Professional Registration in the Geosciences

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Introduction

• What is PEGNL and its role?
• What is a Professional Geoscientist (P. Geo.) & why the importance of P. Geo?
• How does one become licensed as a P. Geo.? (the requirements)
• Canadian “Geoscience Knowledge” requirements.
• Satisfactory experience & logging experience
• Why become a G.I.T.?
• PEGNL’s and Memorial’s response to requirements.
• Where next?
• Q & A
Geoscience

- A Regulated Profession
- Governed by the Provincial Engineers & Geoscientists Act 2008
- Requires licensure
- Privileges & Responsibilities
- Duties to the public
- Subject to regulation & compliance
- Similar to Doctors, Lawyers, Nurses, Architects, etc.
Mandate

• Public protection / Public confidence
• Competent practice
• Ethical practice
• Sustainability
Role – how does PEGNL deliver on its mandate?

- **Licensure**
  - Responsible for the assessment of applications for licensure; Registration Committee determines academic & experience qualifications.

- **Regulation**
  - Discipline & Act Enforcement processes

- **Sustainability**
  - Need for licensed Professional Geoscientists
  - Establish legislation that enables good opportunity for the practice of the profession
  - Support students & others
Who/what comprises PEGNL?

- Self-regulated profession

Board of Directors

- Geoscience/Engineering Representatives elected by registered PEGNL members
- 3 non-geoscience/engineering representatives appointed by the Provincial Government
- Approx 4500 total registered members at present (includes Professional Geo & Eng License holders and Members-In-Training)
Geoscience in Canada

• 10 Provincial/Territorial regulatory Associations for Geoscientists

• Geoscientists Canada – National organization serving the interests of the Provincial Licensing & Regulatory bodies; profession as a whole

• Canadian Geoscience Standards Board
What is a Professional Geoscientist?

• Professional Geoscientist (P.Geo.) - a person who by having the required knowledge and experience can practice "professional geoscience."

• From the Engineers & Geoscientists Act, 2008: "practice of geoscience" means reporting on, advising on, evaluating, interpreting, processing, geological and geophysical surveying, exploring, classifying reserves or examining activities related to the earth sciences or engineering-geology:

  (i) that is aimed at the discovery or development of oil, natural gas, coal, metallic or non-metallic minerals or precious stones, water or other natural resources or that is aimed at the investigation of geoscientific conditions, and

  (ii) that requires in the reporting, advising, evaluating, interpreting, processing, geoscientific surveying, exploring, reserve classifying or examining the professional application of mathematics, chemistry or physics through the application of the principles of geoscience,

and includes providing educational instruction on the matters contained in this paragraph to a student at an educational institution;
Why do I have to be a P.Geo.? 

• It’s the law – practicing geoscientists must be licensed
• Use of geoscience title
• Protection of public safety
• Marketability and public recognition
• Networking
• Opportunity to participate in group benefit plans
The goal is not to keep people out, but to make sure that members meet professional standards in both competence and ethics.

Licensing & regulation is carried out in the province by PEGNL. Similar bodies exist in most provincial and territorial jurisdictions (e.g., APGO, APEGBC, APEGGA).
Why the rise in importance of P.Geo.?

- Professional registration has become the norm in the geosciences across Canada and ever increasingly on a global scale.
- Bre-X.
- Qualified person.
- “While I know that I am an honest person, the general public doesn’t, and this is why we need P.Geo status” - protecting the public interest.
- The profession is *self-regulated*. 
How do I become a P. Geo.?

- Registration
  - Must register in the jurisdiction that you are practicing or offering to practice
- Professional Licensure
  - Geoscientist-In-Training registration
- Requirements for licensure:
  1. Acceptable academic qualifications
  - Bachelor of Science Degree - Geoscience Knowledge Requirements
  2. Work Experience
  - At least four years
  - Supervised by a Professional Geoscientist
  - Properly documented
  3. Must be of Good Character
  4. Proficient in English
  5. Successful completion of Professional Practice and Ethics Exam (PPE)
How do I become a PGeo?
“... to prepare an individual to practice independently, after an appropriate period of supervised geoscience work experience following graduation.”

Geoscience Knowledge Requirements

• Based on the educational unit (EU) - 1EU = 1 course
• Compulsory Foundation Science - 3EU
• Additional Foundation Science - 6EU
• Compulsory Foundation Geoscience - 4EU
• Additional Foundation Geoscience - 5EU
• Other Geoscience/Science - 9EU
• Three streams:
  • Geology
  • Geophysics
  • Environmental
Geoscience Knowledge Requirements

- All streams have the same Foundation Science and Compulsory Foundation Geoscience

- **Compulsory Foundation Science - 3EU**
  - Math, Chemistry, Physics (*1 in each discipline*)

- **Additional Foundation Science - 6EU**
  - Biology, Chemistry, Computer Programming, Mathematics, Physics, Statistics (*no more than 2 in each discipline*)

- **Compulsory Foundation Geoscience - 4EU**
  - Field Techniques, Mineralogy and Petrology, Sedimentology-Stratigraphy, and Structural Geology (*1 in each discipline*).
Geoscience Knowledge Requirements

- **Additional Foundation Geoscience - 5EU**

<table>
<thead>
<tr>
<th>Geology</th>
<th>Environmental</th>
<th>Geophysics</th>
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<tbody>
<tr>
<td>Geochemistry</td>
<td>Geochemistry</td>
<td>Digital Signal</td>
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<td>Geophysics</td>
<td>Geophysics</td>
<td>Processing</td>
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<td>Igneous Petrology</td>
<td>Hydrogeology</td>
<td>Global Geophysics /</td>
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<td>Metamorphic Petrology</td>
<td>or Hydrology</td>
<td>Physics of the Earth</td>
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<td>Sedimentary Petrology</td>
<td>Engineering Geology</td>
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<tr>
<td>Sedimentology</td>
<td>Geomorphology</td>
<td>Seismology/Seismic</td>
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<td>Glacial Geology or</td>
<td>or Soil Science</td>
<td>Methods</td>
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<td>Geomorphology</td>
<td>Glacial Geology</td>
<td>Exploration Geophysics</td>
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<td>Remote Sensing</td>
<td>Remote Sensing</td>
<td>Radiometrics/Gravity</td>
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<td>&amp; Magnetics</td>
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<td>Electrical &amp; Engineering</td>
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<td></td>
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<td>Electromagnetic Methods</td>
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</tbody>
</table>

- **Other Geoscience/Science - 9EU**

- Varies with stream but mostly in geoscience and related fields.
PEGNL and Geoscience Knowledge

- Normalized evaluation procedure to take into account the new CCPG requirements.

- Created series of evaluation spreadsheets for various streams - streamlining.

### John Doe Evaluation

<table>
<thead>
<tr>
<th>Compulsory Foundation Science (3EUs - one in each)</th>
<th>Checklist</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry</td>
<td>X</td>
<td>Chem 1000</td>
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<tr>
<td>Math</td>
<td>X</td>
<td>Math 1080</td>
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<tr>
<td>Physics</td>
<td>X</td>
<td>Phys 1200</td>
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<thead>
<tr>
<th>Additional Foundation Sciences (6Eus; no more than 2 in any area)</th>
<th>Checklist</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology</td>
<td>X</td>
<td>Biol 2120</td>
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<tr>
<td>Chemistry</td>
<td>X</td>
<td>Chem 1001</td>
</tr>
<tr>
<td>Computer Programming</td>
<td>X</td>
<td>Comp 2602</td>
</tr>
<tr>
<td>Math</td>
<td>X,X</td>
<td>Math 1081, Math 1001</td>
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<tr>
<td>Physics</td>
<td>X</td>
<td>Phys 1201</td>
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<tr>
<td>Statistics</td>
<td>X</td>
<td>Stats 2510</td>
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<table>
<thead>
<tr>
<th>Foundation Geosciences (4EUs)</th>
<th>Checklist</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>Field Techniques</td>
<td>X</td>
<td>ES 4905</td>
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<tr>
<td>Mineralogy and Petrology</td>
<td>X</td>
<td>ES 2030</td>
</tr>
<tr>
<td>Sed-strat</td>
<td>X</td>
<td>ES 2310</td>
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<tr>
<td>Structural Geology</td>
<td>X</td>
<td>ES 3400</td>
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<table>
<thead>
<tr>
<th>Additional Foundation Geoscience (5EUs; no more than three in any area)</th>
<th>Checklist</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geochemistry</td>
<td>X</td>
<td>ES 2502</td>
</tr>
<tr>
<td>Geophysics</td>
<td>X</td>
<td>ES 3172</td>
</tr>
<tr>
<td>Igneous Petrology</td>
<td>X</td>
<td>ES 4053</td>
</tr>
<tr>
<td>Metamorphic Petrology</td>
<td>X</td>
<td>ES 3053</td>
</tr>
<tr>
<td>Sedimentology</td>
<td>X</td>
<td>ES 3701</td>
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<tr>
<td>Glacial or Geomorph</td>
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<td>Remote Sensing</td>
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### Other Geosciences/Science (9EUs; Second level or higher)

| ES 2031 - Mineralogy + Petrography                                  | X         |               |
| ES 2311 - Geoscience Communication                                  | X         |               |
| ES 2503 - Geochemistry II                                           | X         |               |
| ES 3811 - Paleontology                                              | X         |               |
I’m a student - why should I care about GIT/P.Geo.?  

- If you plan to be a professional, eventually you may want to do one of the following....  
  
- Reporting - you cannot sign off on reports to provincial and national regulatory bodies (e.g., Press Releases, NI-43-101 reports, Assessment Reports)  

- Supervising - reports and work in the modern industry must be supervised by a “Qualified Person” - i.e., a person with P.Geo. and requisite experience.  

- Bling bling (utilitarian) - your salary may be linked to whether or not you are a P.Geo.  

- All of the above will require you to be a P.Geo. - GIT is the first step towards becoming a P.Geo.!
Experience Requirement

- Important to recognize this requirement as you progress through your program

- Regulations state that up to 12 months qualifying work experience prior to graduation can be credited*

(*Must be at or past the midway point of the academic program)
Documentation of Experience

• Work experience is not automatically credited

• Important to log experience and have it verified/validated by a Professional Geoscientist Supervisor

• Log Book
  • Chronological written record of work experience & professional development
  • Bi-Weekly entries - minimum monthly
  • Each entry 8-10 lines; clear & concise
  • Each entry must be initialled by supervisor
  • Log must include the name, signature, and title of supervisor
Supervision

- Supervisor with other qualifications – Resume will be required; Committee must determine if qualified to judge; at least one supervisor should be a P. Geo.
## The LOG BOOK

<table>
<thead>
<tr>
<th>Entry date and number of days for each activity</th>
<th>Record of all work - Minimum one entry per month. List employer’s name for each entry. List supervisor’s employer if not the same as that of applicant EIT/GIT.</th>
<th>Verification of supervisor or client</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

Supervisor’s name in full, address and telephone number. Please verify that the work activities recorded in the right hand column are complete and accurate.

<table>
<thead>
<tr>
<th>NAME</th>
<th>ADDRESS</th>
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<tbody>
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<table>
<thead>
<tr>
<th>EMAIL</th>
<th>TELEPHONE</th>
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</table>
## The Logbook (Sample)

<table>
<thead>
<tr>
<th>Entry date and number of days for each activity</th>
<th>Record of all work - Minimum one entry per month. List employer's name for each entry. List supervisor's employer if not the same as that of applicant: EIT/GIT.</th>
<th>Verification of supervisor or client</th>
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</thead>
<tbody>
<tr>
<td><strong>Example 2</strong></td>
<td></td>
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</tr>
<tr>
<td>October 2000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oct 1-8</td>
<td>Site Modification Project cont'd. JC - site supervision, liaison with client, cost management, site sampling &amp; compliance activities.</td>
<td></td>
</tr>
<tr>
<td>Oct 10 - 25</td>
<td>Sampling Project</td>
<td></td>
</tr>
</tbody>
</table>

**Supervisor's name is in full, address and telephone number. Please verify that the work activities recorded in the right hand column are complete and accurate.**

**NAME** John Doe  
**ADDRESS** 123 Main St., Anytown, USA  
**EMAIL** jdoe@acme.net  
**TELEPHONE** 555-1234
“Satisfactory” Work Experience

- APPLICATION OF THE KNOWLEDGE OF GEOSCIENCE PRINCIPLES AND PRACTICE
- MANAGEMENT OF GEOSCIENCE
- SOCIAL IMPLICATIONS OF GEOSCIENCE
- COMMUNICATION SKILLS
“Satisfactory” Work Experience

• APPLICATION OF THE KNOWLEDGE OF GEOSCIENCE PRINCIPLES AND PRACTICE
  • geoscience training;
  • technical geoscience experience;
    • development of geologic concepts (for example: preparation of reports concerning deposits of rocks, minerals or other naturally-occurring earth materials); and,
    • mapping and systematic geoscience evaluation (with specific reference to bedrock, unconsolidated earth materials and/or snow, ice, groundwater, surface water and constituents thereof);
  • identification of geologic hazards and risk to the public and the environment.
“Satisfactory” Work Experience

• MANAGEMENT OF GEOSCIENCE
  • Supervision of staff; project leadership; budgeting; etc.

• SOCIAL IMPLICATIONS OF GEOSCIENCE
  • public and environmental safety; industry; finance and education; etc.

• COMMUNICATION SKILLS
  • communicate effectively with superiors, co-workers, government regulators, clients and the general public
Geoscientist-In-Training

- Should register as a Geoscientist-In-Training (GIT) upon graduation
  - All fees waived if registered in year of graduation
  - Academic qualifications assessed
  - Enter into Internship Program
  - Right to Geoscientist-In-Training (G.I.T.) title
  - Mentorship
  - Opportunity to participate in group benefit plans
  - Networking opportunities
Memorial and Knowledge Requirements

• If you do a normal Earth Sciences – Geology or Geophysics degree you should be OK meeting the knowledge requirements for GIT/PGeo.

• If you take joint degrees (e.g., Earth Sciences/Geography, Earth Sciences/Physics, Earth Sciences/Chemistry) - you may or may not meet the requirements. It is your responsibility to make sure that you take proper courses.

• It is the responsibility of the student/individual to ensure they have the requisite geoscience knowledge for Professional Registration.

• University have general goal to ensure this, but requires students to be aware of registration as well.
Acknowledgements

• Colleagues at Memorial, particularly the undergraduate matters committee at MUN. Special thanks to Alison Leitch and Michelle Miskell.

• Colleagues at PEGNL for contributions: Mark Fewer and staff.

• Steve Piercey is supported by the NSERC-Altius Industrial Research Chair in Mineral Deposits supported by NSERC, RDCNL, and Altius Resources Inc.

• Pizza and so-on was provided by PEGNL!
Questions and Answer Session!

• Fire away!
• Feel free to ask anything.
• If you are thinking about it, someone else is probably thinking about it as well!