

The following advice and tips were collected by Career Pathways Panelist prior to the 2017 GSA Annual Meeting. Panelists are listed below:

- Roger Cooper, Newmont Mining Corporation
- Bret Dixon, Anadarko Petroleum Corporation
- Alicia Kahn, Chevron Energy Technology Co.
- Mike Kelley, NASA Headquarters
- Johanna Kovarik, U.S. Forest Service
- Bill Laprade, Shannon & Wilson, Inc.
- Aisha Morris, UNAVCO, Inc.
- Jeffrey Rubin, Tualatin Valley Fire & Rescue

***What coursework, degree requirements and/or experience would you suggest students have to help them get an internship/employment with your company or agency?***

• **Roger Cooper:**

Internship: We understand that Interns are there to get experience so state what you want to do and perhaps it's something you don't have in your course list. Tailor it to the place you are applying for. If it's an operation "I want open pit operational experience" and if its head office perhaps "I want technical experience in assisting senior geologists" or "I would like to get some experience in the geotechnical field". Keenness and good humor in the face of lots of work is what we value in Interns.

Employment: Some mapping experience is increasingly being used to thin out candidates. Until the 90s it was totally standard that a graduate geologist could map. They could usually map much better than they could interpret. Now we find graduates who have never mapped and much of geology still relies on maps – reading them well requires the ability to understand how they were made. So a mapping course or two is recommended.

Increasingly the second degree is important to ascend the upper ranks but it's not critical to start work as a graduate. Earth sciences rarely hire grads for head office – even PhDs are expected to get some field time so at the mine or in the exportation office a Bachelors is fine for logging, mapping and mining ops.

Depending upon your situation (finances and how good a student you are – I'm fairly average) and how good the market for Geologists is you can choose to go straight to a second degree or not. If the market for Geologists is real hot then get out there, make some money and get some experience! It might be different in a couple of years and then the experience is what will count. You can come back later to do the Masters, PhD, MBA or whatever when its quiet. Most companies also provide financial support for ongoing study so keep that in mind and use it as soon as you can.

• **Bret Dixon:**

Good fundamentals of geology or geophysics, an understanding of tectonics and structure, stratigraphy and sedimentology, petroleum systems and basin evolution, undergraduate research during bachelors, attend industry sponsored events or trips, previous part-time or full time work with an industry service company (e.g. mudlogging, wireline, operations geology, well steering, seismic acquisition or processing, core handling and sampling, geochemical sampling

and analysis, etc.), previous geoscience industry internships, and a wide variety of personal growth and discovery related life experiences.

- **Alicia Kahn:**

MS or PhD required for earth scientists. BS for engineers. The more internship experiences the better, lab work, field work...basically anything that is a geologically related workflow. ArcGIS and seismic software are good tools to know. If you can't get in with a major, go smaller, or go to service companies. They will give invaluable and interesting hands on experience and often more leadership opportunities should you then decide to transition elsewhere.

- **Mike Kelley:**

Some of the first careers that come to mind with NASA are scientists and engineers, of course. But NASA hires interns and employees in a wide variety of disciplines. A few examples are specialists in legislative affairs, international relations, education and public outreach, medicine, and law (space policy, corporate, federal, international, etc.).

- **Johanna Kovarik:**

When hiring GeoCorps participants, I look to see that they have coursework relevant to the work of the position, and experience working independently. If a field position, I look for experience in the outdoors, whether through work or through personal interest.

The requirements and qualifications for physical science positions (1300 series) with the federal government are available on the [OPM website](#). Positions at the lower GS (general schedule) levels can be hired with a bachelor's degree, positions at the GS-09 level and above often have many applicants with Master's degrees.

Having GIS experience is very helpful, while the agency does hire GIS specialists; many of our physical scientists do some level of their own GIS work, including database creation and management.

Finally, while moving to a different geographic location may not be something you can do – it is much easier to get hired if you are willing to move to a different area for a position. This will open up a larger number of opportunities in your job search.

- **Aisha Morris:**

Most STEM-focused careers require a robust quantitative background, so it is important to take as many quantitative courses as possible and demonstrate strength in those courses. UNAVCO offers positions in a variety of areas, from education and outreach, to field engineering, to data and software engineering. In my opinion, the keys to securing the position you want (at UNAVCO or any other organization) are to 1) be very good at what you do (and that includes enjoying your work) and 2) be able to successfully “sell” yourself, including your training, expertise, “soft” skills, and abilities. Seek out professional development opportunities with people who will be able to help you appropriately craft your messaging about yourself. Ensure you are able to think beyond the situation at hand and integrate your knowledge gleaned from multiple arenas.

- **Jeff Rubin:**

Background and prereqs can vary widely among applicant and prospective employer. It's helpful to distinguish between a position requiring a generalist and one requiring a specialist: most people are much better at one than the other, and if you're “the other,” it might not work out.

That, of course, means that you need to recognize whether you're a "hedgehog" or a "fox." STEM positions and backgrounds commonly focus on specialists – that's a big reason that I'm in a position that leans heavily toward generalists. Many emergency managers are or become experts in specific areas, but must be conversant or better in many more.

ERS

Bringing a (geo)science background to a position in or working with emergency management carries value not just for the technical knowledge of earth processes and natural hazards, but also the ability to apply the scientific method, critical analysis, and synthesis to fields outside of traditional science. That includes being able to communicate with non-scientists without feeling

