Introduction to Careers in Industry

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What percentage of PhD graduates in the geosciences will go into industry?

a) 5%
b) 10%
c) 35%
d) 55%
Where the Jobs Are

Jobs by Sector

# Top 3 Industrial Employment Subsectors by Degree

<table>
<thead>
<tr>
<th>Degree</th>
<th>1.</th>
<th>2.</th>
<th>3.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA/BS</td>
<td>Environmental Sciences</td>
<td>Oil &amp; Gas</td>
<td>Information Services</td>
</tr>
<tr>
<td>MA/MS</td>
<td>Oil &amp; Gas</td>
<td>Environmental Sciences</td>
<td>Tie between: Mining &amp; Research Institutes</td>
</tr>
<tr>
<td>Ph.D.</td>
<td>Research Institute</td>
<td>Oil &amp; Gas</td>
<td></td>
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**Photos:**
- Oil Refinery by Walter Siegmund - Own work, via Wikimedia Commons
- Dessert Research Institute by Gregg M Erickson - Own work, via Wikimedia Commons
- Alaska by David Harwell – Own work, personal collection

**Source:**
American Geosciences Institute, Geoscience Currents, No. 108, 2015 Status of Recent Geoscience Graduates
Positions in Industry: The Product Value Chain

- Exploration and R&D
- Product Development
- Manufacturing and Supply Chain
- Quality Control and Regulatory
- Sales and Marketing

Support functions

Source: Based on Richard Porter’s Value Chain
Fictional Case Study: Remote Sensors R Us

Primary Business: Creating the tools needed by scientists to record, archive and analyze measurements made using remote sensors on airplanes and satellites.

Project Team: Project Manager, Analytical Chemist, Geochemist, Botanist, GIS Specialist

Instrument Design Team: Project Manager, Electrical Engineer, Mechanical Engineer, Software Designer, Quality Control and Testing Specialist
Positions in Industry: The Service Value Chain

Client Engagement → Exploration and Research → Data Analysis and Reporting → Regulatory Review → Marketing

Support functions

Source: Based on Richard Porter’s Value Chain
Fictional Case Study: **Hydrologically Speaking!™**

**Primary Business:** At Hydrologically Speaking!, we have extensive experience in hydrologic investigations, bridge hydraulics, geomorphology, stable channel design, scour computations, countermeasures, flood plain analysis, and permitting.

**Team:** Project Manager, Hydrologist, Soil Scientist, Geologist, Hydrogeologic Modeler, Civil Engineer, Regulations Specialist
Product Lifecycle: The Change Curve
What is the average life cycle of product or service in the global marketspace?

a) 6 months
b) 1 year
c) 5 years
d) 7 years
Product Lifecycle: The Formative Stage

Formative Stage:
- Investment
- Experimentation
- Excitement
- Finding what works
Product Lifecycle: The Normative Stage

Normative Stage:
• Standardization
• Incremental Improvement
• Reach and surpass the break-even point
• Regular Return on Investment
Product Lifecycle: The Maturity Stage

Maturity Stage:
- Diminishing Returns
- Frustration
- Standard Process Becomes Ineffective
Product Lifecycle: The Transformative Stage

Transformative Stage:
- New Product or Process
- Reinvention
- The Next Big Idea
Propagation of Performance

Maximizing the time in growth through reinvestment of returns.
What are the key skills or competencies needed to be successful in an industrial job?

Type your answers in the question panel.
What Counts in Industry

- Mastery of Sub-field
- Business Acumen
- Problem Solving Ability
- Collaboration Skills
- Pursuer of Excellence
- Innovator
- Risk Taker
- Leader
## Assessing Your Skills

<table>
<thead>
<tr>
<th>Personal Effectiveness</th>
<th>Problem Solving</th>
</tr>
</thead>
<tbody>
<tr>
<td>❑ Proactive Nature</td>
<td>❑ Systems Thinking</td>
</tr>
<tr>
<td>❑ Attention to Details</td>
<td>❑ Analysis</td>
</tr>
<tr>
<td>❑ Adaptability</td>
<td>❑ Innovation</td>
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</tbody>
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<th>Interpersonal</th>
<th>Operations</th>
</tr>
</thead>
<tbody>
<tr>
<td>❑ Communications (oral &amp; written)</td>
<td>❑ Planning &amp; Organizing</td>
</tr>
<tr>
<td>❑ Cultural/Social Awareness</td>
<td>❑ Managing Finances</td>
</tr>
<tr>
<td>❑ Teamwork</td>
<td>❑ Managing Projects</td>
</tr>
<tr>
<td>❑ Leading/Providing Direction</td>
<td>❑ Managing People</td>
</tr>
</tbody>
</table>
Researching Companies

• Company Website
• Strategic Plan
• Stockholder Reports
• Financial Performance
• Check Your Networks

Google Finance Results:
Alcoa Corporation, 5-year Market Performance

Source: Google Finance, NYSE data, 8 December 2016 at 9:45 EST
https://www.google.com/finance?q=NYSE%3AAA&sq=alcoa&sp=3&ei=0G9JWPHsFc5Re4K1ncAL
Using LinkedIn

1. Search for company
2. Look for 1st connections
3. Look for “shared connections”
4. Send InMail to 1st connections to request introduction.
5. Follow the company.

Source: LinkedIn, 8 December 2018 at 13:30 EST
https://www.linkedin.com/search/results/index/?keywords=alcoa&origin=GLOBAL_SEARCH_HEADER
Consider Company Size

- Start Up
- Small Business
- Mid-Size
- Global Enterprise
5 Dimensions of Organizational Culture

- Structure (Centralized or Decentralized)
- Speed of Action (Fast or Deliberative)
- Orientation (Results or Process)
- Management Style (Controlling or Empowering)
- Communication Style (Direct/Open or Indirect/Closed)
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ADVANCING EARTH AND SPACE SCIENCE