

**Geoscience knowledge requirements
for Professional Registration:
A primer for students
as to the use of the GKE document**

Kevin Ansdell, *University of Saskatchewan*
kevin.ansdell@usask.ca

Cliff Stanley, *Acadia University*
cliff.stanley@acadiau.ca

Thanks to Canadian Geoscience Standards Board for input

Geoscientists Canada

Outline

What is Geoscientists Canada, and the Canadian Geoscience Standards Board?

Why Professional Registration?

What is the GKE?

Undergraduate and graduate students

Cross-country checkup of use of the GKE

Geoscientists Canada

www.ccpvg.ca

*The mission of Geoscientists Canada is:
to develop consistent high standards for registration
and practice of geoscience,
facilitate national and international mobility,
and promote the recognition of Canadian professional
geoscience*

Canadian Geoscience Standards Board

**Major focus is to set and encourage common nationally
recognized requirements for geoscience registration –
knowledge and experience**

Geoscience Registration in Canada

To practice as a “geoscientist” you need to be registered as a “professional geoscientist”

You need to register in the province or territory in which you are working



Geoscience Registration in Canada

Requirements:

Geoscience Knowledge

Geoscience Practice
Experience

Good character

Language proficiency

Knowledge of appropriate
legal and ethical issues



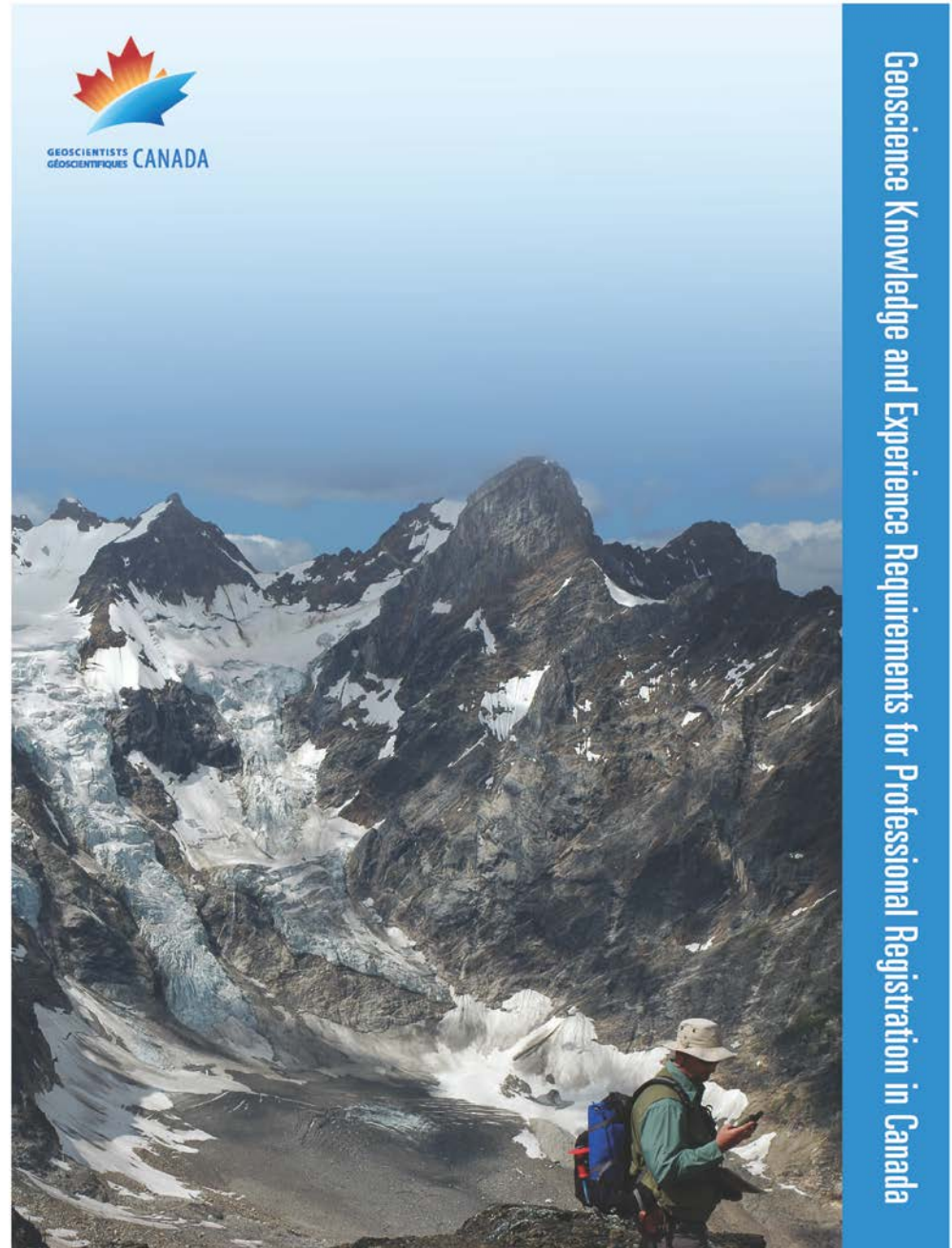
Canadian Geoscience
Standards Board
developed common
reference for regulators

*Geoscience Knowledge
and Experience Requirements
for Professional Registration
in Canada*

published 2008, reprinted 2012

This is the GKE

GAC-MAC Winnipeg May 24, 2013



The GKE

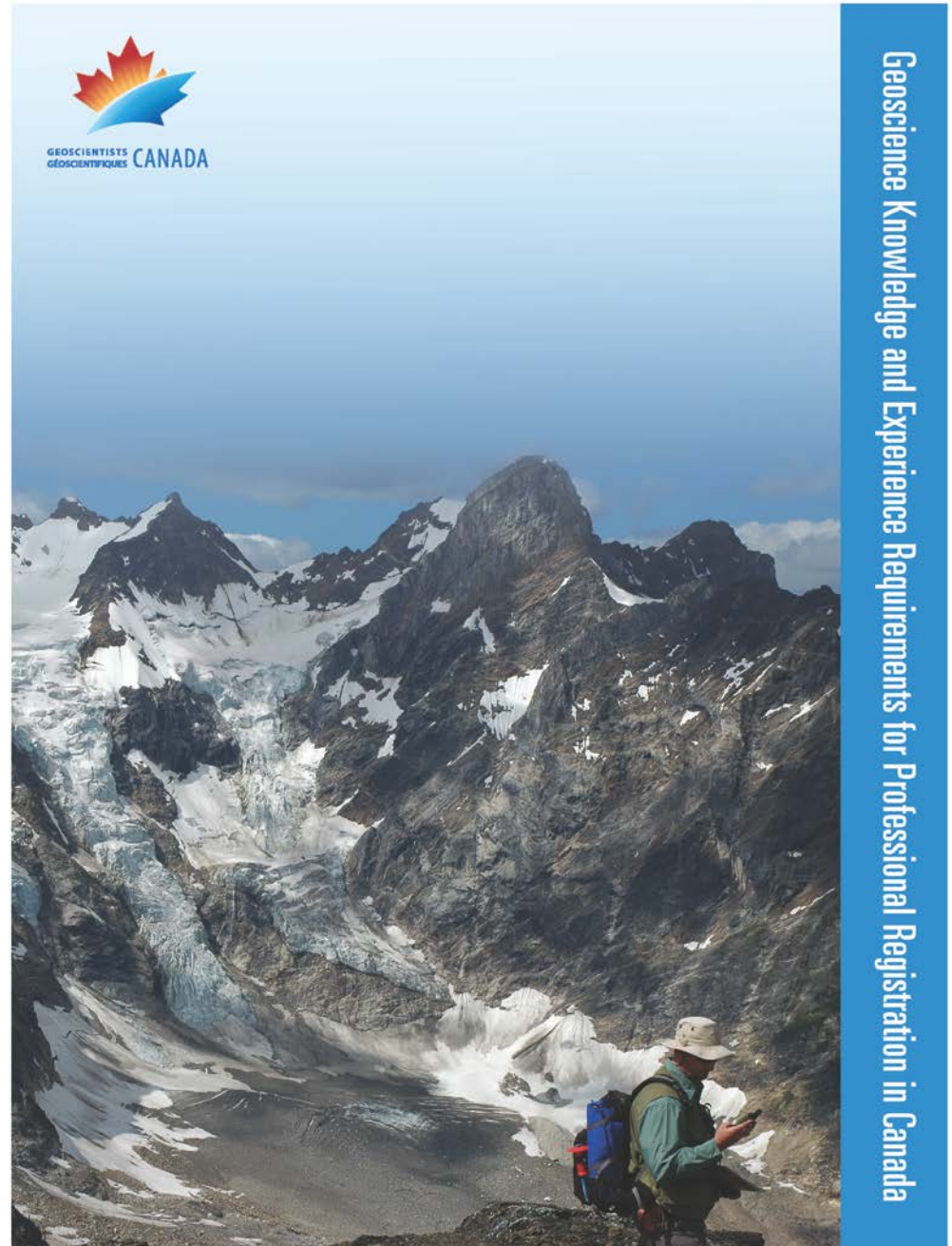
Consensus on requirements for registration across Canada

Geoscientists possess similar capabilities

Help to improve, and maybe harmonize registration practices

Facilitate mobility of professional geoscientists across the country

GAC-MAC Winnipeg May 24, 2013



Who should use the GKE?

Regulators

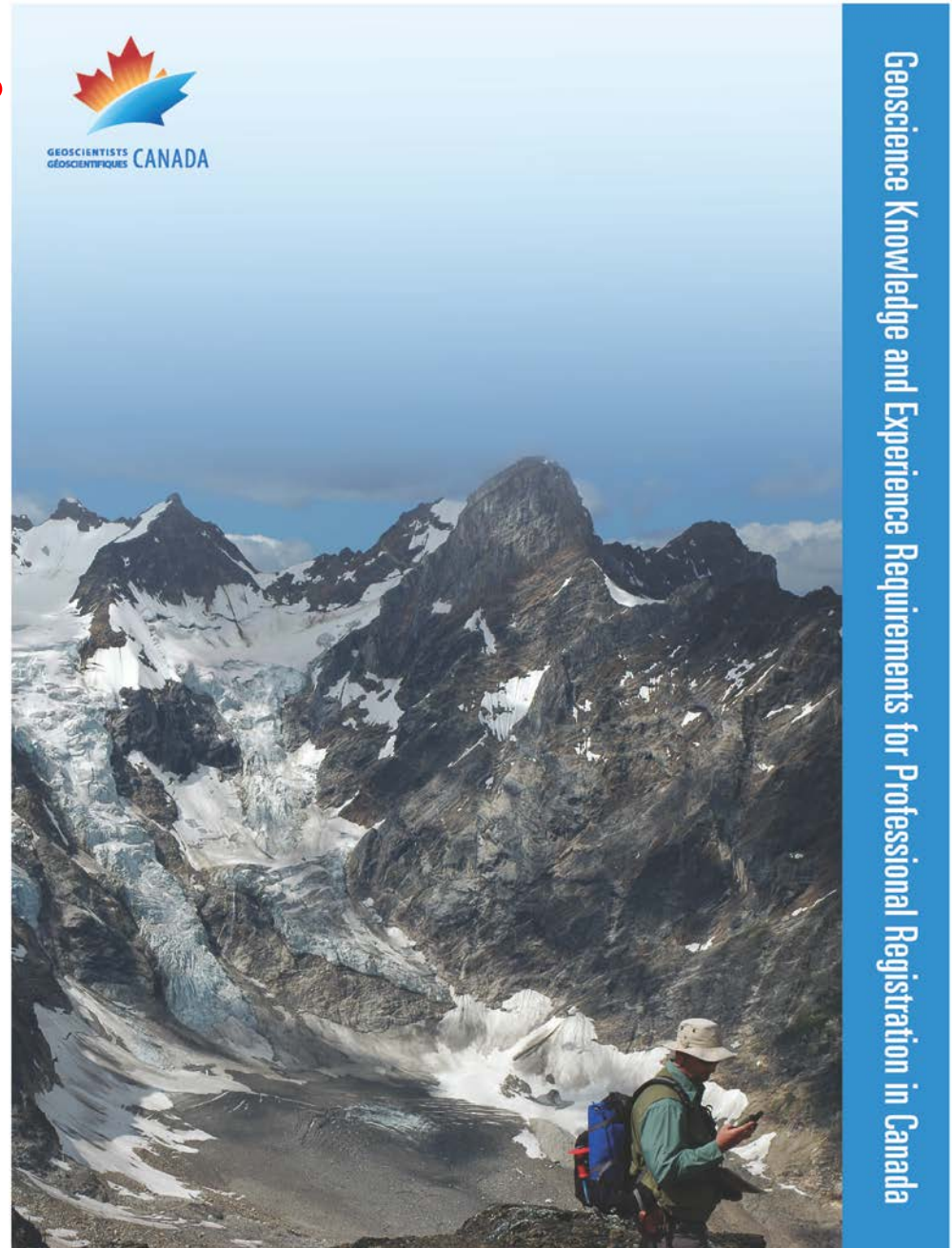
University departments

Students

International graduates

Geoscience Knowledge Requirement

GAC-MAC Winnipeg May 24, 2013



Knowledge Requirements

Based on a typical 4 year B.Sc. degree in Geoscience in Canada
(or equivalent)

Generally include 20 one-term courses in Geoscience and
10 courses in other Sciences

Specific university programs **ARE NOT** accredited by
Geoscientists Canada

Therefore, all applicants are assessed on an individual basis

Do you need a Geoscience degree?

Knowledge Requirements

Simplified layout - 3 streams in parallel

GEOLOGY

**ENVIRONMENTAL
GEOSCIENCE**

GEOPHYSICS

Common Foundation Science and Foundation Geoscience for all streams...leading to evolving specialization as education continues

List of electives provided for guidance, not exhaustive

Compulsory Foundation Science

Total 3 EUs (1 EU required in each area)

GEOLOGY	ENVIRONMENTAL GEOSCIENCE	GEOPHYSICS
Chemistry	Chemistry	Chemistry
Mathematics	Mathematics	Mathematics
Physics	Physics	Physics

NOTE: 1 EU equivalent to typical one-term university courses

Additional Foundation Science

Total 6 EUs (No more than 2 EU in each area)

GEOLOGY	ENVIRONMENTAL GEOSCIENCE	GEOPHYSICS
Biology	Biology*	Biology
Chemistry	Chemistry	Chemistry
Comp. Science	Comp. Science	Comp. Science
Mathematics	Mathematics	Mathematics
Physics	Physics	Physics
Statistics	Statistics	Statistics

Compulsory Foundation Geoscience

Total 4 EUs (1 EU required in each area)

GEOLOGY	ENVIRONMENTAL GEOSCIENCE	GEOPHYSICS
Field Techniques	Field Techniques	Field Techniques
Mineralogy and Petrology	Mineralogy and Petrology	Mineralogy and Petrology
Sedimentology and Stratigraphy	Sedimentology and Stratigraphy	Sedimentology and Stratigraphy
Structural Geology	Structural Geology	Structural Geology

Additional Foundation Geoscience

Total 5 EUs

(Geol/Env no more than 2 in each) (Geophys 1 EU in each)

GEOLOGY	ENVIRONMENTAL GEOSCIENCE	GEOPHYSICS
<p>Geochemistry Geophysics</p>	<p>Geochemistry Geophysics</p>	<p>Data processing / Inversion / Time Series Analysis</p> <p>Global Geophysics / Physics of Earth</p>
<p>Igneous Petrology Metamorphic Petrology Sedimentary Petrology</p>	<p>Hydrogeology or Hydrology Engineering Geology</p>	<p>Seismology/Seismic Methods</p> <p>Exploration Geophysics</p>
<p>Sedimentology Glacial Geology or Geomorphology Remote Sensing</p>	<p>Geomorphology Glacial Geology Remote Sensing</p>	<p>Potential Fields / Gravity & Magnetics</p> <p>Electrical & electromagnetic Methods</p>

Knowledge Requirements

Compulsory Foundation Science	3
Additional Foundation Science	6
Compulsory Geoscience	4
Additional Geoscience	5
Other Geoscience/Science electives	9
Total	27

Does not include typical two 1st year introductory geology courses

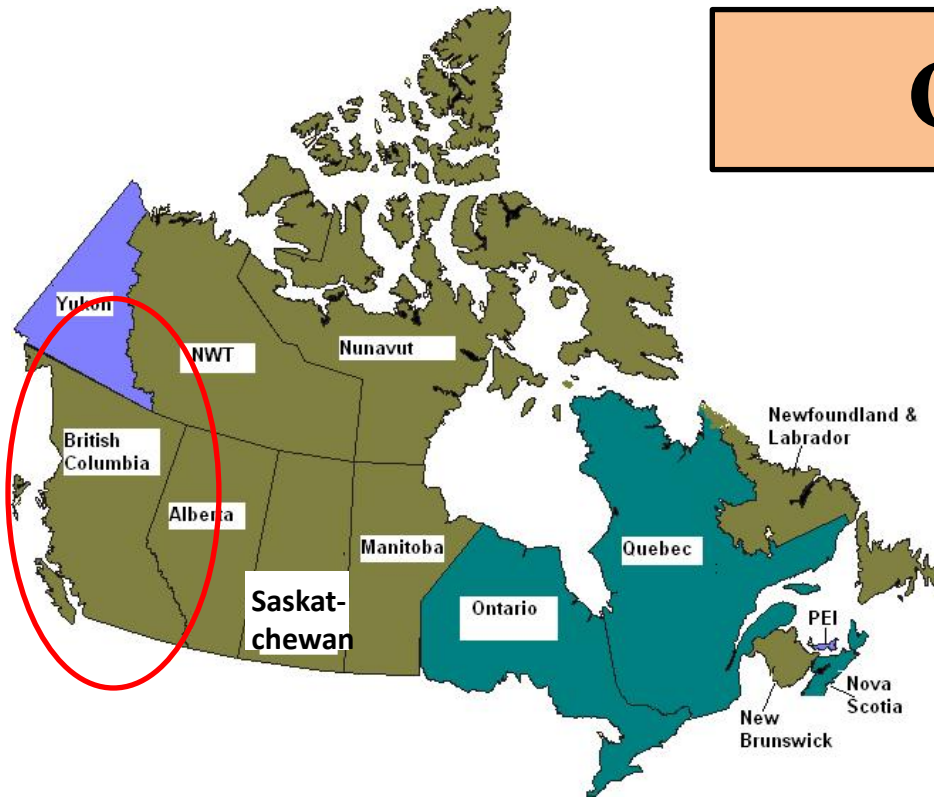
Graduate students

M.Sc. or Ph.D. in Geoscience is **NOT the appropriate academic background for registration**

However, courses taken as part of a graduate program **CAN count towards knowledge requirements**

Also, time spent in a graduate program **CAN count towards geoscience practice experience (up to a maximum of 1 year for M.Sc., and maximum of 2 years for M.Sc. plus Ph.D)**

Cross-country: BC



**APEGBC adopted the GKE
in 2011**

**Foundation Science –
one Math course **MUST**
be Calculus, one other
Math, and one Statistics**

www.apeg.bc.ca

Cross-country: AB



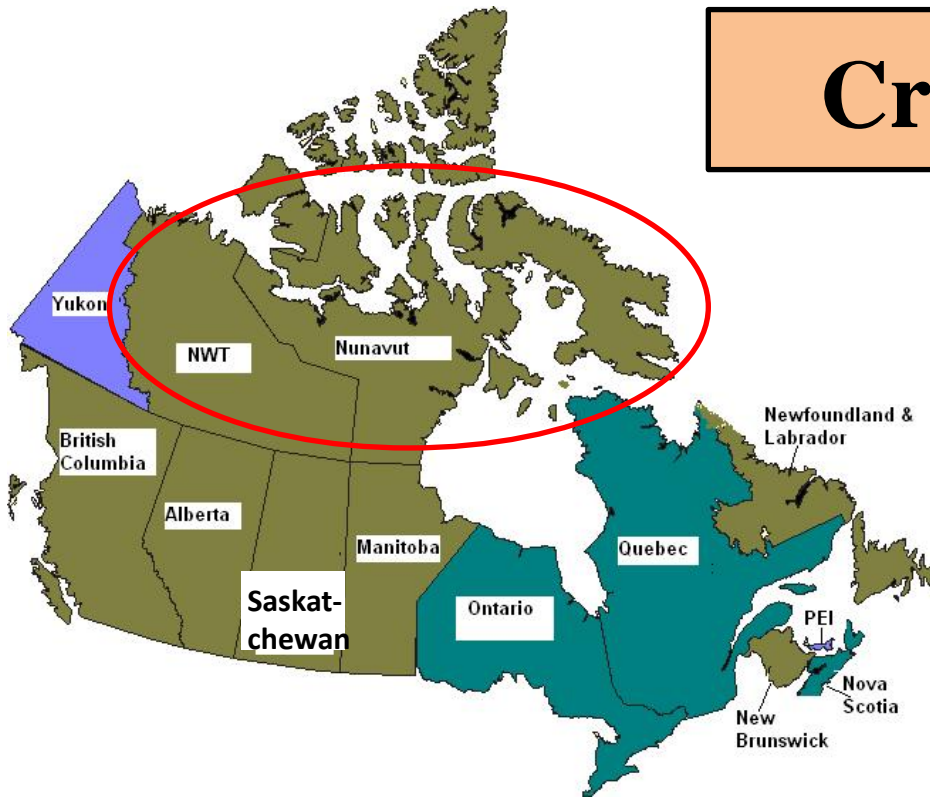
The 2010 edition of the APEGGA Geoscience syllabus matches the GKE

After Sept 1, 2014, this will be the only syllabus to be used. Until then, the most favourable syllabus is used.

www.apegga.org

Foundation Science – at present, two Calculus needed; after Sept 1, 2014, one Calculus would probably be fine

Cross-country: NT/NU



Using the GKE

Generally, if a graduate from a Canadian university program, then will be OK

www.napeg.nt.ca

Cross-country: SK



APEGS is using the GKE

**Foundation Science –
two Math courses must
be Calculus, as required
by programs at
U. Saskatchewan and
U. Regina**

www.apegs.sk.ca

Cross-country: MB



**APEGM using the GKE
since Sept. 2011**

**Foundation Science –
make sure you take nine
Science courses, although
may accept maximum of two
geo-courses, e.g. geostatistics.
Need to check with APEGM**

www.apegm.mb.ca

Cross-country: ON



**APGO using the GKE
since Apr. 2009**

**Foundation Science –
one Math course **MUST**
be Calculus**

www.apgo.net

Cross-country: QC

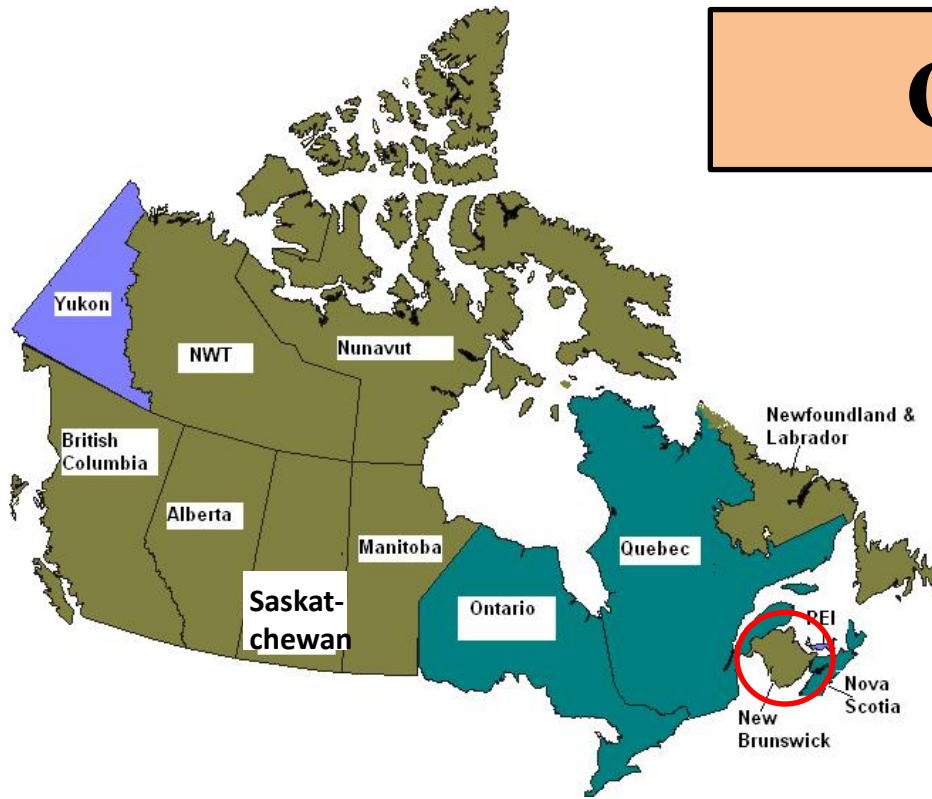


The Quebec regulators have “accredited” the Geology programs at Laval, McGill, UQAM, and UQAC.

All others are checked for course-to-course equivalency

ogq.gc.ca

Cross-country: NB

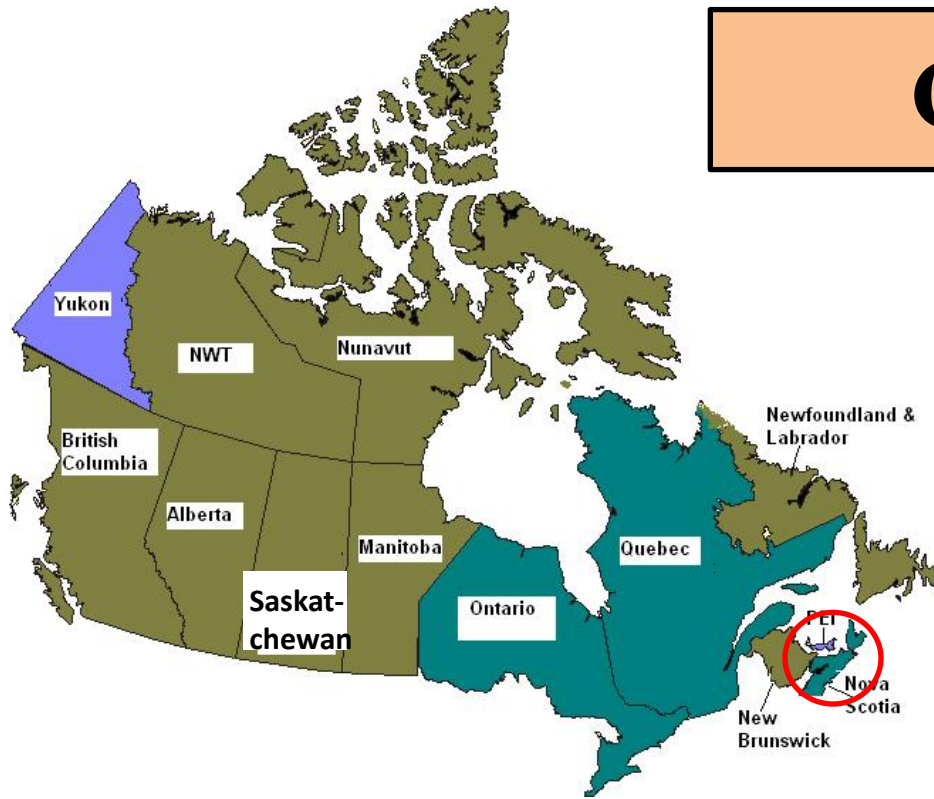


Using the GKE

May need to check the
Calculus requirements
for Mathematics in
Foundation Science

www.apegnb.ca

Cross-country: NS



**Using the GKE from
2012**

**Not necessary to take a
Calculus course to meet
the Mathematics in
Foundation Science**

www.geoscientistsns.ca

Cross-country: NL

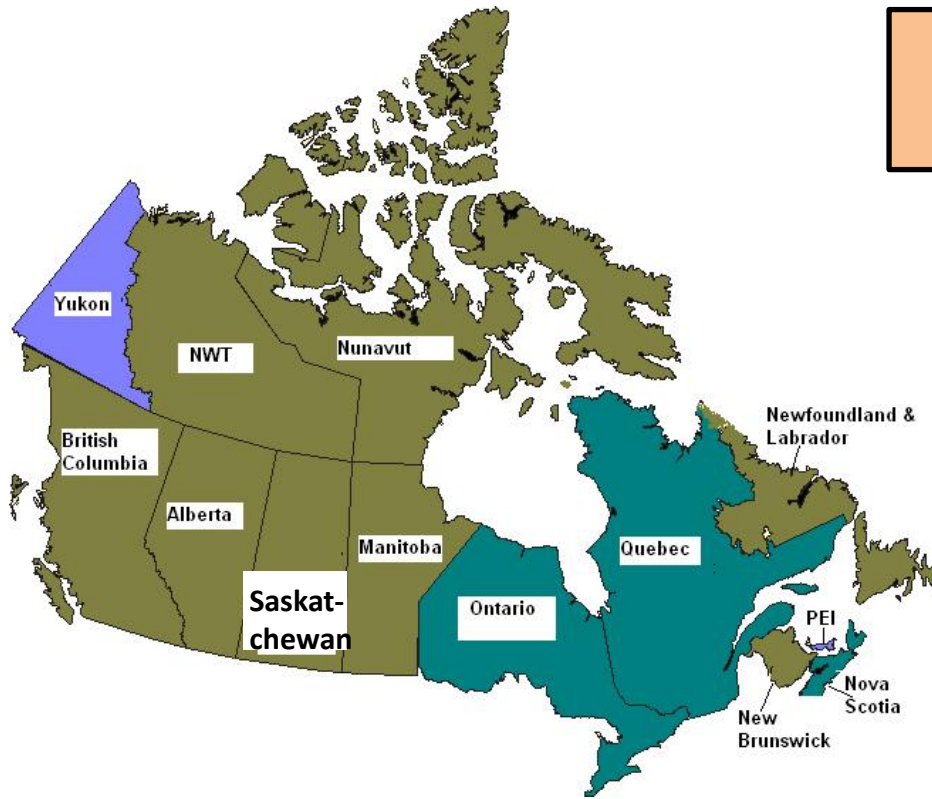


Using the GKE

Assume that two Calculus courses and one Statistics course have been taken, based on Memorial Univ. program

www.pegnl.ca

Overall

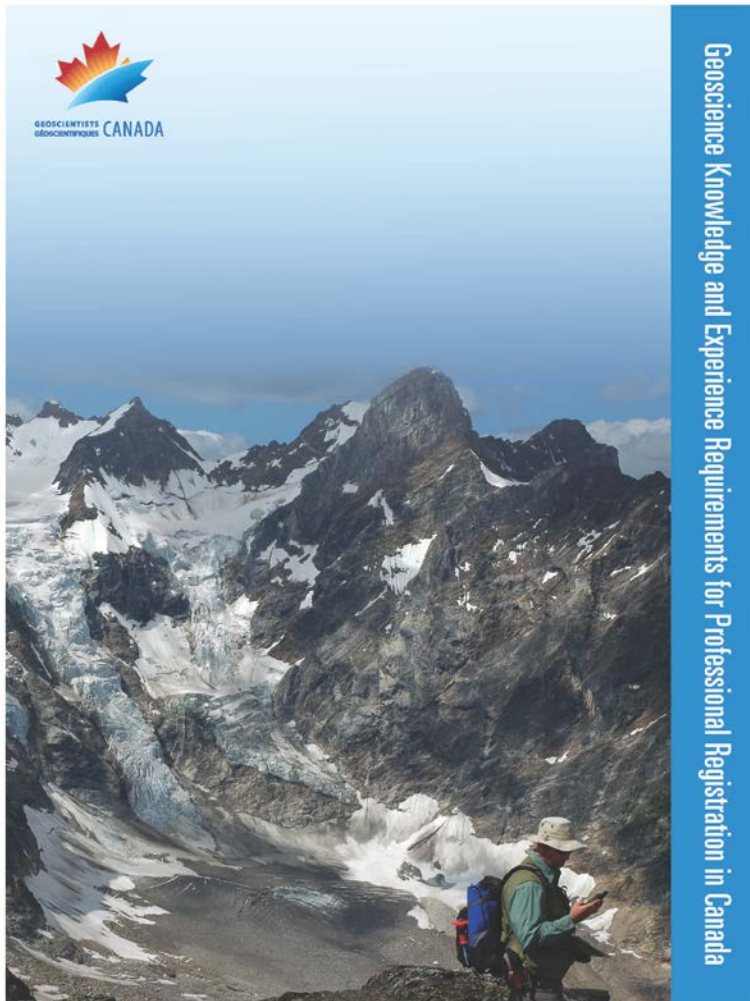


**All regulators are using
the GKE**

**All will use it exclusively
in the next two years**

Most university geoscience programs are designed to meet the knowledge requirements, although the GKE was also designed around the typical content of geoscience programs

However, there is some cross-country variability in the courses that might be required to meet the Science requirement



Suggestions for students

Look at the GKE

Use self-evaluation check lists available from most provincial/territorial regulators websites

Ask questions of your academic advisors, professional mentors, and the regulators

**Remember – this is the start of your career
in Geoscience**