Stratigraphy	
	Structural Geology		Structural Geology		Structural Geology	
	Total EUs 2A:		Total EUs 2A:		Total EUs 2A:	
2B Additional Foundation Geoscience (Total 5 EUs - Geology and Environmental Science require a minimum of 1 and at most 2 from each sub-group, but no more than one in each subject; Geophysics requires 1 EU from 5 of the sub-groups). Sub-groups are separated by thick black line.	Geochemistry		Geochemistry		Digital Signal Processing	
	Geophysics		Geophysics		Global Geophysics / Physics of the Earth	
	Igneous Petrology		Hydrogeology or Hydrology		Seismology / Seismic Methods	
	Metamorphic Petrology		Engineering Geology		Exploration Geophysics	
	Sedimentary Petrology				Radiometrics / Gravity & Magnetism	
	Sedimentology		Geomorphology or Soil Science		Electrical & Electromagnetic Methods	
	Glacial Geology or Geomorphology		Glacial Geology			
	Remote Sensing/GIS		Remote Sensing/GIS			
	Total EUs 2B:		Total EUs 2B:		Total EUs 2B:	

***NOTE:** Courses for sections 1A and 1B must be from 1st year or higher university level courses acceptable for credit towards a degree in science, applied science or engineering. Introductory geoscience is not included in the EU count as it is anticipated that this course would have been required for admission to year 2 core geoscience courses. For sections 2A, 2B or 2C they must be 2nd year or higher.

Summary:

- 1A · Compulsory Foundation Science
- 1B Additional Foundation Science
- 2A Compulsory Foundation Geoscience
- 2B Additional Foundation Geoscience
- 2C Other Geoscience/Science

	EUs of 3 EUs
	EUs of 6 EUs
	EUs of 4 EUs
	EUs of 5 EUs
	EUs of 9 EUs

Note:

Recommended Requirements	Geology	Course #	Environmental Geoscience	Course #	Geophysics	Course #
<p>2C Other Geoscience</p> <p>(Minimum Total 9 EUs)(9 EUs must be from the EUs list or must be at a second level or higher acceptable for science credit toward a degree in science, applied science or engineering and relevant to geoscience) (Extra courses not used in 2A and 2B can be used in 2C. Advanced courses in these topics can also be used. No one single EU course can be used to cover more than one requirement.)</p> <p>The three broad streams of specialization in geoscience (geology, environmental geoscience and geophysics) embrace distinct knowledge sets that are important to geoscientists in each stream, and collectively comprise the particular knowledge base necessary for proper and appropriate practice.</p>	Within each subject area are listed possible courses that could be used to satisfy the geoscience knowledge requirements.		Within each subject area are listed possible courses that could be used to satisfy the geoscience knowledge requirements.		Within each subject area are listed possible courses that could be used to satisfy the geoscience knowledge requirements. Note: EUs must be chosen from at least 4 of the boldfaced subject areas below.	
	Communication		Communication		Applied Math/Physics	
	Thesis		Thesis		Calculus	
	Technical Writing		Technical Writing		Computer - Controlled Instrumentation	
	Earth Systems		Earth Systems		Condensed Matter Physics	
	Climatology		Climatology		Continuum Mechanics	
	Meteorology		Meteorology		Digital Signal Processing	
	Oceanography		Oceanography		Electromagnetic Theory	
	Earth Systems		Paleoenvironmental Studies		Electronics for Scientists	
	Environmental		Paleoclimatology		Fluid Dynamics	
	Hydrogeology		Paleoecology		Fluid Flow Porous Media	
	Hydrology		Paleobiology		Geostatistics	
	Environmental Geology				Integral Transforms	
	Limnogeology		Environmental Assessment		Linear Algebra	
	Biogeochemistry				Mathematical Physics	
	Field Techniques		Field Techniques		Numerical Methods/ Computing	
					Optics	
	Geochemistry		Geochemistry		Partial Differential Equations	
	Exploration Geochemistry		Environmental Geochemistry		Signal Analysis	
	Environmental Geochemistry		Isotope Geochemistry		Vector and Tensor Analysis	
	Isotope Geochemistry		Aqueous Geochemistry			
	Aqueous Geochemistry		Biogeochemistry			
			Atmospheric Geochemistry			
	Geomorphology		Geomorphology/Surficial			
	Quaternary Geology		Geomorphology		Communication	
	Pedology		Natural Hazards		Thesis	
	Geomorphology		Quaternary Geology		Technical Writing	
			Pedology			
	Geophysics		Geophysics		Earth & Planetary Geoscience	
	Physics of the Earth		Environmental Geophysics		Geomagnetism/ Paleomagnetism	
	Exploration Geophysics		Exploration Geophysics		Global Tectonics	
	Applied Geophysics		Applied Geophysics		Global Geophysics	
	Environmental Geophysics					
	Geotechnical		Geotechnical		Field Techniques	
	Natural Hazards		Engineering Geology			
	Engineering Geology		Soil Mechanics			
	Soil Mechanics		Rock Mechanics			
	Rock Mechanics					
	Mineralogy		Mineralogy		Fundamental Math/Physics	
	Crystallography		Crystallography		Complex Analysis	
	X-ray Crystallography		X-ray Crystallography		Differential Equations	
	Optical Mineralogy		Optical Mineralogy		Electricity & Magnetism	
	Analytical Methods		Analytical Methods			
Page Total EUs 2C:		Page Total EUs 2C:		Page Total EUs 2C:		

Recommended Requirements	Course #	Environmental Geoscience	Course #	Geophysics	Course #
2C Other Geoscience/ Science Continued					
	Stratigraphy	Stratigraphy		Resource Geoscience	
	Historical Geology	Historical Geology		Fluid Flow in Porous Media	
	Sequence Stratigraphy	Sequence Stratigraphy		Hydrogeology/ Hydrology	
	Stratigraphic Paleontology	Stratigraphic Paleontology		Mineral Deposits Geology	
	Geochronology	Geochronology		Petroleum Geology	
		Structure		Reservoir Engineering	
		Global Tectonics		Well Log Analysis	
	Structure	Tectonics			
	Global Tectonics	Structural Geology			
	Tectonics				
	Structural Geology				
	Page Total EUs 2C:		Page Total EUs 2C:		Page Total EUs 2C:

NOTE: These representative streams are **not exclusive** as professional geoscientists in Ontario are not registered into or by specialties. Content may be found in any of the streams. Please note that certain streams do have specific requirements that must be met which are noted in the tables above.

Other EUs: (Courses not noted above, but which may be acceptable toward fulfilment of the knowledge requirements (at the Registration Committee's discretion):

NOTES:
