



Guideline to Registration including an Application for Membership

**How to apply for registration
as a Professional Geoscientist
in Ontario.**

Published by the Association of Professional
Geoscientists of Ontario

The registration information and application package includes:

- a copy of the *Professional Geoscientists Act, 2000*, Regulations and By-laws of the Association,
- a description of the requirements for registration (pages 3 – 6),
- information on costs of application fees, annual dues and methods of payment (page 7),
- information on completing the application form (pages 8-10),
- a summary of knowledge and work experience criteria (pages 11 – 15),
- an Application for Membership and Registration including the Academic Transcript, Work Experience and Referees forms (coloured pages insert),
- a self-addressed return envelope.

Further information is available on the APGO website at www.apgo.net.

This guideline document is provided as a summary of information to assist an applicant with completing the enclosed Application for Membership and Registration. The applicant is responsible for ensuring that the current version of this guideline document is used.

The provisions and requirements of the *Professional Geoscientists Act, 2000* and Registration Regulation (*O. Reg. 59/01 amended to O. Reg. 378/01*) under the Act, as administered by the Registrar and the Registration Committee, govern the admission to the practice of professional geoscience in Ontario.

Admission requirements and the fees and dues schedules are subject to change.

If translation assistance is required:

Association of Translators and Interpreters
of Ontario

1 Nicholas Street, Suite 1202
Ottawa, Ontario, Canada K1N 7B7
Tel: 613-241-2846
Fax: 613-241-4098
Toll-free: 1-800-234-5030
E-mail: atio@fox.nstn.ca

GENERAL INFORMATION

The Association of Professional Geoscientists of Ontario (APGO, the Association) was established under the *Professional Geoscientists Act, 2000* (“the Act”) and is the organization which is responsible for:

- setting of standards for admission into membership in the Association and to the practice of professional geoscience; and
- regulating the practice of professional geoscience in Ontario.

To practice as a professional geoscientist or to conduct professional geoscience activities after the date of proclamation for the Act to be in force within Ontario, an individual must be a member of APGO and be registered to practice. The admission conditions for existing practitioners applying for registration during the Transition Period are in effect until March 31, 2003.

Under the Act, exemptions have been provided for a professional engineer and who is both competent and qualified to undertake activities that constitute the practice of professional geoscience or for a land surveyor or a land information professional whose practice is confined to managing geographic information. They may practice under the professional recognition of their respective Acts. A prospector is not required to be a member of APGO to conduct activities that are confined to prospecting in Ontario.

Applications will be processed by the Association in the order of the date on which the application file has been completed, that is, when the application form, transcript(s), referees forms or other required information have all been received, checked for completeness and entered. At times during the Transition Period there may be a backlog of applications in various stages in the process, however, there will be no variation from this policy for sequencing the files.

Information provided by the applicant or otherwise obtained by the Association will be maintained in the Association files and on the database. Information is confidential except for the information that is required to be included in the public register of information about members. The public may inspect the register at the head office of the Association during normal business hours.

Registration Requirements

To be granted a Certificate of Registration to practice professional geoscience, an applicant must:

- be at least 18 years old;
- be of good character;
- hold a minimum of a four-year undergraduate science degree in a geoscience (or possess an equivalent or acceptable credential as determined by the Registration Committee) which fulfills the stipulated requirements;
- demonstrate at least 48 months of verifiable, acceptable geoscience experience, of which at least 12 months has been acquired in a Canadian work environment or equivalent; and
- complete the Professional Practice and Ethics examination, if required.

An applicant who has been registered or licensed as a professional geoscientist, engineer or equivalent in another Canadian professional geoscience or engineering association/ordre before applying to APGO may request that the Registrar of APGO obtain a certified copy of the other association’s membership file. This provision is available to those who are already registered elsewhere instead of requesting original transcripts and referees reports for this application.

However, an applicant who has been registered or licensed as a professional geoscientist by another Canadian professional geoscientist association/ordre before applying to APGO will be required to meet the current APGO admission criteria with respect to knowledge (academic preparation) and geoscience work experience. In addition, an applicant must successfully complete the Ontario Professional Practice and Ethics examination requirement unless an equivalent requirement acceptable to the Registration Committee has been previously completed for registration elsewhere.

Further details on requirements for the Professional Practice and Ethics examination will be sent to successful applicants.

International Applicants

It is not an APGO requirement to have permanent residency in Canada in order to apply for membership or for a Certificate of Registration to be issued. The international applicant is required to meet the knowledge and work experience

criteria in order to qualify for admission to membership and for registration for professional practice in Ontario.

APGO will accept and process an Application for Membership and Registration from an applicant from a foreign country or from an individual who has not yet obtained approval of their immigration application from Citizenship and Immigration Canada.

An assessment of an application by APGO is made for the purposes of professional registration only.

APGO's ADMISSION AND REGISTRATION PROCESS

Fulfilling the Knowledge Requirements

An applicant whose undergraduate geoscience degree has been awarded by a Canadian university must ensure that a certified copy of their academic transcript is sent directly to APGO from the institution from which they received their degree.

An applicant who has a postgraduate degree or degrees must ensure that a certified copy of their academic transcript is sent directly to APGO from the institution or institutions from which they received their degree or degrees. Photocopied or uncertified transcripts or copies of transcripts issued to the applicant are not acceptable.

APGO will accept only original transcripts, diplomas and/or certificates. If an original transcript is not available from the institution, the applicant must supply his or her original degree document(s) along with two copies of each, one for the application file and the second copy of the document which will be forwarded by APGO to the issuing institution with a request to confirm, in writing, that the document is valid. The original document will be returned to the applicant.

If documents received by the APGO Registrar are not in English, a copy will be forwarded to the applicant with a request to provide an English translation at their cost. This translation must be certified by either a translator who is a member of the Association of Translators and Interpreters of Ontario (see inside cover for information) or by a professional geoscientist, or an equivalent, who has competent knowledge of both the other language and English.

When circumstances are such and the applicant states in writing to the Registrar that an official transcript is not available, the applicant may be requested by the Registrar to provide additional specific information.

Academic transcripts are not required for an applicant who is a member in good standing of another Canadian professional geoscience or engineering association/ordre and who is requesting that his/her other association file information be transferred to APGO.

APGO will review the content of knowledge credentials of an applicant who does not hold an undergraduate degree in geoscience from a Canadian university to determine if the minimum requirements for admission to professional practice have been met. This review of knowledge credentials normally will take about two months following receipt of the academic transcript(s), translation(s) if necessary and subject descriptions. For information, a summary of representative minimum content for admission to membership is provided in the Knowledge and Experience section of this Guideline.

In future, academic transcripts would not be required for an applicant for reinstatement of an APGO membership, provided that the application for reinstatement is made within 5 years of the applicant having ceased to be a member of the Association.

Following this review, the Registration Committee may assign a technical or confirmatory examination program. Technical examinations are usually assigned:

- to ascertain whether an applicant's academic preparation is equivalent to that provided by an undergraduate four-year geoscience program in a Canadian university; or
- to remedy identified deficiencies in academic preparation compared to that provided by an undergraduate geoscience program in a Canadian university.

An applicant may be assigned one of the following technical examination programs as a result of the review of transcripts:

Confirmatory Examination Program

An applicant whose academic preparation appears to be similar to that provided by a Canadian university four-year geoscience degree program may be assigned a Confirmatory Examination Program.

A Confirmatory Examination Program comprises three professional (technical) examinations and one complementary studies examination. The aim is to give the applicant an opportunity to confirm that the content of his or her geoscience studies is equivalent to a comparable Canadian university four-year geoscience degree program.

An applicant who has been assigned a Confirmatory Examination Program, but who also has at least four years of qualifying geoscience work experience, will usually have the level of their experiential knowledge in the examination areas assessed by the Registration Committee.

This assessment may require the applicant to attend an interview. As a result of its assessment, the Registration Committee may recommend that the applicant's Confirmatory Examination Program be waived.

An applicant who is assigned any Confirmatory Examinations cannot take courses at a university in lieu of the assigned examinations.

Basic Examination Program

An applicant who holds a credential other than a Canadian university four-year geoscience degree (i.e., an equivalent credential from another institution with four years qualifying work experience or with a credential acceptable to the Registration Committee with ten years of qualifying work experience) may be assigned a Basic Examination Program. This pre-entry program comprises completion of at least four examinations in the Basic Studies area before being assigned upper-level examinations.

Specific (Individual) Examination Program

An applicant whose academic qualifications are determined by the Registration Committee to fall between those of a technology program and those of a geoscience degree may expect to be assigned an individualized examination program. This pre-entry program requires an applicant to write a specific number of examinations to address any identified knowledge deficiencies.

Once the applicant has successfully completed any assigned examinations in the Basic Studies category, individuals who have been assigned a Specific Examination Program, but who have at least ten years of qualifying work experience, may have their experiential knowledge in the assigned subject areas assessed by the Registration Committee. An interview is normally required. The Registration Committee may, at its discretion, recommend that the applicant be required to write

or be exempt from some or all of the assigned examinations.

An applicant who wishes to take a course(s) at a university in lieu of the assigned Specific Examination Program must receive prior approval of the acceptability of the course(s) from the Registration Committee.

APGO plans to offer any needed technical examinations twice annually, in May and December. APGO will send an applicant who has been assigned examinations specific information about the examinations, explain when they may be written, specify the time limits for completion of the examination program and provide other guidelines. APGO may close the file of an applicant who does not meet the time limits set out in the APGO governing legislation.

An applicant may not be required to write examinations if he or she:

- has successfully completed postgraduate studies at a Canadian university in the same area as their non-Canadian geoscience degree;
- has a geoscience degree (with no advanced credits and no unaddressed failures) granted from an institution and holds membership in a professional geoscience association in that country with which there is a Mutual Recognition Agreement (MRA) with the Canadian Council of Professional Geoscientists; or
- is an experienced practitioner with ten (10) or more years of qualifying work experience as determined by the Registration Committee.

Qualifying Work Experience Requirements

APGO will assess each applicant on the individual merits presented in the application against each of the five quality-based criteria as outlined in the Registration Regulation (O. Reg. 59/01 amended to O. Reg. 378/01 (the "Registration Regulation"), s. 9.3 (1)):

- practical experience in the application of geoscience theory;
- practical experience in the understanding of geoscience processes and systems;
- management of geoscience projects;
- proficiency in communication;
- awareness of societal implications of geoscience.

An applicant for registration as a professional geoscientist is required to demonstrate at least 4 years (48 months cumulative) of verifiable and

acceptable work experience. The applicant may be granted up to 12 months credit for pre-graduation experience gained prior to receiving a B.Sc. degree, up to 12 months additional credit for work experience gained during a M.Sc. program (with thesis) and a further 12 months credit for work experience gained during a Ph.D. program. Postgraduate research-related experience credits will not be granted for course work or exceed actual time spent to complete degree requirements.

The applicant must confirm that at least 12 months of the work experience have been obtained in Canada or in a Canadian work environment or an equivalent satisfactory to the Registration Committee to qualify for admission. This experience must be in addition to that obtained at the pre-graduation stage and/or granted for the postgraduate degree credits. Time related to the research and/or thesis portion of a postgraduate degree may be considered to help meet the requirement for geoscience work experience in a Canadian jurisdiction if the work has been conducted under the supervision of a professional geoscientist.

The referees that you select will be asked to validate the work experience statements.

For more detailed information about the experience assessment criteria, please see the section entitled “GUIDELINES FOR MINIMUM REQUIREMENTS FOR KNOWLEDGE AND WORK EXPERIENCE” in this document.

Successful Completion of the Professional Practice And Ethics Examination (PPE)

An applicant for registration in Ontario must complete the PPE examination requirement. The general examination will cover ethics, professional practice, business law, professional liability and responsibilities to the public. The 3-hour Ontario PPE examination may comprise 120 multiple-choice questions (2 ½ hours) and may also include a choice from other questions that require a succinct essay-type response (additional ½ hour).

An applicant whose application has been received by APGO prior to March 31, 2003 will be allowed to defer completion of the PPE for up to one year from the date of acceptance for membership. During the start-up phase for APGO, this temporary deferral condition will be granted to permit the candidate sufficient time to complete the requirement. If the member fails to complete the requirement within the allotted time, the certificate of registration will be revoked.

For applications received after March 31, 2003, the applicant will be required to complete the PPE examination requirement within two years of filing the application and prior to being admitted to membership and registration.

The PPE examinations are normally scheduled four times a year, in January, April, July and November. An application to write the PPE examination must be received by the Registrar at least 60 days before the candidate’s preferred date for an examination.

A PPE examination application package with information will be included with the notice of acceptance letter. APGO will provide a list of suggested textbooks and other materials that may be obtained to aid in preparation for the PPE examination.

When an application to write the PPE is accepted, the candidate will be advised of the nearest examination location, along with the date and time. If the candidate finds that he/she unable to attend the scheduled examination sitting and advises the Registrar in writing, APGO will reschedule the application to write the examination to the next available date.

The Geoscientist-in-Training Program

An applicant who holds an undergraduate degree in geoscience from a Canadian university is eligible to register in APGO’s Geoscientist-in-Training (GIT) Program. This is an internship and mentoring program.

An applicant with an acceptable degree or credential from another institution, who has been assigned a confirmatory Examination Program, who has completed their assigned examination program or who is in need of obtaining relevant Canadian qualifying work experience is also eligible to be included in the GIT Program.

Registration in the GIT Program:

- demonstrates that the applicant is giving serious consideration to becoming registered as a professional geoscientist in Ontario;
- helps the individual to ensure that they are receiving relevant experience because their progress will be reviewed by APGO and apparent deficiencies will be noted with suggestions about how they may be remedied;
- allows the individual to participate in the APGO programs and insurance plans;

- entitles the individual to receive the publications of the APGO and other information; and
- enables the individual to attend APGO meetings and functions.

To apply for the GIT Program, the applicant should check the box at Sections 2.7 and 11.3 in the attached application form. The GIT application fee is \$100.00 + GST (\$5.00) (total \$105.00). No additional payment is required with this form as a successful applicant for the GIT Program will be invoiced separately for annual dues.

COSTS TO BECOME A MEMBER AND BE REGISTERED IN THE TRANSITION PERIOD

1. An application fee of \$275.00 + GST (\$13.75) (total \$288.75) and advance payment of the first annual membership dues of \$400.00 + GST (\$20.00) (total \$420.00) for the calendar year must be submitted with the Application for Membership and Registration form. The total remittance to be included is \$708.75. A notice of acceptance into membership will be sent to a successful applicant prior to the Certificate of Registration and membership card being issued.
2. Where applicable, technical examination candidates are required to pay \$210.00 + GST (\$10.50) (total \$220.50) for each examination and that must be submitted with the application form for each examination.
3. The Professional Practice and Ethics (PPE) examination fee of \$210.00 + GST (\$10.50) (total \$220.50) must be submitted with the Application for the PPE examination. For applicants during the Transition Period, the PPE examination form will be provided to you with your acceptance to membership letter.
4. To remain a member in good standing and registered to practice in subsequent years, a member will be required to pay annual membership dues, which are subject to change from time to time. An invoice will be issued at least 60 days in advance of the date for payment of annual dues as determined by Council.

Notes:

1. *All application and examination fees are non-refundable.*
2. *The advance payment of the first annual membership dues included with the application will be repayable, without payment or credit of interest, should you subsequently decide not to apply for membership in the Association and indicate so in writing to the Association, or if the Association determines that you are not eligible for membership.*
3. *You may pay either by cheque, bank draft or money order, payable in Canadian funds, to the Association of Professional Geoscientists of Ontario. A dishonoured (NSF) cheque will delay the application and be returned with additional charges to be paid before the application will be processed.*

MAY AN APPLICANT PERFORM GEOSCIENCE WORK WHILE THEIR APPLICATION IS BEING PROCESSED?

Yes. During the Transition Period and until the date proclaimed for the Act to be in force, an applicant may continue to carry out geoscience work in the period between making application and the date proclaimed for the Act to be in force.

However, after the date proclaimed for the Act to be in force, any person performing geoscience work will be in contravention of the Act if they use the title “professional geoscientist” or the designation “P.Geo.” in Ontario, or if an individual represents in Ontario that he or she is a professional geoscientist, unless they are a member of APGO. Enforcement of the provisions of the Act is a legal requirement for APGO.

Under the Act, exemptions have been provided for a professional engineer who is both competent and qualified to undertake activities which constitute the practice of professional geoscience or a land surveyor or a land information professional whose practice is confined to managing geographic information. A prospector is not required to be a member of APGO to conduct activities that are confined to prospecting in Ontario.

COMPLETING THE APPLICATION FORM FOR MEMBERSHIP AND REGISTRATION

1. Personal Information

Please provide the requested information on your name and address. Your legal name is that which will appear on your Certificate of Registration. Please provide a copy of your birth certificate or equivalent. APGO can accept a revised name only if you provide documents (i.e., marriage certificate) that confirm that the Registrar General (Ontario) or a similar authority has approved the change of name.

Provide your current residence, business and e-mail addresses and telephone numbers. Indicate which should be used for correspondence.

Please provide requested statistical information, landed immigrant papers (if applicable), a copy of your birth certificate or passport and indicate the area(s) of geoscience practice that you work in. This information will help APGO better serve its members and mandate.

2. Type of Application

The registration requirements and classes of membership are specified in the Registration Regulation.

Please indicate whether this application is for a new "P.Geo." registration (i.e., membership in APGO). If so, please check the appropriate box in Section 2.1, 2.4, 2.5 or 2.6 of the Application Form.

Alternatively, if you are a member or have been a member of another self-regulating professional geoscience or engineering organization in Canada (i.e., within the Canadian Council of Professional Geoscientists or Canadian Council of Professional Engineers), check the appropriate box or boxes in Section 2.2 or 2.3.

3. Current Professional Status

Please provide the requested information on your current professional status (if any), either in Ontario or in another self-regulatory professional geoscience organization or other jurisdiction.

4. Post-secondary Education

Please specify:

- the institution(s) attended;
- the dates of attendance and graduation;
- type of degree (i.e., undergraduate or bachelor's (B.Sc.) and/or other earned postgraduate (M.Sc., Ph.D.) degrees); and
- the area or discipline of specialization for each.

Please copy a Request for Transcript form and send one to each institution. Each institution must send an official transcript directly to the Registrar, APGO.

If an official transcript is not available, you may be requested by the Registrar to provide additional specific information.

5. Work Experience

Please provide the requested Work Experience Record information in reverse chronological order, starting with the details of your current position.

It is important to complete the Work Experience Record for each position for which experience credit is being requested.

The original Work Experience Record is to be enclosed with your completed Application Form. A copy of your Work Experience Record, along with the Reference Form, must be sent to each Referee whom you have asked to validate the experience statements.

6. References

You must provide the names and current addresses of at least three (3) people who are familiar with your work and can comment, in confidence, to APGO on your capability and suitability for registration and on your character.

You must first obtain the individual's permission to use them as a Referee and then forward to them a copy of the Reference Form and the related Work Experience Form. Referees must return completed forms directly to the Registrar, APGO. Reference forms included with the Application Form will be rejected.

A referee is not sponsoring the applicant for membership in APGO. The applicant is solely responsible for the validity of the information provided on the Work Experience Record.

Your referees must be selected in conformity with the rules given in the Registration Regulation, s. 9.1 (3), (4) and (5).

It is recognized that, during the initial phase of registration, there are no Ontario-registered "P.Geo.s" available to provide references. Prior to June 30, 2002, a geoscientist who has applied for membership in APGO is eligible to act as a referee as he or she will have signed the declaration to observe the Act, Regulations and Code of Ethics. Providing false information or misrepresentation of any kind on another application would affect his or her own application and may result in disqualification for registration in APGO.

During the transition period, at least one reference must be from a direct supervisor, who may or may not be a "P.Geo.", but who should be an equivalent professional. Other references must be from persons who have direct knowledge of your work. You may use clients or mentors.

The three references must cover a cumulative period of 4 years (or 10 years, if applicable) of your work experience. At least 12 months of work experience must have been acquired in Canada, in a Canadian work environment, or the equivalent and that is accepted as qualifying work experience by the Registration Committee.

You may have worked for more than one employer. In this case, you may want to provide more than three references to cover the 4-year (or 10-year) period. Please include names and contact information for all your referees and provide each with the Reference Form and a copy of your Work Experience Form.

Work experience will be assessed with respect to the criteria for qualifying work experience given in the Registration Regulation, s. 9.3 (1). For more information about the experience assessment criteria, please see the assessment considerations provided in Schedule B in the section of this document entitled "GUIDELINES FOR MINIMUM REQUIREMENTS FOR KNOWLEDGE AND WORK EXPERIENCE".

Please provide sufficient detail for each of the criteria, explaining how you have applied geoscience theory; understood geoscience process and systems; managed projects; established your proficiency in communications; confirmed your awareness of the societal implications of your work; and your understanding of the limitations of professional geoscience practice to solve problems through reference to your own practical work experience(s).

7. Equivalent to Experience Credits

Please provide information on postgraduate academic and research work for which equivalent to experience credits are requested.

8. Character

In addition to the minimum knowledge and experience requirements for admission, the Act and the Regulation require that a person must be of good character to be registered as a professional geoscientist.

Please answer all the questions asked in this section. Additional information may be provided if you wish, in confidence, to the Registrar.

If assessment of your character statement indicates a need for further review, your application file will be forwarded to the Registration Committee for consideration. You will be given an opportunity to respond in writing to any concern.

9. Knowledge of Professional Practice and Ethics

Please provide information on any previous Professional Practice and Ethics examination or requirement that you would like to have considered by the Registration Committee for equivalency.

The Registrar will verify that completion of the requirement is "on record" with the other association.

10. English Language Fluency

A reasonable level of fluency in spoken and written English is expected. Please provide information by checking the appropriate box in section 10 that describes your level of fluency.

11. Application Fees

The amount of the payment required with your application is confirmed in this section.

Please do not send cash with your application. A cheque, bank draft or money order, payable in Canadian funds, to the Association of Professional Geoscientists of Ontario must be attached.

An Application Form received without full payment of fees and first annual membership dues cannot be processed. The application may be returned to the applicant without an application file being opened.

A dishonoured cheque (e.g., for “not sufficient funds or other reasons”) will delay processing of the application. An invoice will be issued to the applicant including bank charges and an APGO administrative charge for processing the disallowed or “NSF” cheque. Payment in full must be received before the application file will be activated.

12. Additional Comments

There is space provided for you to make any additional comments with respect to your application.

In this space, you may indicate your desire to volunteer to assist the Association by being on a committee. Please indicate any committees you wish to be considered for.

You are invited to include any letter or letters that provide additional information for consideration of the Registrar and/or Registration Committee. Please include them with the Application Form.

13. Declaration of Applicant

Please make sure that your Application Form has been properly completed, then read your declaration carefully before signing and dating the declaration.

Return the completed application for membership and registration as a professional geoscientist in Ontario to APGO. Please use the enclosed self-addressed envelope.

An incomplete application or one that is received without a signature and date on the declaration will be returned to the applicant without the application file being opened.

Please make sure that you have enclosed all required documents or letters with your completed Application Form. Return them in the enclosed envelope. Please write your return address on the envelope and apply sufficient postage.

GUIDELINES FOR MINIMUM REQUIREMENTS FOR KNOWLEDGE AND WORK EXPERIENCE

A: Minimum Knowledge Criteria

The core entry requirement for admission to professional practice is a 4-year bachelor of science degree in geoscience awarded by a Canadian university. An equivalent credential may be recognized by the APGO Registration Committee through an assessment of content against a representative undergraduate degree to determine if the APGO minimum criteria for admission to professional practice have been met.

This level of geoscience education is considered to meet the minimum knowledge requirements recommended by the Canadian Council of Professional Geoscientists (CCPG) for admission to practice 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 other than geoscience, applicants may have been educated outside of Canada, or applicants may have gained specific knowledge outside of the degree format. Instead, a minimum number of core knowledge requirements must be satisfied, as outlined below and in Schedule “A”. Additionally, the CCPG recommends that acceptable professional practice requires technical writing ability, oral communication effectiveness and awareness of regulatory and legal issues of practice for interprovincial mobility.

The following summary of representative core content in a 4-year bachelor of science degree in geoscience is provided:

Foundation Mathematics and Sciences

(9 Educational Units – “EUs”)

(1 EU = 1 Semester or ½ year course)

- Calculus
- Chemistry
- Physics
- Biology
- Computer Science
- Statistics

Foundation or Core Geosciences (6 EUs)

- Mineralogy
- Stratigraphy or Sedimentation
- Petrology
- Geophysics
- Geochemistry
- Hydrogeology or Hydrology
- Quaternary Geology or Geomorphology
- Structural Geology
- Introductory Field Techniques

Geoscience Electives (15 EUs) (see Schedule “A”)

Information on additional current geoscience elective course content material is given in Schedule “A”.

Other Electives or Professional Studies

As may be required in a 4-year degree program

Introductory Geoscience has not been included in the EU count as it is anticipated that this course, or equivalent content, would have been required prior to admission to second year core geoscience course content.

SCHEDULE “A”

Recommended Elective or Other Content Educational Units (EUs). This schedule illustrates representative EUs, as elective or mandatory content in three primary geoscience streams, and as may be offered or required by universities in Ontario. The lists are to assist both an applicant and the Registration Committee with evaluation of degree content and will be updated from time-to-time. 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.

Geology

Air Photograph Analysis
Biogeochemistry
Biology – Advanced
Carbonate Sedimentology
Chemistry – Advanced
Field School – Advanced
Field School- Exploration
Geochemistry
Geochemistry – Advanced
Geochemistry – Exploration
Geographic Information Systems
Geomorphology
Geomorphology – Advanced
Geophysics / Earth Physics
Geophysics – Advanced
Geoscience Seminar
Glacial Geology
Glacial Geology – Advanced
Hydrogeology
Hydrology
Igneous Petrology
Igneous Petrology – Advanced
Industrial Minerals and Coal
Marine Geology
Metamorphic Petrology
Metamorphic Petrology – Adv'c'd
Micropaleontology
Mineralogy – Advanced
Natural Hazard Identification
Numerical Methods / Advanced
Computing
Ore Deposits
Ore Petrology – Advanced
Paleontology
Petroleum and Natural Gas
Quaternary Geology
Quaternary Geology – Advanced
Remote Sensing
Sedimentary Petrology
Sedimentology – Advanced
Soil Mechanics
Soil Science
Stratigraphic Paleontology
Tectonics / Structure – Advanced
Thesis or Research Project
(1 or 2 EUs)

Geophysics

Air Photograph Analysis
Applied Exploration Geophysics
Atmospheric and Space Physics
Calculus (III)
Calculus (IV)
Data Processing or Inversion
Dynamics
Electrical
Electromagnetic Theory
Electronics
Environmental Geophysics
Exploration Geophysics
Field School – Advanced
Geographic Information Systems
Geomagnetism – Advanced
Geophysical Hazard Assessment
Geophysics – Advanced
Geophysical Interpretation
Geoscience Seminar
Gravity
Industrial Minerals and Coal
Magnetics
Marine Geophysics
Mechanics – Advanced
Nuclear Physics
Numerical Methods / Advanced
Computing
Ore Deposits
Petroleum Deposits
Physical Properties of Rocks and
Minerals
Physics – Advanced
Potential Field Theory
Radiometrics
Remote Sensing
Seismology
Seismology – Advanced
Tectonics / Structure - Advanced
Thermodynamics
Time Series Analysis in Geophysics
Thesis or Research Project
(1 or 2 EUs)

Environmental Geoscience

Air Photograph Analysis
Aquatic Chemistry
Biogeochemistry
Biology – Advanced
Chemistry – Advanced
Chemistry – Environmental
Chemistry – Organic
Climatology/Atmospheric Science
Contaminant Transport
Ecology
Environmental Geophysics
Environmental Impact Assessment /
Environmental Planning Mgmt.
Environmental Studies – Advanced
Field School – Advanced
Geochemistry
Geochemistry – Advanced
Geographic Information Systems
Geomicrobiology
Geomorphology - Advanced
Geophysics
Geophysics – Advanced
Geoscience Seminar
Glacial Geology – Advanced
Hydrogeology
Hydrogeology – Advanced
Hydrology
Industrial Minerals and Coal
Isotope Chemistry
Limnology
Marine Geology
Natural Hazard Identification
Numerical Methods / Advanced
Computing
Oceanography
Ore Deposits
Paleontology
Petroleum and Natural Gas
Quaternary Geology – Advanced
Remote Sensing
Sedimentology – Advanced
Soil Mechanics
Soil Science
Thesis or Research Project
(1 or 2 EUs)

B: Minimum Work Experience Criteria

The minimum experience requirement for entry to professional practice is that the applicant have at least 4 years (48 months cumulative) of relevant work experience. To be accepted as qualifying work experience, it must be confirmed that at least 12 months work experience has been obtained in Canada or in a Canadian work environment or an equivalent. These experience statements must be validated by a referee's report.

Qualifying Work Experience for Professional Geoscientists

The Registration Regulation sets out the process and general criteria for the Registrar and/or the Registration Committee to consider in determining what constitutes qualifying work experience for purposes of subsections 9 (2) and 43 (1) d) of the Act and Sections 8 and 9 of the Regulation.

The Registrar and/or the Registration Committee are required to assess the nature, quality, duration and currency of the work experience. In assessing the work experience claimed by an applicant, the Registration Committee will determine which is eligible as qualifying work using the criteria for applicable qualifying geoscience work experience outlined in the Registration Regulation and as expanded in Schedule "B".

The Registration Committee will refer to Schedule "B", to assure a fair and consistent approach to assessment and decision-making. The Registrar and Registration Committee are bound by a duty of fairness to the public, the members of APGO and the applicant. Each applicant's qualifications are to be judged on their own merits.

The Registrar and/or the Registration Committee will determine the eligibility of the work experience applied for by an applicant on the basis of the applicant's personal statements, the statements from referees and any such other information that may be required or obtained by the Registrar and/or the Registration Committee in order to undertake the assessment of qualifying working experience.

SCHEDULE “B”

CRITERIA FOR ACCEPTABLE QUALIFYING WORK EXPERIENCE

An applicant will have obtained work experience wherein knowledge of geoscience theory is combined with an awareness of the necessity for accuracy, thoroughness and critical thought in all phases of geoscience practice. To supplement knowledge of geoscience theory, the applicant must demonstrate an exposure to, and practical experience in each of the broad areas of practical techniques, management, communication, and the societal implications of the geoscience profession.

An applicant is required by the Registration Regulation, s. 9.3 (1) to demonstrate qualifying work experience in each of the following five areas:

1. Application of Geoscience Theory and Practical Work Experience

An applicant’s practical work experience should include some application of geoscience theory in each of the following five areas:

- (a) *development and implementation*
 - of field and/or laboratory investigation programs; including gathering of field and laboratory observations and data.
 - (b) *analysis*
 - analysis of primary observations and data;
 - analysis of scope of field operations and/or laboratory conditions;
 - spatial and temporal analysis of data;
 - feasibility assessment;
 - analysis of performance assessment;
 - analysis of technical merit of project;
 - analysis of safety and environmental issues;
 - technology assessment;
 - economic assessment;
 - reliability or uncertainty analysis; or
 - analysis of quality assurance and quality control program.
 - (c) *integration and synthesis*
 - identification of geoscientific components, including data specification or functionality;
 - project specification and organization;
 - analytical component selection;
 - integration of components and sub-systems into larger geoscientific systems;
 - evaluation, reliability and uncertainty factors in data;
 - technology of data processing and interpretation;
 - (d) *testing methods*
 - devising testing methodologies and techniques;
 - verifying functional specifications and testing efficiency;
 - commissioning, assessing and verifying new technology; or
 - verification of project technology; and
 - (e) *implementation methods*
 - application of technology;
 - data processing technology and interpretation;
 - optimization techniques;
 - process flow and time studies;
 - implementation of quality control and assurance;
 - cost/benefit analysis;
 - economic evaluation;
 - safety and environmental issues; or
 - evaluation and recommendations.
- human and environmental factors;
 - societal implications of the resultant activity or project; or
 - quality improvements.

2. Understanding of Geoscience Process and Systems

An applicant should have obtained practical geoscience work experience in each of the following three areas:

- (a) *an understanding of the function of components of geoscientific work as part of the geosystem. An applicant may have obtained such an understanding through:*
- performance of field work;
 - visits to geoscientific operations;
 - experience in the merits of reliability and uncertainties;
 - understanding of the roles and limitations of computers and software;
 - understanding of externally imposed factors; or
 - understanding of the relationship of tasks to other activities or the end use.
- (b) *an understanding of the limitations of practical geoscience and related human systems in achieving desired goals. An applicant must demonstrate an understanding of:*
- limitations of technical methods;
 - limits of investigative and sampling procedures;
 - uncertainties;
 - interpretation;
 - interpolation;
 - the ability to predict;
 - project operating and maintenance philosophies; or
 - the difficulties of sampling, time, and project work flow.
- (c) *an understanding of the significance of time in geoscientific processes and an appreciation for the sequences and rates of natural occurrence of geoscientific processes in the natural environment.*

3. Management of Geoscience

An applicant should have obtained experience in the management of geoscientific projects. Such work experience may include the actual management of projects, supervision of staff, general exposure to a business environment, and management of geoscientific technology. Components of management may involve any of the following:

- (a) *planning:*
- identification of technical requirements;
 - development of concepts;
 - evaluation of alternative methods; or
 - assessment of required resources in order to plan for the societal and environmental ramifications of project implementation.
- (b) *scheduling:*
- establishing interactions and constraints;
 - developing activity or task schedules;
 - allocating resources;
 - assessing the impact of delays; or
 - determining and assessing broader project interactions with other projects and the market place.
- (c) *budgeting:*
- developing both conceptual and detailed budgets;
 - identifying labour, materials and overhead; or
 - assessing risk of cost escalation, and ongoing review of budgets in light of changes.
- (d) *supervision:*
- demonstrating leadership capabilities;
 - organising human resources;
 - motivating teams; or
 - managing technology.
- (e) *project control:*
- an understanding of the elements of tasks in a greater whole;
 - co-ordinating phases of project work;
 - monitoring expenditures and schedules;
 - recommending or taking appropriate corrective action when required; or
 - activity rates and scheduling of a geoscientific project in relation to equipment.
- (f) *an understanding of risk assessment as it relates to:*
- personnel;
 - equipment and system performance;
 - technology;
 - product performance;
 - accuracy of project results;
 - geoscientific hazard identification; or
 - field equipment breakdown and wear out.

- (g) *knowledge and understanding of codes, standards, regulations and laws that govern applicable professional geoscientific activities, overall project activities and end uses of geoscientific activities.*

- (e) a demonstrated interest and involvement in broader societal implications of geoscience; and
(f) the significant role of regulatory agencies on the practice of geoscience.

4. Communication Skills

An applicant should have a proficiency in both oral and written communication skills. An applicant shall provide, if requested by the Registrar and/or Registration Committee, examples of having fluency skills in the following areas:

- (a) *written work:*
- correspondence;
 - briefs;
 - reports;
 - documents;
 - publications; and
- (b) *presentations:*
- to co-workers, supervisors and senior management;
 - to clients and/or regulatory authorities;
 - at workshops and conferences of peers;
 - to the general public.

5. Awareness of Societal Implications of Geoscience

An applicant should have obtained work experience that recognizes societal implications of geoscience practice. An applicant must demonstrate an awareness of economic, safety, environmental or societal consequences with respect to such individual's work experience.

An applicant's work experience shall include, but not be limited to, an awareness of and responsibility for:

- (a) the necessity for accuracy, thoroughness and critical thought in all phases and levels of geoscience;
- (b) the recognition of the value or benefits to society of accuracy in geoscience operations, end products, reports, opinions and assessments to the public;
- (c) the safeguards in place to protect the public interest and identify and mitigate adverse impacts;
- (d) the relationship between the planet Earth, geoscience activity and the public at large;

Other Experience Considerations

In addition to providing information on the above noted experience criteria, the applicant may submit, in writing, any other pertinent information with respect to additional experience or circumstances for consideration of the Registrar and/or the Registration Committee.

Association of Professional Geoscientists of Ontario

For more information please contact:

The Registrar
60 St. Clair Avenue East, Suite 913
Toronto, Ontario M4T 1N5

Telephone: 416-203-2746
Fax: 416-203-6181

e-mail: registrar@apgo.net

Website: www.apgo.net

Admission requirements and fees and dues schedules are subject to change.

Published by the Association of Professional Geoscientists of Ontario