THINKING DIFFERENTLY ABOUT GEOSCIENCE CAREERS

Heather R. Houlton, American Geosciences Institute
Who is AGI?  
www.americangeosciences.org

- Non-profit federation of over 50 geoscientific professional societies
  - Founded in 1948
  - Represent over 250,000 geoscientists

- Main purpose
  - Provide information services
  - Strengthen geoscience education
  - Promote geoscience literacy and public awareness

- Focus Areas
  - Education & Outreach
  - Communications
  - Workforce Development
  - Geoscience Policy
  - Environmental Affairs
Thinking about your Career Pathway

1. What geoscience careers do you know about?
2. What geo subjects are you interested in?
   - Skills?
3. What are your other interests outside of geo?
   - Skills?
The Breakdown: Workforce Trends

US Geoscience Degrees Granted
1973 - 2014

Source: AGI Workforce Program, 2015
Attrition, Growth and Replacement in the next 10 years in the U.S.

- **297,000** geoscience jobs exist today (BLS)
- **143,000** geoscientists expected to retire by 2022 (AGI)
- **43,000** geoscience job growth by 2022 (BLS)
- **16,000** new MS/PhD + **35,000** BS/BA graduates (AGI)

Equals

- **51,000** total new graduates (with BS, MS and PhD)

Net deficit of over **135,000** geoscientists by 2022
The Breakdown: Workforce Trends

2013 Median Annual Salaries for Geoscience-Related Occupations

Management Occupations
- Engineering Managers: $128K
- Natural Science Managers: $96K
- Architecture and Engineering Occupations
  - Engineering Managers: $132K
  - Environmental Engineers: $87K
  - Petroleum Engineers: $82K
- Life, Physical and Social Science Occupations
  - Soil and Plant Scientists: $61K
  - Atmospheric and Space Scientists: $59K
  - Environmental Scientists and Specialists: $56K
- Education, Training and Library Occupations
  - Postsecondary Teachers: $52K
  - K-12 Teachers: $46K

All U.S. Occupations: $35,080
Employers Seek Skilled New Hires

- Competencies: “the capability to apply a set of skills to successfully perform tasks in a work setting.”
  - [www.careeronestop.org/CompetencyModel](http://www.careeronestop.org/CompetencyModel)
  - Geospatial Competency Model
- Geoscience Career Master’s Preparation Survey
  - AGI and AAG research study
  - Investigated preparation of Master’s students
  - Compared data with non-academic professionals’ insights
- Non-Technical and Technical Competencies
  - Non-technical = “Soft Skills” (anything but “soft”).
  - Technical Geology skills (discussed here)
  - Technical Geography skills
More Important Non-Technical Skills

KEY Preparation:
- Extensively Prepared
- Adequately Prepared
- Somewhat Prepared
- Not Prepared
- Not Applicable/ I don't know

KEY Importance:
- Very Important
- Important
- Somewhat Important
- Not Important
- Not Applicable/ I don't know

- Information Management
- Grant Proposals
- Time Management
- Adaptability
- Self Awareness
More Important Technical Skills: Geology

Plan and conduct geological investigations considering human health, safety, the environment, regulations, and quality assurance/quality control (QA/QC)

Collect, compile, and interpret historic information to plan geological investigations

Interpret and analyze available geological and geophysical data, maps, sections, and reports

Determine scales, distances, and elevations from imagery, surveys, maps, and GIS applications

Prepare, analyze, and interpret logs, cross-sections, maps, and other graphics derived from field investigations and GIS applications
Plan and conduct sedimentologic, stratigraphic, or paleontological investigations, including the use of modeling and geophysics.

Select and apply appropriate stratigraphic nomenclature and establish correlations.

Identify and interpret sedimentary processes and structures, depositional environments, and sediment provenance.

Identify and interpret sediment or rock sequences, positions, and ages.

Identify and interpret fossils and fossil assemblages for age or paleoenvironmental interpretations.

Less Important Technical Skills: Geology
“It’s great to identify what [your] dream job would be, and it’s great to pursue it, but don’t pursue it too doggedly so that you don’t see other opportunities out there ... The one thing that everyone should take away from every job they’ve ever had is that you learn something in anything you do: you should be developing some skill set that comes out of that. And you build on that. I learned much of my people management skills from being a bartender!”

-Vicki McConnell, Executive Director, Geological Society of America
Networking really is that important.

“If students want to get into the environmental or consulting field, I would recommend that they ... find engineering and consulting firms in their area. And not necessarily look for somebody that is advertising, but just find a contact with each company, send a cover letter and a resume, and then follow up with an email and a phone call. A lot of opportunities don’t get advertised. If your resume crosses a desk, and somebody’s looking to fill a position, you can get a job without having to wait for something to be advertised ... That’s the networking thing: Get your qualifications out to as many people as you can [and] talk to as many people as you can.”

- Mike Lawless, Draper Aden Associates
The Importance of Networking

• Job opportunities
  • Unlisted positions
  • Future positions & career prospects

• To create *more* contacts
  • Exponential process
  • 7 degrees of separation

• To form a relationship
  • Potential mentor
  • Collaborations
Different Types of Networking

- Informal
  - Conferences
  - Out with friends
  - On the street
  - Anywhere

- Formal
  - Conferences
  - Informational Interviews
  - Networking lunches
  - Career fairs
What is an informational interview?

- Type of formal networking situation
- Know or not know the person

Goals:
- Gather information
- Get advice
- Make a contact

**Ultimate goal: Get a job!**

The trick: you can’t ask for the job outright... (usually...)
How to Conduct a Successful Info. Interview

- **Step 1:** Identify who you want to speak with
  - The trick: Use the internet!
- **Step 2:** Contact them!
  - The trick: Email with cover letter and resume; ask for 15 min (coffee/phone call); be specific about days/times you’re available
- **Step 3:** Wait patiently for their response...
  - The trick: Follow-up email and a PHONE CALL!

If no response: PRACTICE AND REPEAT
Courting Your Contacts

- Informal
  - Prepare an “elevator speech”
  - Be enthusiastic
  - Be inquisitive
  - Be prepared with general questions!

- Formal
  - Come prepared!
  - Do your research
  - Prepare specific questions
  - Be professional
    - Cards
    - Resume
    - References
AGI Career Resources

- Workforce Program: [www.americangeosciences.org/workforce](http://www.americangeosciences.org/workforce)
  - Currents
  - Webinars
  - Career Resources
  - Geoscience Online Learning Initiative (GOLI)
    - [http://goli.agiweb.org/](http://goli.agiweb.org/)
  - Workforce projects
    - Geoscience Career Master’s Preparation Survey Report: [www.americangeosciences.org/workforce/reports](http://www.americangeosciences.org/workforce/reports)
Other Resources

- Medical Geology: http://www.medicalgeology.org/
- Geoscience Policy: http://www.americangeosciences.org/policy-critical-issues
- Geo Forensics: https://gsa.confex.com/gsa/2015SE/webprogram/Paper252033.html
- Article from Geotimes: http://www.geotimes.org/febo2/Feature_Shroderside.html
- Science Art: Kathleen Cantner’s geo-art - subscribe to EARTH magazine at: www.earthmagazine.org, or go to her website: www.kcantner.com.
- Competency Info: www.careeronestop.org/competencymodel/
Questions and Discussion

Thank you!

Email me with further questions at:
hrh@americangeosciences.org

Visit our website at:
www.americangeosciences.org