

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 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: Degree(s): University(s):

	Recommended Requirements	Geology	Course #	Environmental Geoscience	Course #	Geophysics	Course #
1A	Compulsory	Chemistry		Chemistry		Chemistry	
	Foundation Science * (Total 3 EUs - 1 in each area required)	Math (Calculus)		Math (Calculus)		Math (Calculus)	
		Physics		Physics		Physics	
		Total EUs 1A:		Total EUs 1A:		Total EUs 1A:	
1B	Additional Foundation	Biology		Biology*		Biology	
	Science* (Total 6 EUs - No more than 2 EUs in any of the six subject areas)	Computer		Computer		Computer	
		Programming		Programming		Programming	
		Chemistry		Chemistry		Chemistry	
		Mathematics		Mathematics		Mathematics	
		Physics		Physics		Physics	
		Statistics		Statistics		Statistics	
		Total EUs 1B:		Total EUs 1B:		Total EUs 1B:	
	Compulsory						
24	Foundation Geoscience	Field Techniques		Field Techniques		Field Techniques	
27	(Total 4 EUs - 1 in each area	Minaralagy and		Minerology and		Minaralagy and	
	required)	Petrology		Petrology and		Petrology	
		Codimonstation and		Codimentation and		Codimentation and	
		Sedimentation and Stratigraphy		Sedimentation and Stratigraphy		Sedimentation and Stratigraphy	
		Structural Geology		Structural Geology		Structural Geology	
		Total EUs 2A:		Total EUs 2A:		Total EUs 2A:	
	Additional Foundation					Digital Signal	
2B		Geochemistry		Geochemistry		Processing	
	(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.	Geophysics		Geophysics		Global Geophysics / Physics of the Earth	
		Igneous Petrology		Hydrogeology or Hydrology		Seismology / Seismic Methods	
		Metamorphic				Exploration	
		Petrology		Engineering Geology		Geophysics	
		Sedimentary Petrology				Radiometrics / Gravity & Magnetics	
		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 Note:

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

PGO Knowledge Requirements - Electives

Recommended Requirements	Geology	Course #	Environmental Geoscience	Course #	Geophysics	Course #
2C Other Geoscience (Minimum Total 9 EUs)(9 EUs must be from the EUs list or must be at a	Within each subject area are listed possible courses that could be used to satisfy the geoscience knowledge requirements.		Within each subject area are courses that could be used t geoscience knowledge requ	e listed possible o satisfy the irements.	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.	
second level or higher acceptable for			Communication		Applied Math/Physics	
science credit toward a degree in	Thesis		Thesis		Calculus	
and <u>relevant to geoscience</u>) (Extra	Technical Writing		Technical Writing		Computer -	
courses not used in 2A and 2B can be	Forth Systems		Earth Systems			
topics can also be used. No one single	Climatology		Climatology		Condensed Matter	
EU course can be used to cover more	Meteorology		Meteorology		Physics	
than one requirement.)	Oceanography		Oceanography		Continuum	
	Earth Systems		Paleoenvironmental		Mechanics	
The three broad streams of specialization			Studies		Digital Signal	
in geoscience (geology, environmental geoscience and geophysics) embrace	Environmental		Paleoclimatology		Processing	
distinct knowledge sets that are important	Hydrogeology		Paleoecology		Electromagnetic	
to geoscientists in each stream, and collectively comprise the particular	Hydrology		Paleobiology		Theory	
knowledge base necessary for proper and	Environmental				Electronics for	
appropriate practice.	Geology		Environmentel		Scientists	
	Linnogeology		Environmentai Assesment		Fluid Dynamics	
	biogeochemistry		Assesment		Fluid Flow Porous	
	Field Techniques		Field Techniques		Media	
	riola roomiquoo		riola roomiquoo		Geostatistics	
	Geochemistry		Geochemistry		Integral Transforms	
	Exploration		Environmental		Linear Algebra	
	Geochemistry		Geochemistry		Mathematical	
	Environmental		Isotone		Physics Numerical Methods/	
	Geochemistry		Geochemistry			
	Isotope Goochomistry		Aqueous		Computing	
			Geochemistry		Optics	
	Geochemistry		Biogeochemistry		Partial Differential	
			Atmospheric		Equations	
	Geomorophology		Geochemistry		Signal Analysis	
	Quaternary Geology		Low temperature		Vector and Tensor	
	Pedology		Geochemistry		Analysis	
	Geomorphology					
	.		Geomorphology/S	urficial	0	
	Geophysics		Geomorphology			
	Physics of the Earth		Natural Hazards		Thesis	
	Exploration Geophysics		Qualemary Geology		reconical writing	
	Applied Geophysics		Glaciology		Earth & Planetary	Geoscience
	Environmental				Geomagnetism/	
	Geophysics		Geophysics		Paleomagnetism	
			Environmental		Global Tectonics	
	Geotechnical		Geophysics		Global Geophysics	
	Natural Hazards		Exploration Geophysics			
	Engineering Geology		,		Field	
	Soil Mechanics		Applied Geophysics		Techniques	
	Rock Mechanics		Contachairel			h/Dhucies
	Mineralogy					INPRYSICS
	Crystallography		Soil Mechanics		Differential Equations	
	X-ray Crystallography		Rock Mechanics		Flectricity &	
	Optical Mineralogy		Resource Geotechnics		Magnetism	
	Analytical Methods					
	,					
	Page Total EUs 2C:		Page Total EUs 2C:		Page Total EUs 2C:	

PGO Knowledge Requirements - Electives Continued

Recommended Requirements		Course #	Environmental Geoscience	Course #	Geophysics	Course #
2C Other Geoscience/						
Science Continued	Paleontology		Hydrology / Hydroged	ology	Fundamental Math	/Physics Cont'd.
	Micropaleontology		Contaminant Transport		Mechanics	
	Palynology		Hydrogeology		Thermodynamics	
	Paleobiology		Hydrology		Vibrations, Waves &	
			Fluid Mechanics		Optics	
	Petrology					
	Igneous Petrology				Geology	
	Volcanology		Mineralogy / Petrolog	у	Geochemistry	
	Metamorphic		Crystallography		Igneous Petrology	
	Petrology		X-Ray Crystallography		Metamorphic	
	Sedimentary		Analytical Methods			
	Fellology				Sedimentary	
	Quantitativo Analy	veic	Palaantalagy		Strugutral Coology	
	Geostatistics	y515	Micropaleontology		Strucultal Geology	
	Computer		Paleobiology		Tectoriles	
	Applications in		Palynology		Geophysical Metho	ds &
	Geoscience		r alynology		Interpretation	
	Geographic		Quantitative Analysis		Analytical Methods	
	Information		Geostatistics		Marine Geophysics	
	Systems				Electrical and	
			Computer Applications		Electromagnetic	
	Regional Geology	/	In Geoscience		Methods	
	Geology of Canada		Geographic Information		Gravity & Magnetics	
	Geology of North		Systems		Seismology	
	America				Radiometrics	
			Regional Geology		Rock Properties/ Rock	
	Remote Sensing		Geology of Canada		Physics	
	Airphoto		Geology of North		Seismic Interpretation	
	Interpretation		America			
	Remote Sensing					
			Remote Sensing		Modern Physics	
	Resource Geolog	у	Remote Sensing		Neer Curfees Coost	1
	Economic Geology		Airphoto Interpretation		Near Surface Geos	cience
	Mineral Deposits		Deseures Caslamy		Environmental	
	Geology Ora Batralagy		Resource Geology		Geophysics	
			Minoral Deposite		Georgraphia	
	Coal Geology		Geology		Information Systems	
	Industrial Minorals		Ore Petrology		Glacial/Quaternary	
					Geology	
			Petroleum Geology		Remote Sensing	
	Sedimentology		Industrial Minerals		i toinioto o onioing	
	Chemical				Regional Geology	
	Sedimentology		Sedimentology		Geology of Canada	
	Clastic		Chemical		Geology of North	
	Sedimentology		Sedimentology		America	
	Carbonate		Clastic Sedimentology			
	Sedimentology		Carbonate			
	Glacial Geology		Sedimentology			
			Glacial Geology			
			Limnogeology			
	Page Total EUs 2C:		Page Total EUs 2C:		Page Total EUs 2C:	

PGO Knowledge Requirements - Electives Continued (2)

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

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

NOTES: