

NEWS

Survey Provides Insights About Recent Geoscience Graduates

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Most new postsecondary geoscience graduates in the United States took an Earth science course in high school, 20% of those who graduated with master's and doctoral degrees did not have any postsecondary education chemistry courses, and nearly three quarters of master's graduates found positions within the oil and gas industry.

These are among the findings of a 30 September report about recent geoscience graduates that provides some insights into the preparation, experiences, and future plans of postsecondary graduates with a geoscience degree. *Status of Recent Geoscience Graduates 2013*, prepared by the American Geosciences Institute (AGI), also provides data about why graduates major in the geosciences, the role of internships and field and research experiences, and where graduates find jobs in the geosciences.

The most cited reasons for majoring in the geosciences, according to the report, are enjoyment of an outdoor or field experience, an undergraduate introductory course, a lifelong interest in the subject matter, and career opportunities.

Sixty percent of bachelor's graduates and 65% of doctoral graduates did not hold an internship during postsecondary education, while 62% of master's graduates held at least one internship, the report notes. However, internships have been shown to be beneficial, with 26% of bachelor's, 48% of master's, and 14% of doctoral graduates finding a job with a company or organization where they had interned. "Student participation in internships at the bachelor's and doctoral degree levels is surprisingly low, especially considering the importance of internships in the students' transition into the workforce," the survey notes.

A section of the survey exploring quantitative skills and the geoscience background of graduating students notes that 60% of bachelor's, 48% of master's, and 58% of doctoral graduates had taken high school Earth

sciences courses. "Much of the rhetoric related to recruitment of geoscience majors claims that access to Earth science in high school is limited," according to report author Carolyn Wilson, a geoscience workforce analyst with AGI. "The percentages of students with exposure to a formal Earth science course in high school [was] higher than expected, which raises a key question: Is having Earth science in high school such a major catalyst towards majoring in the geosciences, or are Earth science courses actually much more broadly available (but perhaps not required) than we originally thought?"

Regarding future plans, the survey found that nearly 55% of doctoral, about 43% of master's, and about 14% of bachelor's graduates had accepted a position within the geosciences. The oil and gas industry was where the largest number of master's graduates (74%) and bachelor's graduates (36%) found employment. Significant numbers of bachelor's graduates also found employment in the environmental services sector (21%), mining (11%), and research institutes (9%).

For master's graduates, the federal government accounted for 11% of positions, with state or local government providing 7%. Among doctoral candidates, 43% found employment at 4-year universities, 22% with the oil and gas industry, 21% with research institutes, and 14% with the federal government. "It appears that the higher the degree level, the narrower the range of industries involved in hiring," the report states.

Wilson told *Eos* that the survey was developed to focus on addressing questions and concerns from department administrations, faculty, and employers seeking specific data characterizing graduates through their educational preparation, field and research experiences, and immediate career path. She said that employers also had expressed concern about the workforce readiness of new graduates and that those involved with academic programs are interested in understanding how they are performing.

"The data presented in this report will be useful for multiple audiences. Departments will be able to assess their effectiveness in educating their students, as well as use this information to increase recruitment and retention of new majors. Students will have a better understanding of the job market and expectations for early career geoscientists," she said. "The overall professional geoscience community will be able to use this information to move beyond just an anecdotal basis of the experiences and preparation of the general geoscience workforce."

Wilson said that the biggest takeaway from the survey is that "in general, geoscience programs seem to be addressing much of the voiced concerns by the community, such as exposure to field work and research experiences. This report also confirms that much of the recruitment and retention of majors is largely up to the departments."

"However, we do see some deficiencies in the proximal activities, such as lower participation in higher-level math courses and internships, which tend to be activities that employers look very favorably on when recruiting new graduates," she added. "This also aligns with reports from recent graduates who contact our program and are struggling to find employment even though nationally there is a high demand for geoscientists. The two things most of these individuals have in common are limited math courses past Calculus I and no internship experiences."

The survey, conducted between April and July 2013, elicited responses from 428 graduating students from 71 out of more than 650 geoscience departments at 4-year institutions in the United States. Respondents included 339 bachelor's graduates, 63 master's graduates, and 26 doctoral graduates. For context, during the 2011–2012 academic year, geoscience departments granted 3281 bachelor's degrees, 1541 master's degrees, and 600 doctoral degrees, according to AGI. Beginning this fall, AGI plans to collect responses from geoscience graduates at the end of each semester and plans to expand the distribution of the survey internationally beginning in 2014.

See http://www.agiweb.org/workforce/StatusRecentGeoGraduates_2013.pdf for more information.

—RANDY SHOWSTACK, Staff Writer