

Status of Recent Geoscience Graduates

2013



Carolyn Wilson



About AGI's Geoscience Student Exit Survey

The American Geosciences Institute (AGI) has launched the Geoscience Student Exit Survey as a means to assist geoscience departments in assessing the attitudes of graduating students, as well as to examine ongoing evidence of experience gaps of new graduates entering the workforce. With this survey we hope to identify student decision points for entering and persisting within the geosciences, identify the geoscience research fields and co-curricular activities of interest to the students, identify the preferred jobs and industries of graduating students including those not considered part of the traditional geoscience workforce, and establish a benchmark for a detailed study of the career pathways of early career geoscientists. Likewise, the Geoscience Student Exit Survey is the gateway for an ongoing longitudinal survey of geoscience professionals that has just launched in 2013.

Status of Recent Geoscience Graduates examines the responses to AGI's Geoscience Student Exit Survey by spring 2013 graduates.

This survey has four major sections: student demographics, educational background, postsecondary education experiences, and post-graduation plans, with specific questions that cover areas such as community college experiences, quantitative skills, field and research experiences, internships, and details about their immediate plans for graduate school or a new job. The survey was piloted twice in spring 2011 and spring 2012. Before launching the survey nationwide in 2013, institutional review board (IRB) approval by the American Institutes for Research (AIR) was secured for the survey questionnaire and distribution methodology. For spring 2013 graduation, we opened the survey up to any geoscience department in the United States to participate. Departments were asked to pass along the survey link for their department to their graduating students. As an incentive for participating,

each department has the opportunity to add questions to the survey for their particular graduates to answer. At the end of the survey period, all the data from students from a particular department is shared in aggregate with that department as long as they have a critical mass of participating students.

Beginning this fall, AGI will collect responses from geoscience graduates at the end of each semester — fall, spring and summer. We hope to continue to gain more department participants each year as we move forward with this survey effort. We also plan to expand the distribution of the survey internationally in 2014. This survey will provide the geosciences community with a more detailed description of the make-up and preparation of the early career geoscientist as he/she enters the workforce.

If you would like more information or would like your department to participate in AGI's Geoscience Student Exit Survey, please contact Carolyn Wilson by email (cwilson@agiweb.org) or phone (703-379-2480 ext. 632).

Status of Recent Geoscience Graduates

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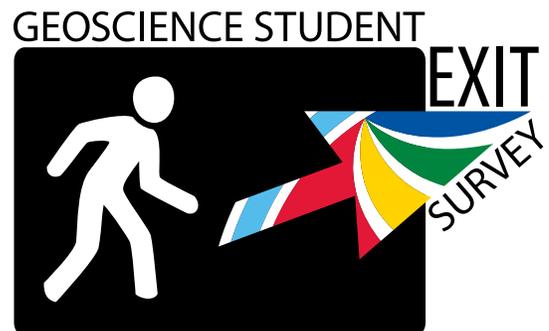
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Executive Summary

AGI's 2013 Status of Recent Geoscience Graduates provides an overview analysis of the demographics, activities, and experiences of geoscience students that received their bachelor's, master's, or doctoral degree in the spring of 2013. This research draws attention to student preparation in the geosciences and their education and career path decisions. This report addresses many of the questions often raised when considering the transition into the workforce.

Overall, the importance of the academic program and the department's functions are highlighted as a key component for the recruitment, preparation and transitioning of students into the geosciences community, which is seen through their development of quantitative skills, reasons for choosing the major, participation in field and research experiences, and identification of resources for finding employment.

This report is focused on presenting the resulting data for the end user's consideration. However, there are several interesting and notable trends in the results. While the gender gap appears to be closing at all degree levels, there is still substantial underrepresentation of minority groups in geoscience departments. The availability of high school earth science does not appear to have been a major issue to students.

Another key data point is that the majority of geoscience students stop developing their quantitative skills at Calculus II. Introductory courses in college and the department atmosphere are both key for recruitment into the major, and the departments offer plenty of field and research experiences for their students. However, 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. Finally, the petroleum industry is very effective at job recruitment at graduation, and the majority of graduates still looking for employment want job positions within their field, meaning any attrition in that transition would be from a lack of job availability or a lack of satisfaction after entering the workforce.

In future years, we expect to be able to provide more details and comparisons regionally and by degree level. AGI is also conducting an ongoing longitudinal survey that will follow these early career geoscientists as they progress in their post-graduation lives. The combination of these two studies will present a better understanding of the workforce pathway in the geosciences and enable both geoscience departments and employers to improve the educational and career opportunities for future geoscience graduates.

Acknowledgements

We would like to recognize a few organizations and individuals for their support for this project. Thanks to ConocoPhillips for their contribution towards the project this year. Thanks to Pranoti Asher at the American Geophysical Union for allowing the Exit Survey to be a topic of discussion during the monthly AGU/AGI Heads and Chairs webinar. Thanks also to the Geological Society of America for distributing the survey to their department constituents to pass on to their students. We also want to thank the AGI Workforce 2013 Summer Intern, Anne Miller, for quality controlling the data from this survey. Finally, we would especially like to thank the department representatives from each participating department for distributing the survey to their graduating students.

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An Overview of the Demographics of the Participants

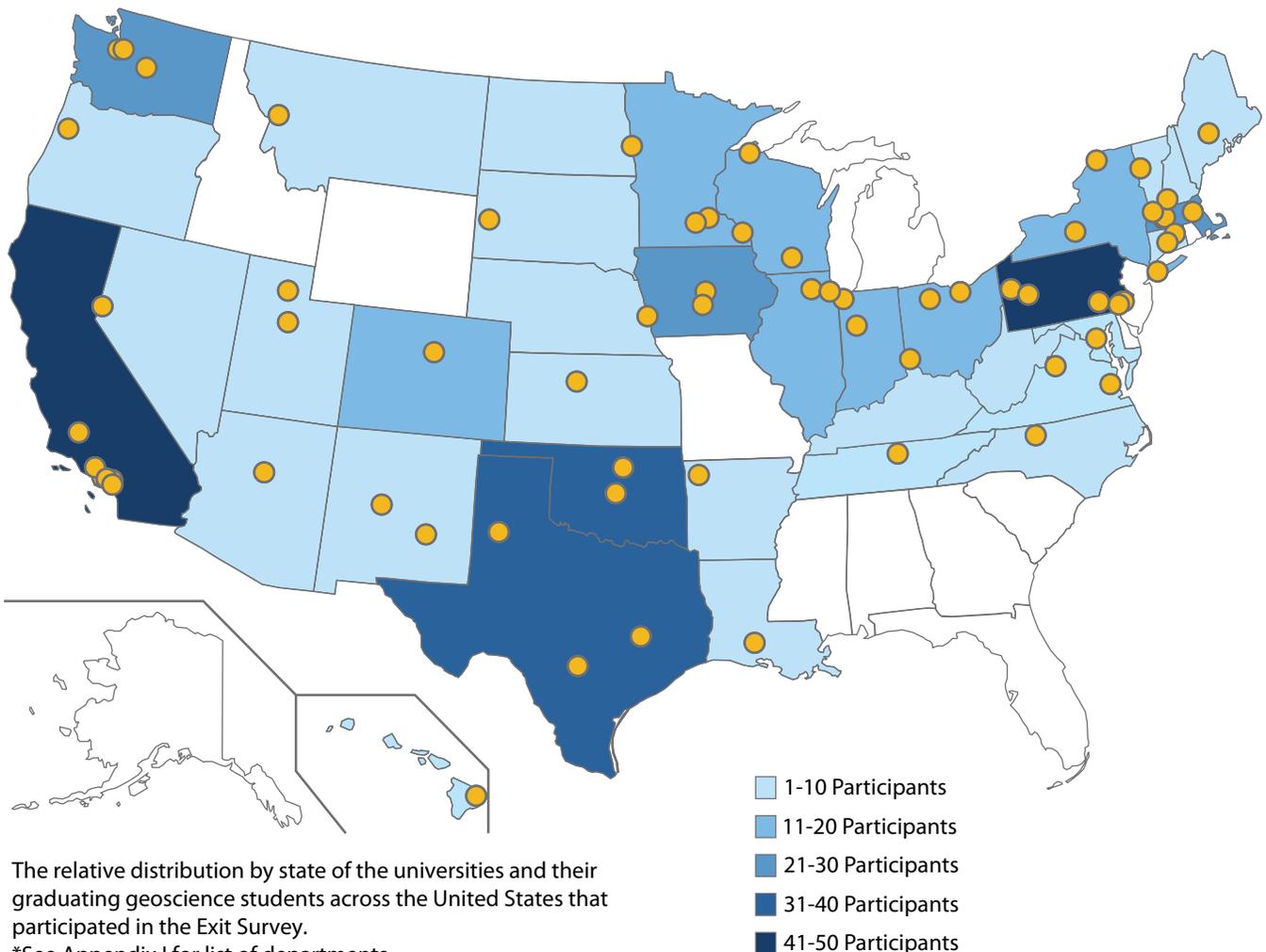
Student recruitment for this survey began with an email to all the geoscience departments across the country. Distribution instructions and the survey link were sent to identified representatives from participating geoscience departments. AGI worked directly with the department representatives to determine the appropriate distribution date for spring graduates and to customize the survey appropriately for their graduates. These department representatives then distributed the survey link to their graduates.

The survey was available to the students from the end of April to the end of July. At the close of the survey, 428 graduating students from 71 different departments provided

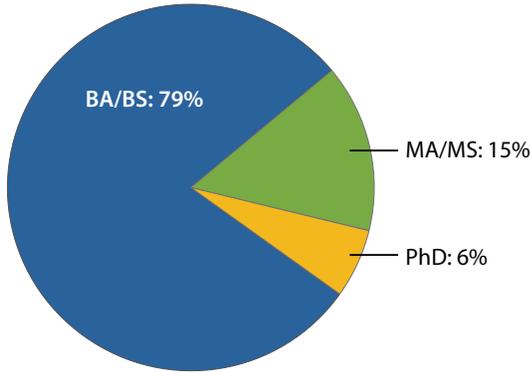
responses — 339 bachelor’s graduates, 63 master’s graduates, and 26 doctoral graduates.

The first section of the survey covered student demographics in order to establish an understanding of the students that graduate in the geosciences. A point of note: students indicating their citizenship as U.S. Citizen or Permanent Resident were asked to indicate their race and ethnicity. It is well-understood that the geosciences have trouble recruiting underrepresented minorities. Currently, the Latino/Hispanic population appears to be the minority community in which the geosciences have had the greatest success.

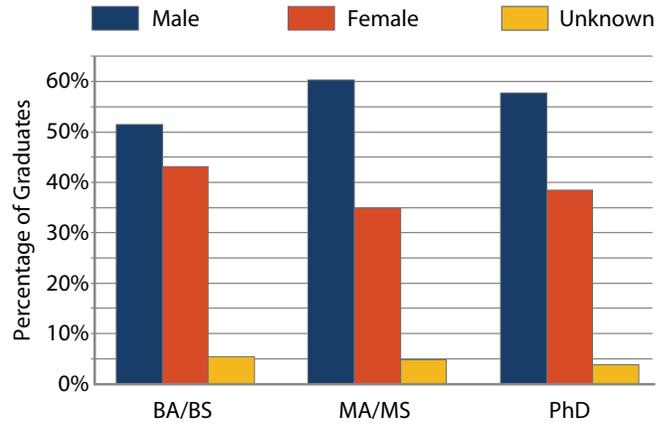
Distribution of participating graduating students and departments*



Degree received by graduating students

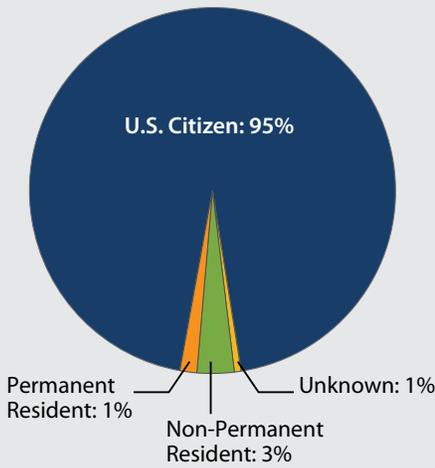


Gender breakdown of graduates

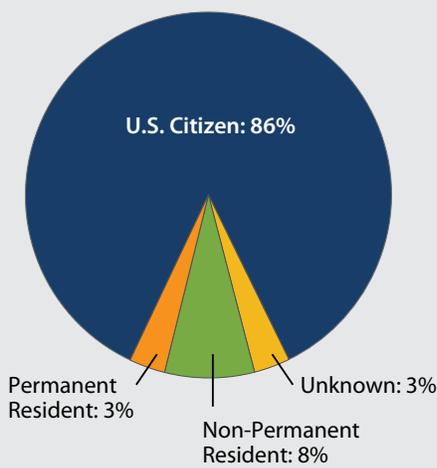


Citizenship of graduating students

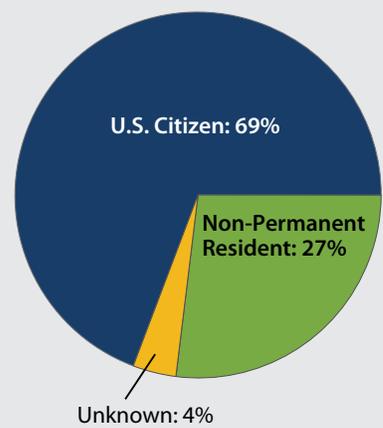
Graduates with a BA/BS



Graduates with a MA/MS

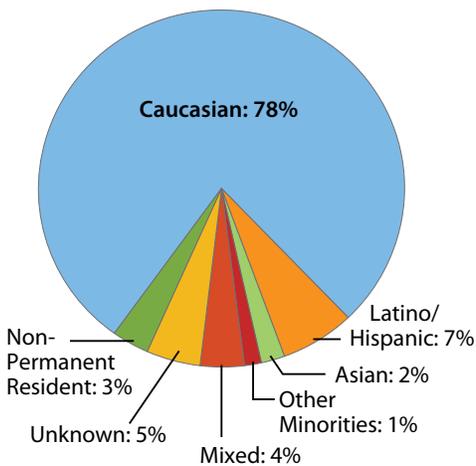


Graduates with a PhD

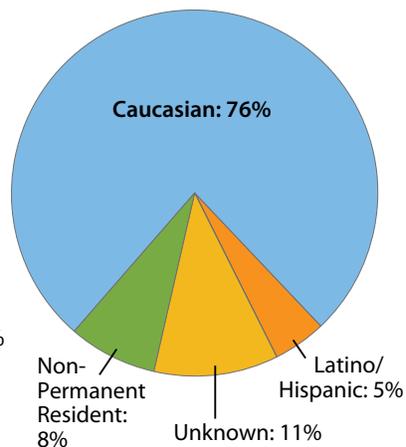


Race/ethnicity of graduating students

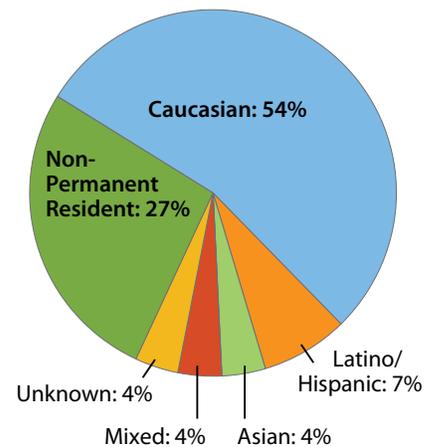
Graduates with a BA/BS



Graduates with a MA/MS



Graduates with a Doctoral Degree



Quantitative Skills and Geoscience Background of the Graduating Students

This section looks at often discussed questions related to the graduates' educational background, such as quantitative rigor, the role of K-12 experiences, and the importance of 2-year colleges.

Students were asked to select all the quantitative courses they have taken while in a 2-year or 4-year institution. While most bachelor's graduates took Calculus II, a small percentage took higher level quantitative courses, and it can be assumed that this small percentage represents the relatively same cohort of students in those higher level classes.

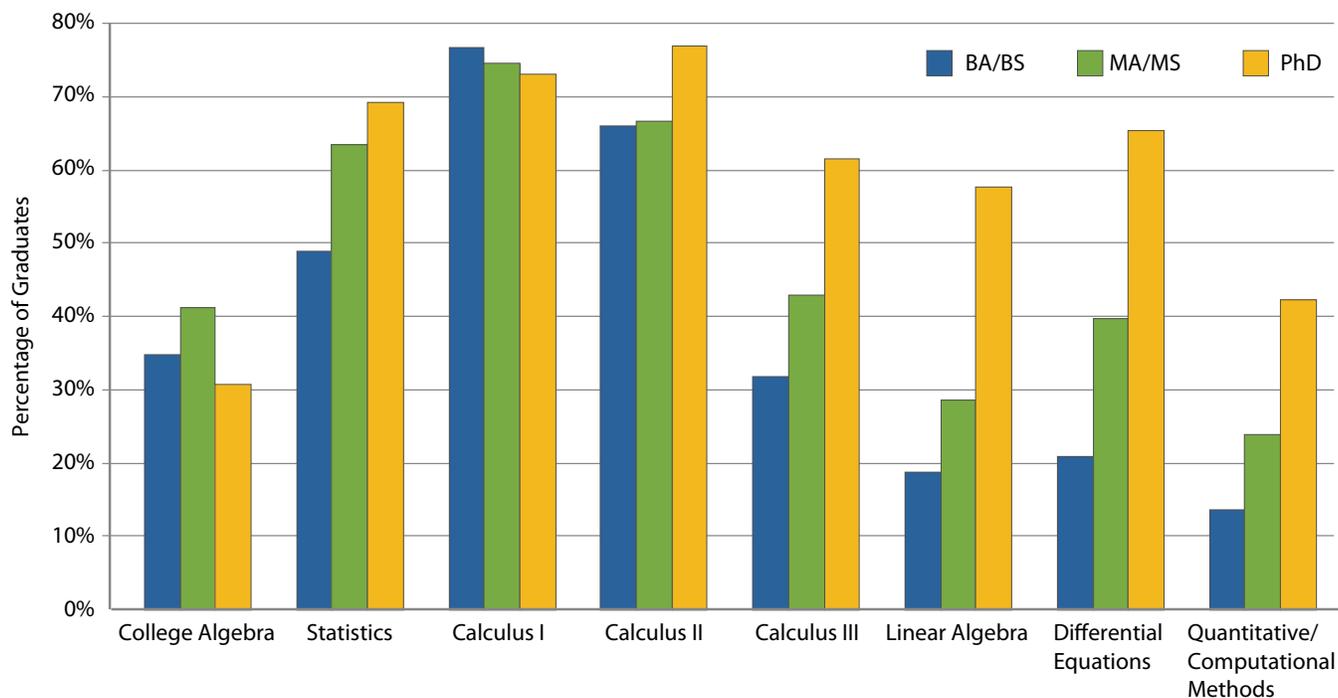
Somewhat surprisingly, the number of graduates who had an Earth Science course in high school was rather substantial, generally around 50 percent, which seems to go against anecdotal claims of a lack of exposure to Earth Science in high schools. Increasingly, school districts are offering high

school-level Earth Science courses in middle school, or high schools are offering integrated Earth and Environmental Science courses. The percentages of students that indicate taking Earth Science during high school is expected to decrease in the future.

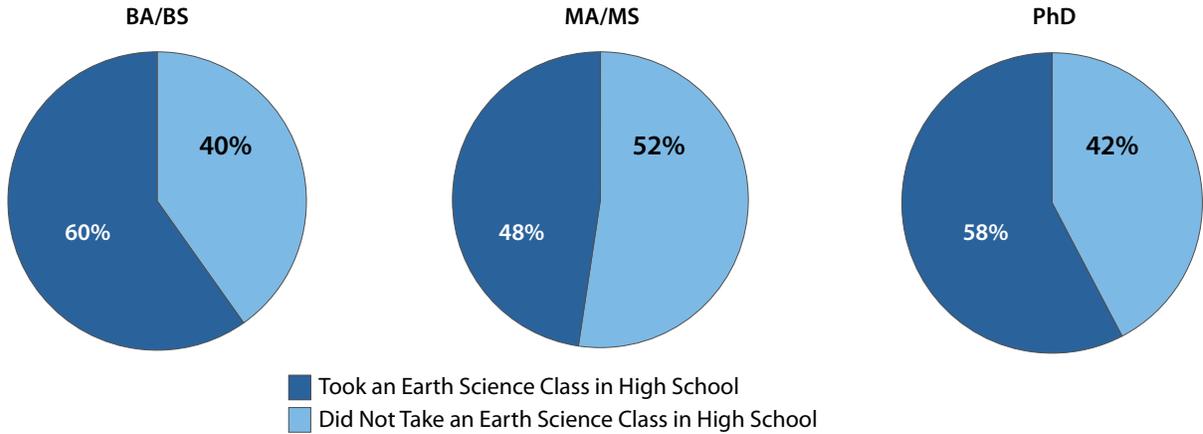
A notable percentage of graduates had attended 2-year colleges. All levels of attendance were higher, especially at the doctoral level, then when this metric was last measured in 2009.

Students were asked which additional core physical science courses they took during their postsecondary education. Surprisingly, 20 percent of master's and doctoral graduates have not taken any chemistry courses and just under 20 percent of all doctoral graduates have not taken a basic physics course.

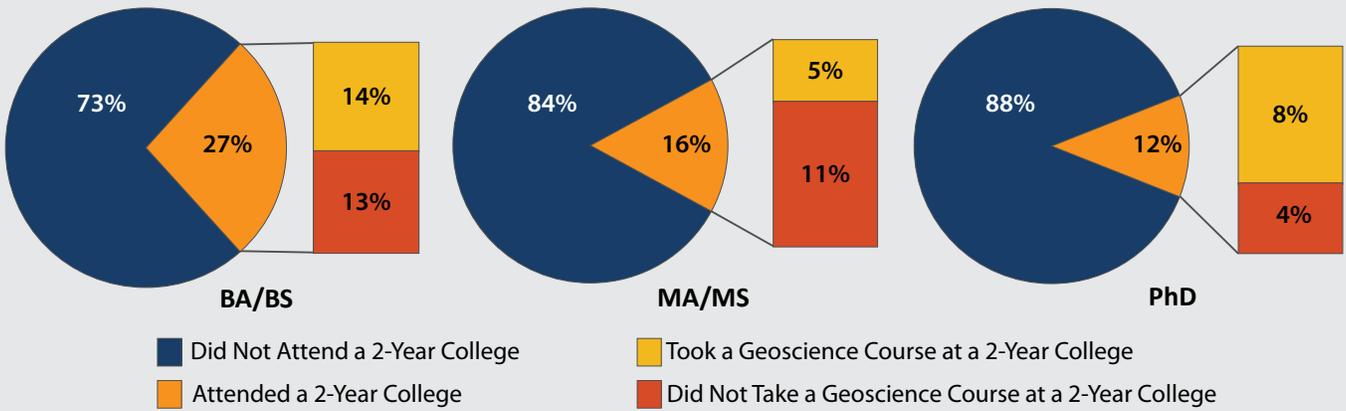
Quantitative skills and knowledge gained while working towards degree



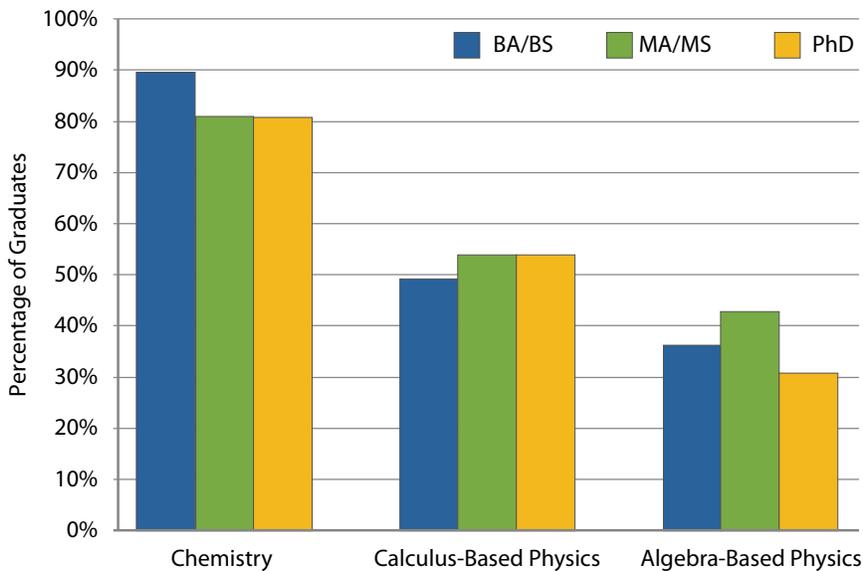
Graduates who took an earth science course while in high school



Graduates who attended a two-year college for at least 1 semester and took a geoscience course



Percentage of graduates taking supplemental science courses

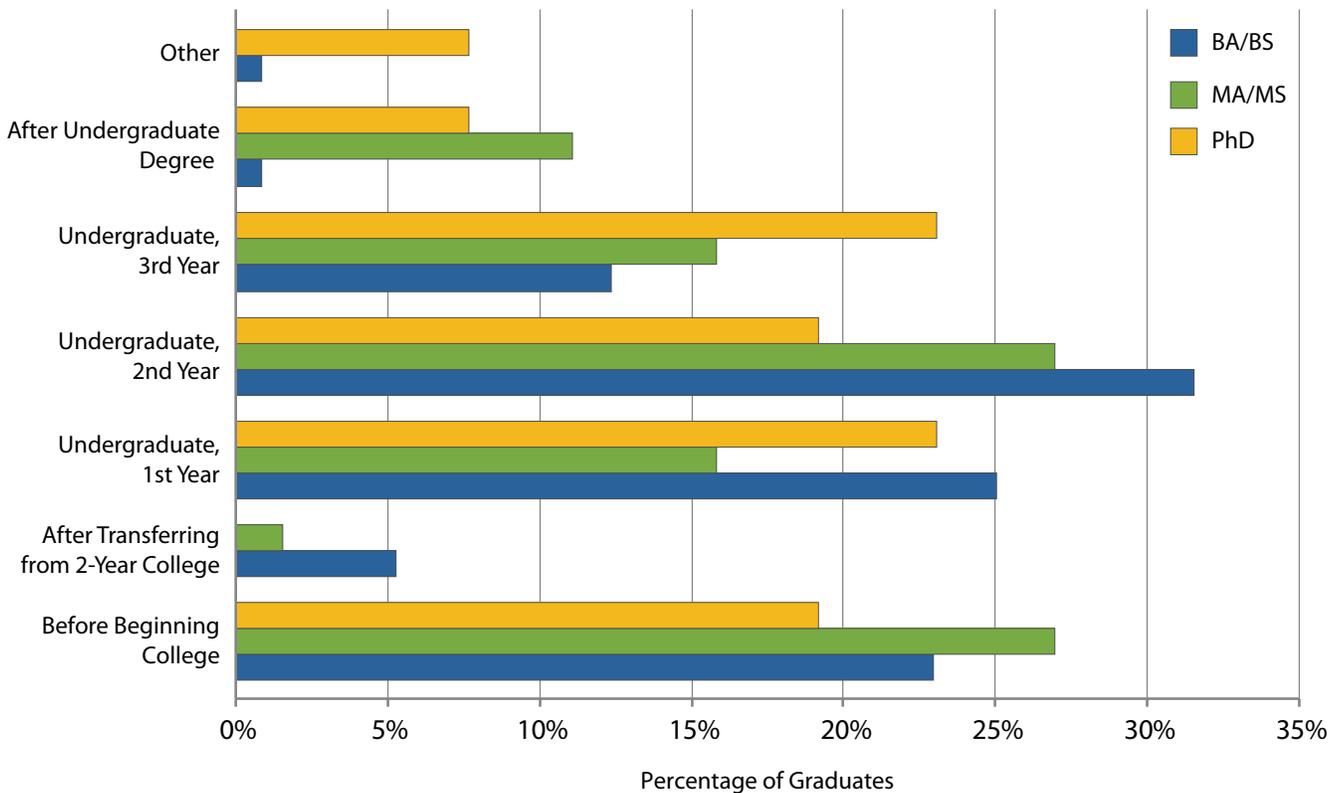


Choosing Geoscience as a Major

Graduates were asked which geoscience field they were getting a degree in, as well as the fields associated with any other postsecondary degrees. The chosen degree fields demonstrate the variety of disciplines related to the geosciences. While the majority of bachelor's graduates received their degree in geology, this percentage decreases with each higher level degree. For master's graduates, 65 percent changed their geoscience degree field for their graduate research and 8 percent had earned an undergraduate degree in a field outside of the geosciences. For doctoral graduates, 69 percent changed their geoscience degree field for their doctoral research and 15 percent came to their doctoral work after earning an undergraduate degree in a field outside of the geosciences.

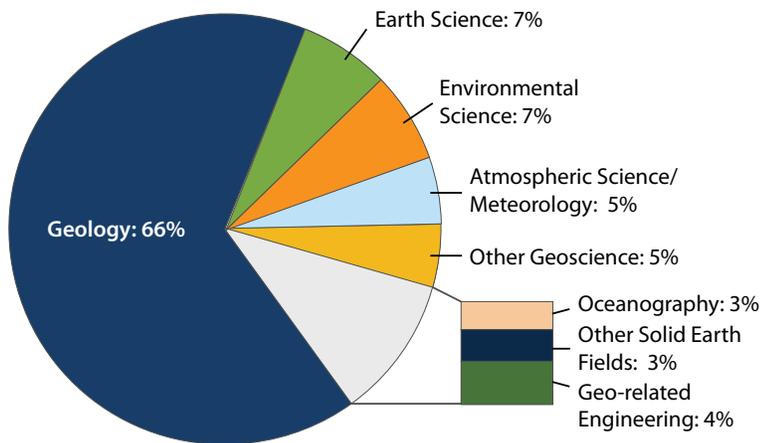
The majority of the graduates at all levels chose to major in the geosciences at some point during their undergraduate education, which highlights the importance of undergraduate geoscience courses to the recruitment of majors, but they cited different reasons for why they chose a geoscience major. The most cited reasons by graduates for majoring in the geosciences include the enjoyment of an outdoor or field experience, their undergraduate introductory course, a lifelong interest in the subject matter, and the career opportunities available in the geosciences. Other reasons mentioned by graduates include the influence of a faculty member and/or fellow students, a desire to better understand earth processes and research related to these discoveries, and a desire to make an impact on society.

When students decide to major in the geosciences

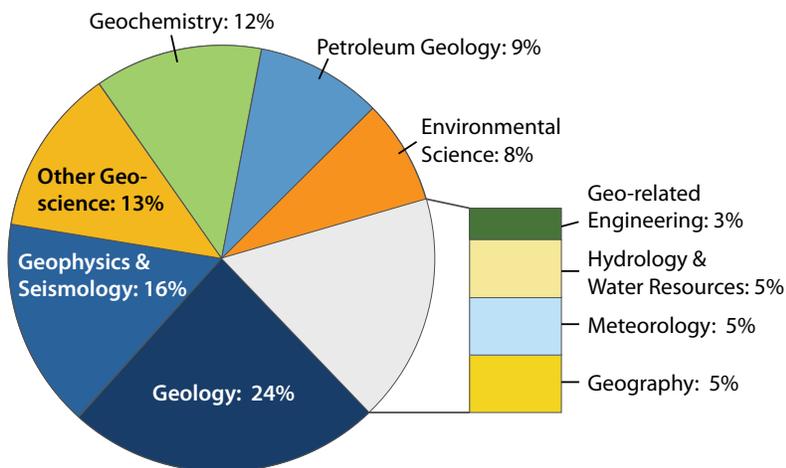


Chosen geoscience degree fields

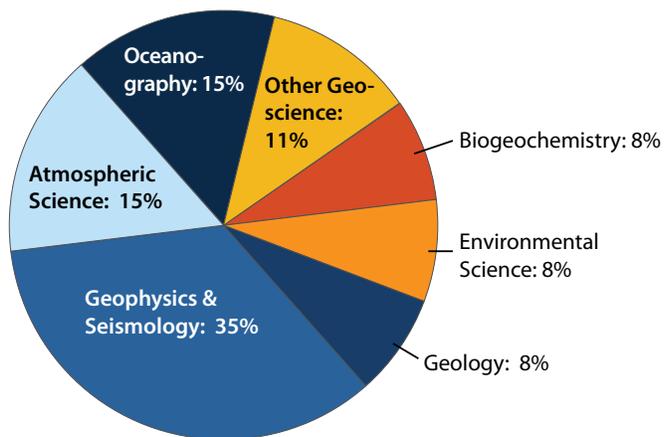
Bachelor's Degree Graduates



Master's Degree Graduates



Doctoral Degree Graduates



Ancillary Factors Supporting the Degree

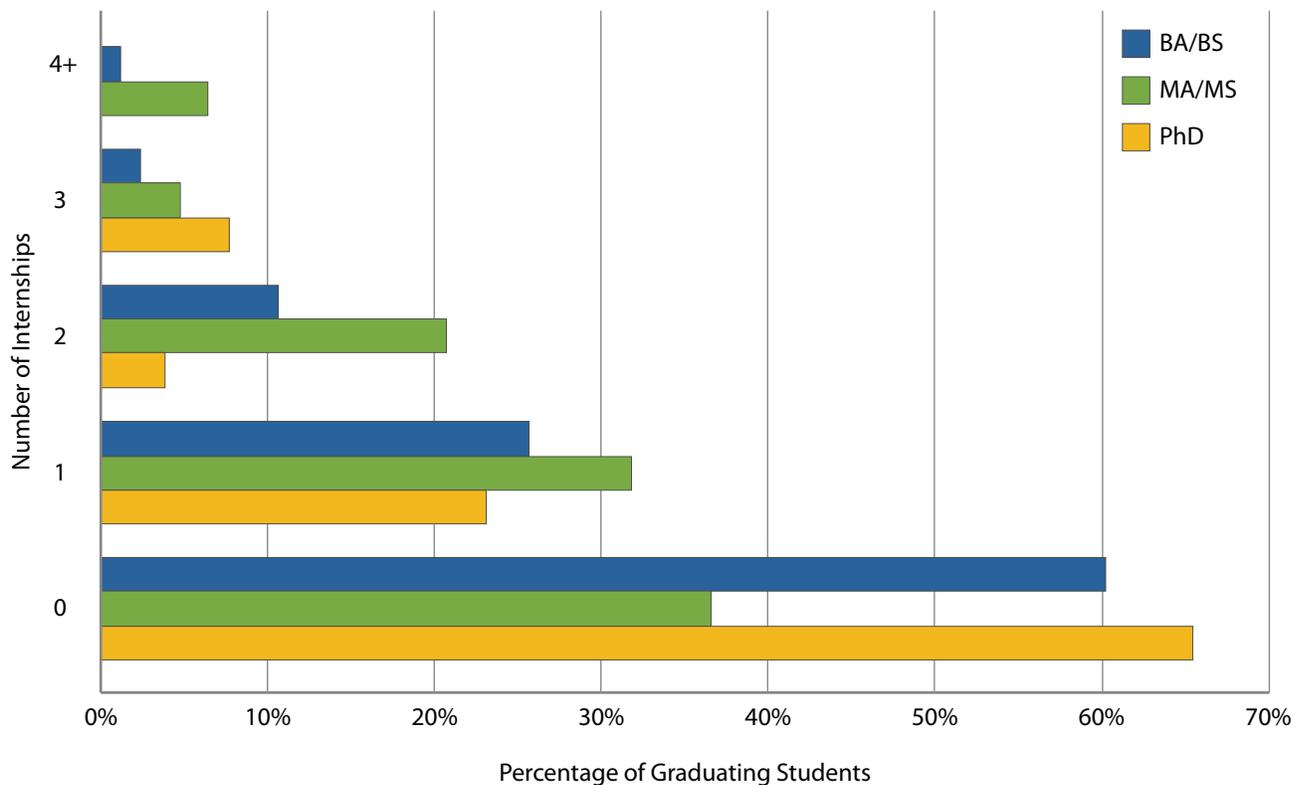
Graduates were asked questions related to their experiences while working towards their degree. Interestingly, the majority of bachelor's and doctoral graduates, 60 percent and 65 percent respectively, did not hold an internship during their postsecondary education, whereas 62 percent of master's graduates held at least one internship. This is particularly surprising because when the graduates with an internship experience were asked to rate the important of internships to their professional and academic development, 80 percent of bachelor's graduates, 88 percent of master's graduates, and 67 percent of doctoral graduates rated it "very important." This is also reinforced by the graduates that found a job within the geosciences. Twenty-six percent of bachelor's graduates, 48 percent of master's graduates, and 14 percent of doctoral graduates

found a job with a company or organization where they previously interned.

Graduates were also asked about their involvement with a geoscience membership organization. Professional societies can be useful tools for success as an early-career geoscientist, so it is somewhat surprising that only 65 percent of doctoral graduates mentioned their association with one of these societies, compared to 86 percent of master's graduates.

Over 80 percent of graduates at all levels had financial aid while working towards their degree. While the distribution of financial aid types by degree level is not entirely surprising, it is important to note that student loans are still prevalent among students working on a graduate degree, with 36 percent of master's graduates and 22 percent of doctoral graduates incurring debt during their graduate work.

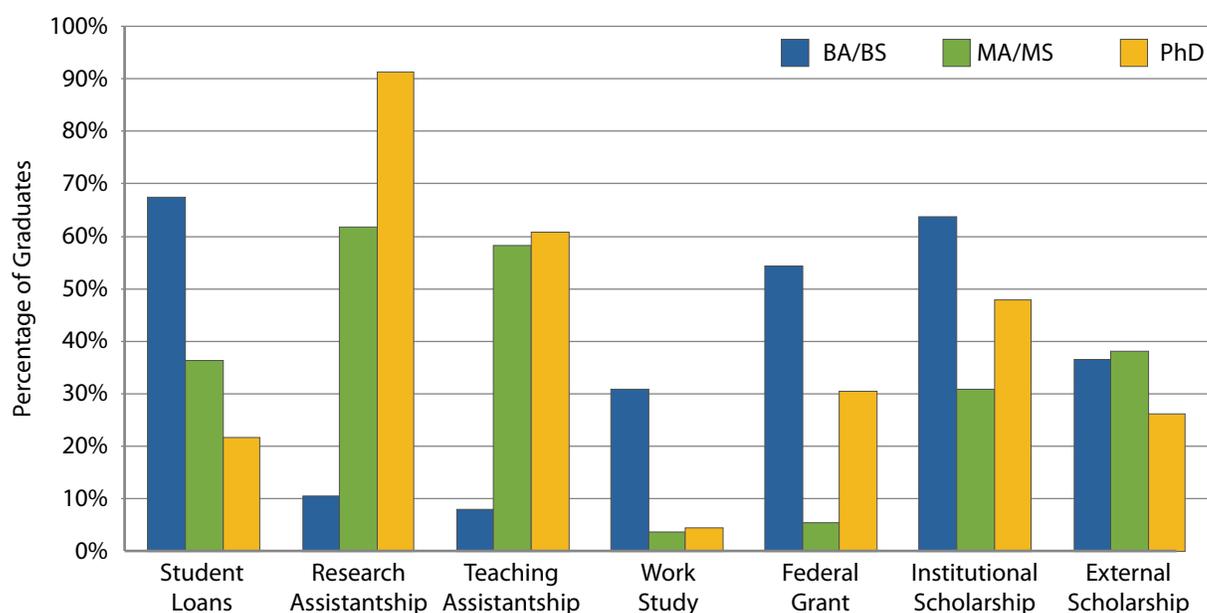
Number of internships held by graduating students



Participation in geoscience clubs and organizations

	BA/BS	MA/MS	PhD
Associated with a geoscience-related club/organization	69%	83%	54%
Participated in department-level geoscience club	53%	56%	42%
Member of an AGI Member Society	28%	86%	65%
Member of an Honor Society	10%	8%	4%

Types of financial aid used by graduating students while working towards a degree



Average GPA of graduating students

	BA/BS	MA/MS	PhD
Average Years to Degree Completion	4.24	3.06	4.58
Average Overall GPA	3.29	3.79	3.78
Average Geoscience GPA	3.45	3.82	3.82

Field Experiences

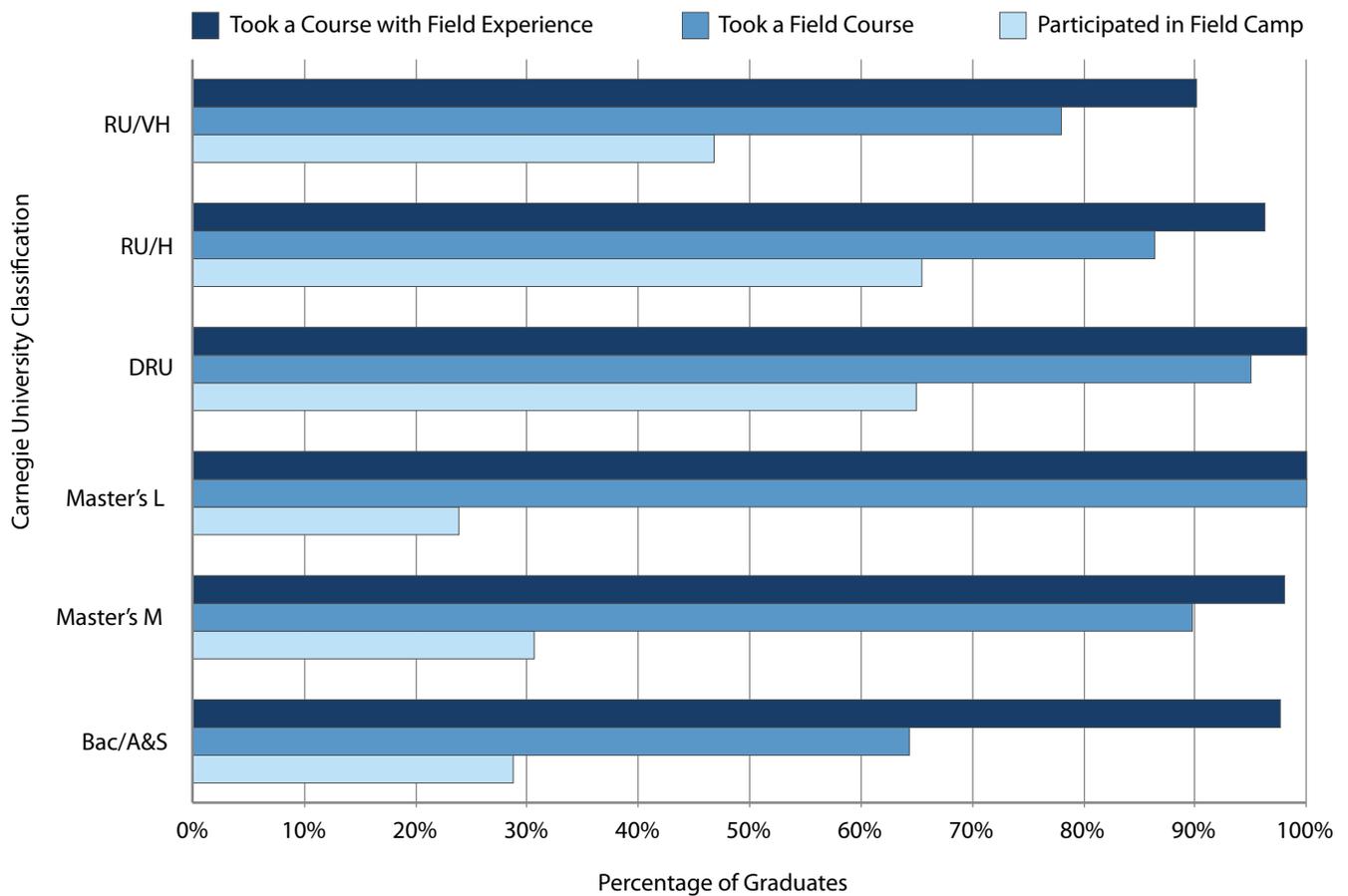
Clear definitions were set to distinguish between field camp, field courses, and field experiences. A field camp was defined as an academic program lasting four or more weeks that is primarily focused on field tools and methods. A field course was defined as a course with a field component primarily covering field methods and experimentation that utilized at least half of the total class time. A field experience was defined as any course that contained a field component, such as a field trip, field work, or other time in the field, that is not included in the definitions for field camp or field course.

Every graduate that took the survey had at least one field experience while working towards their degree. Interestingly,

it appears that the master's graduates had the highest participation rates in all three different types of field experiences. Also, when asked about the importance of field experiences to the graduates' academic and professional development, field camp, field courses, and field experiences were all rated as "very important" by the highest percentage of master's graduates, compared to bachelor's and doctoral graduates.

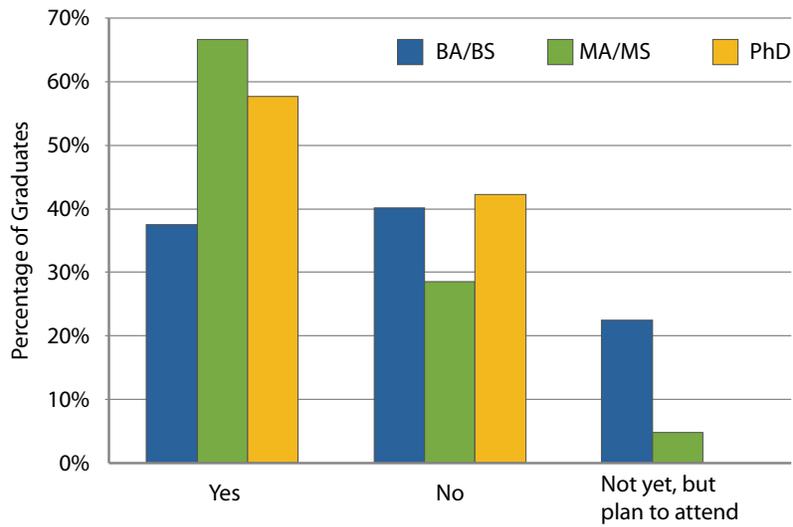
Graduates' participation in field experiences was also broken down by the Carnegie Classification of the institution (see Appendix II). While field experiences are prevalent at all the participating universities, the research universities in general provided more expansive access to field camp experiences.

Student participation in field experiences based on university classification**

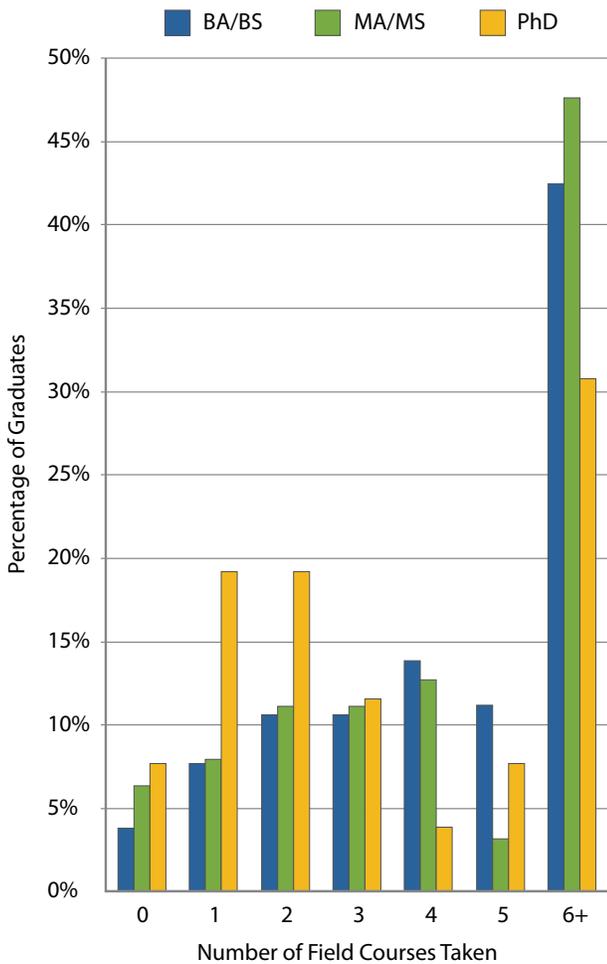


**See Appendix II for definitions of the Carnegie University Classification System.

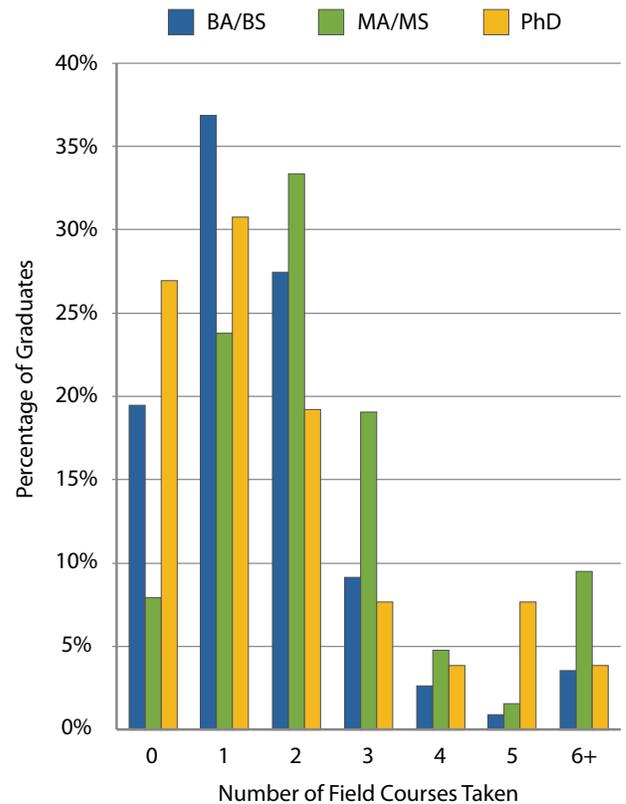
Graduating students who have participated in field camp



Graduates who have taken one or more courses with a field experience



Graduates who have taken one or more field courses



Research Experiences

The graduates were asked about their research experiences while working towards their degrees. If they indicated participation in at least one research experience, the graduates were then asked about their participation in faculty-directed research and self-directed research.

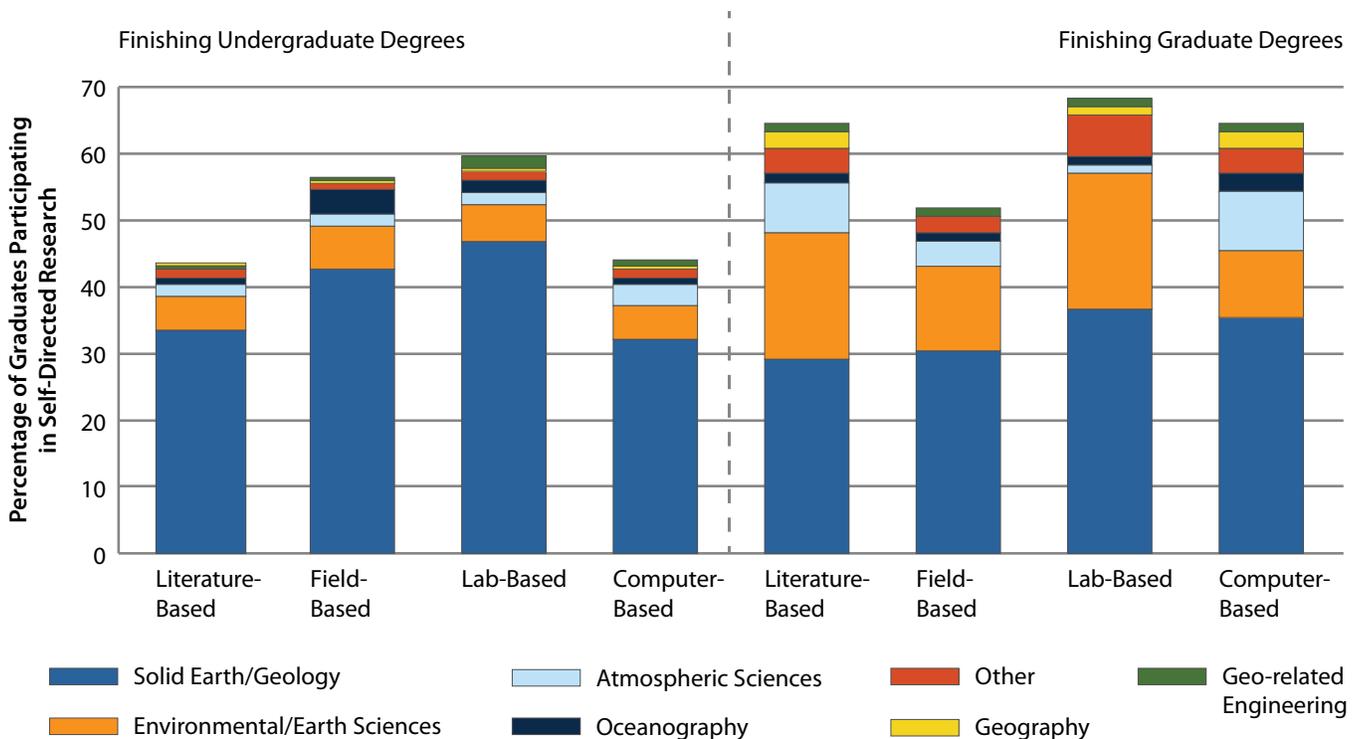
Sixty-one percent of all graduates participated in faculty-directed research and 68 percent of all graduates participated in self-directed research. Additionally, at all degree levels, more graduates participated in self-directed research than in faculty-directed research. The graduate's were asked to describe their research activities. Focusing in on the bachelor's graduates' research descriptions, without being prompted, 40 specifically mentioned conducting

research for a thesis, 11 presenting their research, and five participating in drafting a paper of the research.

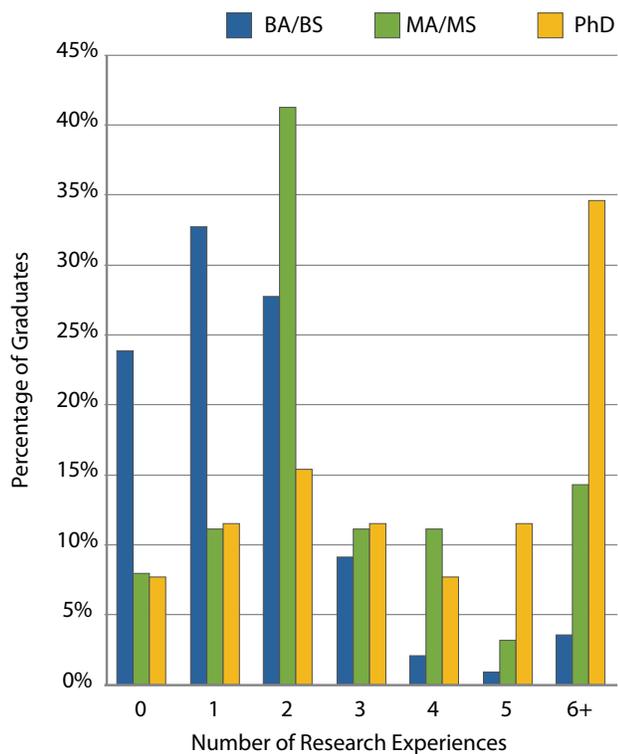
The research methods used in self-directed projects varied by degree level. Undergraduates tended to have a higher emphasis on using field and labs methods, while graduate students cited more used of literature, lab, and computer methods. However, the specific methods used had dependency on the field of study.

When asked about the importance of field experiences to the graduates' academic and professional development, research experiences were rated "very important" by 85 percent of bachelor's graduates, 90 percent of master's graduates, and 100 percent of doctoral graduates.

Research methods utilized by graduates in their individual research projects



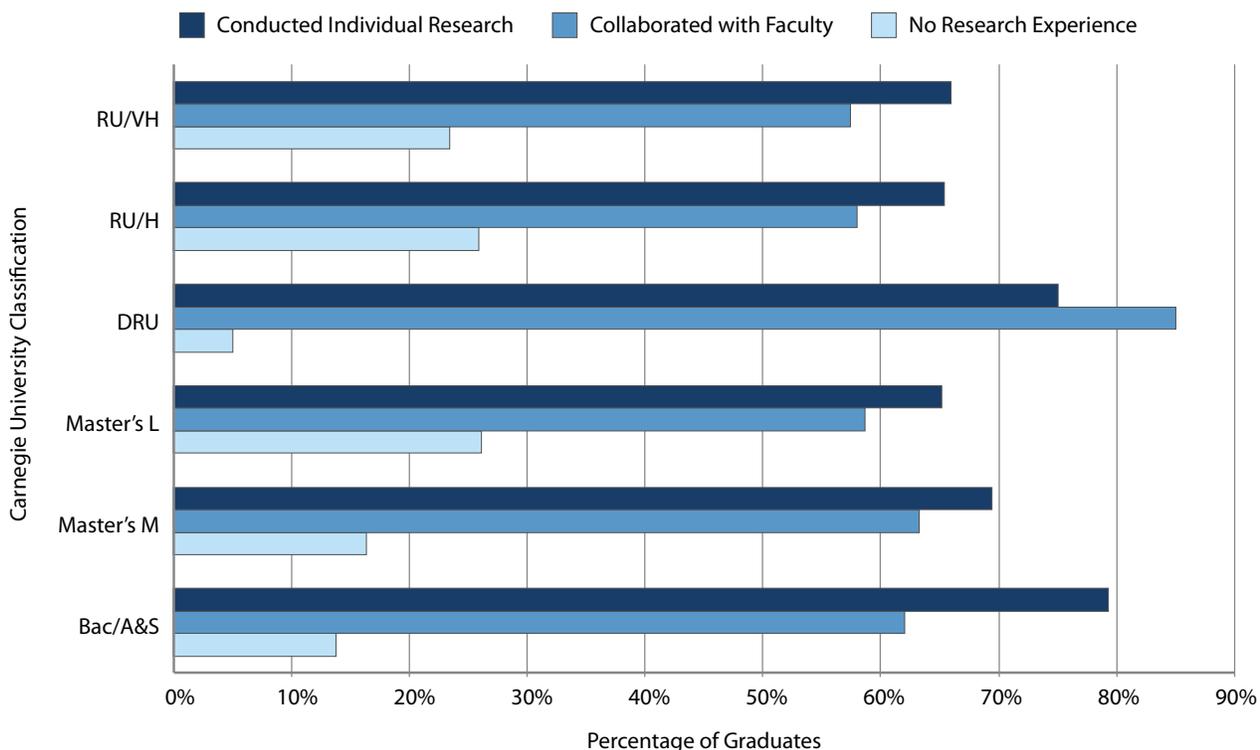
Graduates with one or more research experiences



Student participation in faculty-directed and self-directed research

	BA/BS	MA/MS	PhD
Faculty-Directed Research	56%	78%	73%
Self-Directed Research	64%	89%	88%

Student participation in research based on university classification**



**See Appendix II for definitions of the Carnegie University Classification System.

Future Plans: Working Toward a Graduate Degree

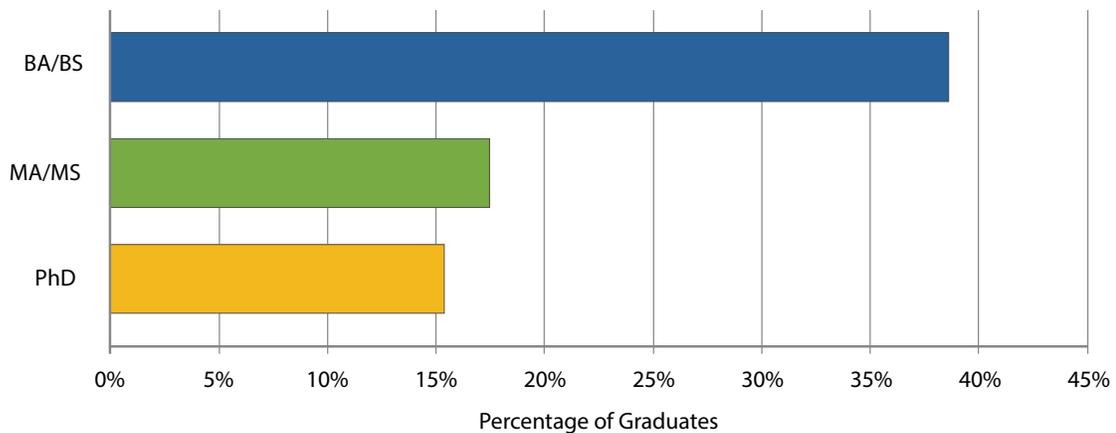
The graduates were asked if they have immediate plans to continue their education, as well as questions about those plans. The 38 percent of bachelor's graduates planning to obtain a graduate degree is slightly higher than prior surveys that showed intent to continue their education for new bachelors between 28 and 35 percent.

The quantitative course experience of those graduates planning to attend graduate school has the same trends seen in the overall quantitative skills from all the graduates that took the survey. Therefore, neither graduate schools nor the workforce are attracting graduates with more or less quantitative skills than the overall average.

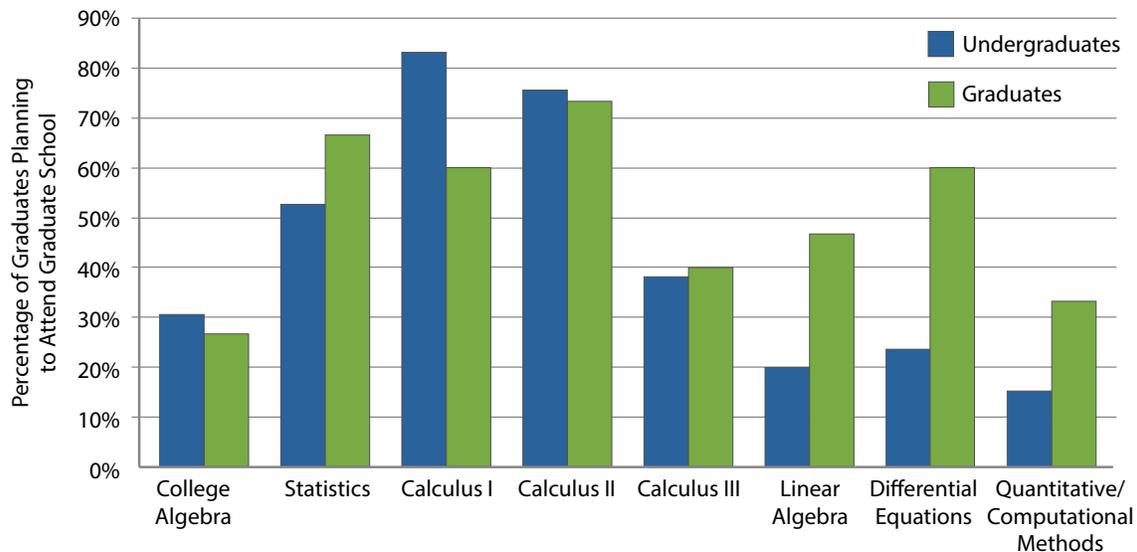
New bachelor's graduates showed a varied array of intended graduate degree fields. The fields that fell into "other geoscience fields" include geomorphology, mineralogy, soil science, and petrology. The fields that fell into "other non-geoscience fields" include sports management, anthropology, museum studies, and computer science. Interestingly, one of the students planning to obtain a MBA still wants to focus in geology.

While the majority of the graduate students wanting to obtain a second graduate degree intend to work toward a Ph.D., there is still 33 percent planning to obtain a second master's degree. The "other non-geoscience fields" include the biological sciences.

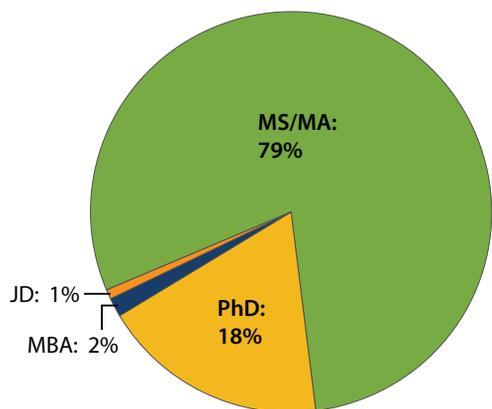
Students planning to attend graduate school after graduation



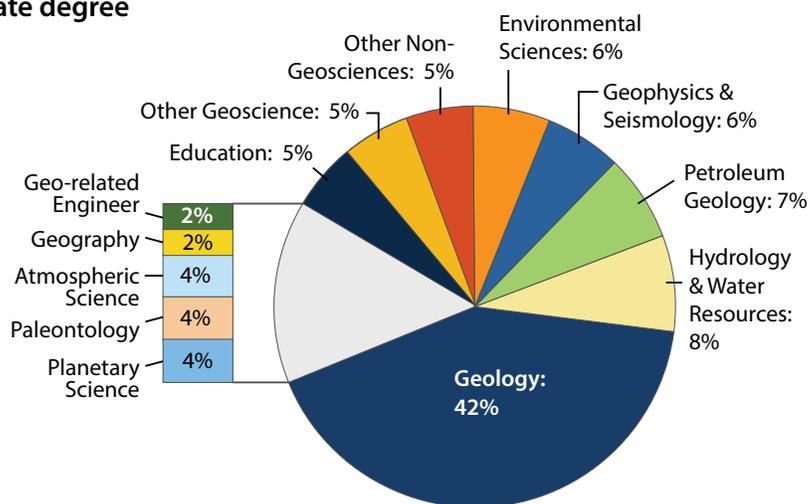
Quantitative skills of students planning to attend graduate school after graduation



Students graduating with an undergraduate degree

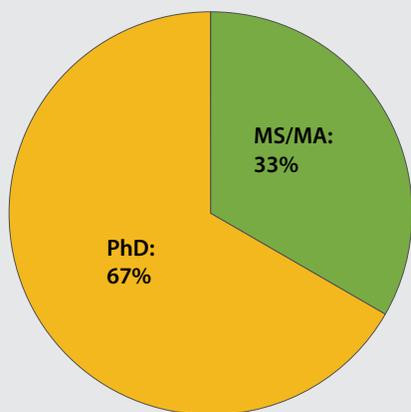


Possible future graduate degree

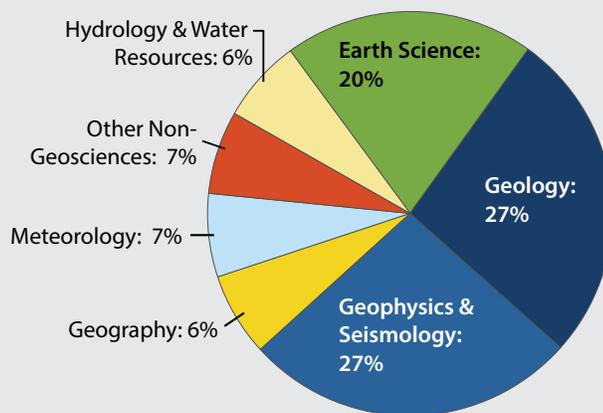


Possible future field of study

Students graduating with a graduate degree



Possible future graduate degree



Possible future field of study

Future Plans: Working in the Geosciences

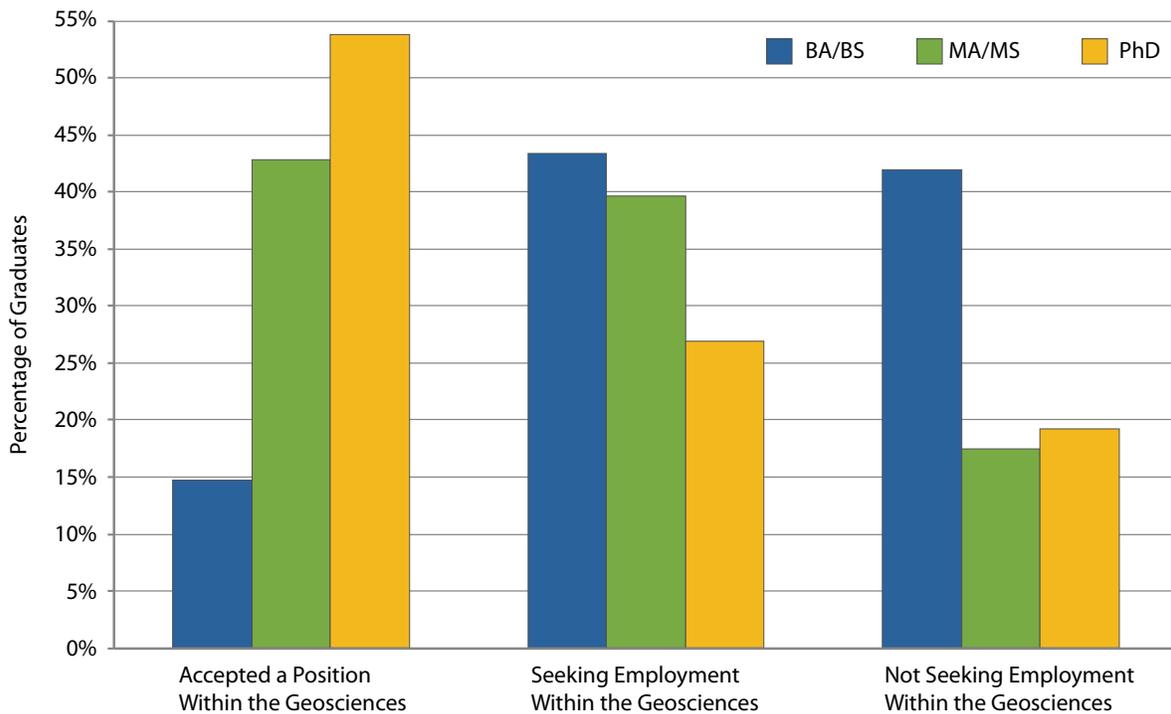
Graduates were asked if they had accepted or were seeking a job position within the geoscience workforce. If they had accepted a job, they were asked about these job positions. Because the graduates take this survey near graduation, it is not surprising that there are relatively high percentages of graduates at all degree levels still seeking employment.

Overall, the oil and gas companies are hiring more employees at graduation than any other industry, largely driven by effective on campus recruitment and highly competitive salaries. The top three industries hiring bachelor's graduates are oil and gas companies, environmental service organizations, and mining companies. The top

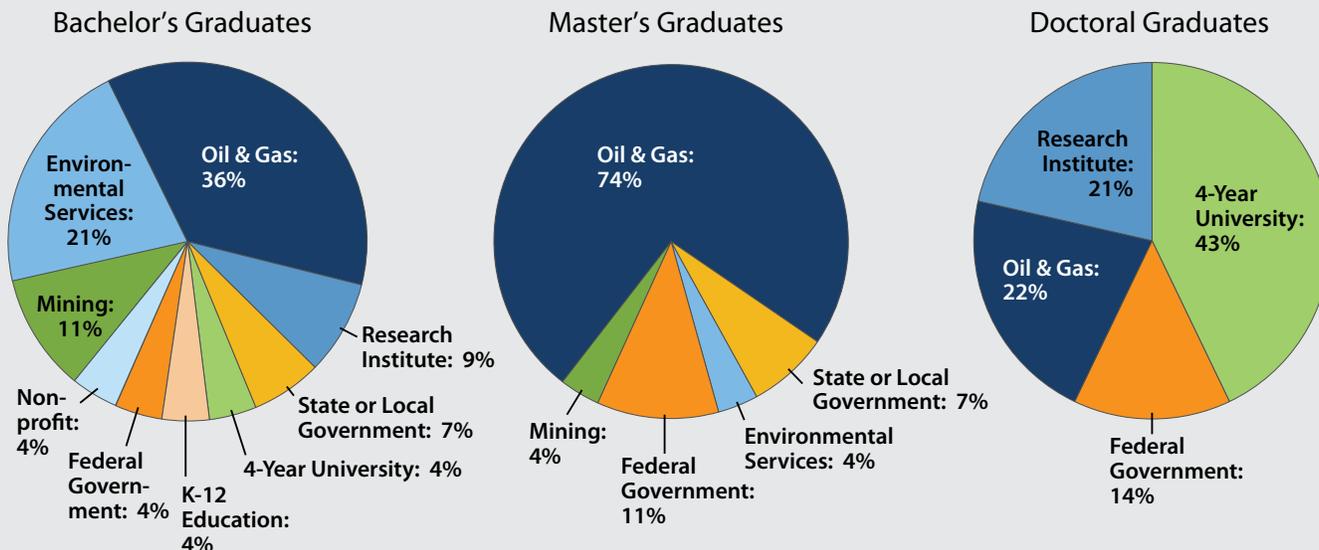
three industries hiring master's graduates are oil and gas companies, the federal government, and the state and local governments. The top three industries hiring doctoral graduates are 4-year universities, oil and gas companies, and research institutes.

There are a multitude of industries where bachelor's and master's graduates indicate interest in employment, including information technology and services, state or local governments, non-profits, and agriculture and forestry. The doctoral graduates still seeking employment are focusing their search with the same industries that tend to hire doctoral graduates right out of school. It appears that the higher the degree level, the narrower the range of industries involved in hiring.

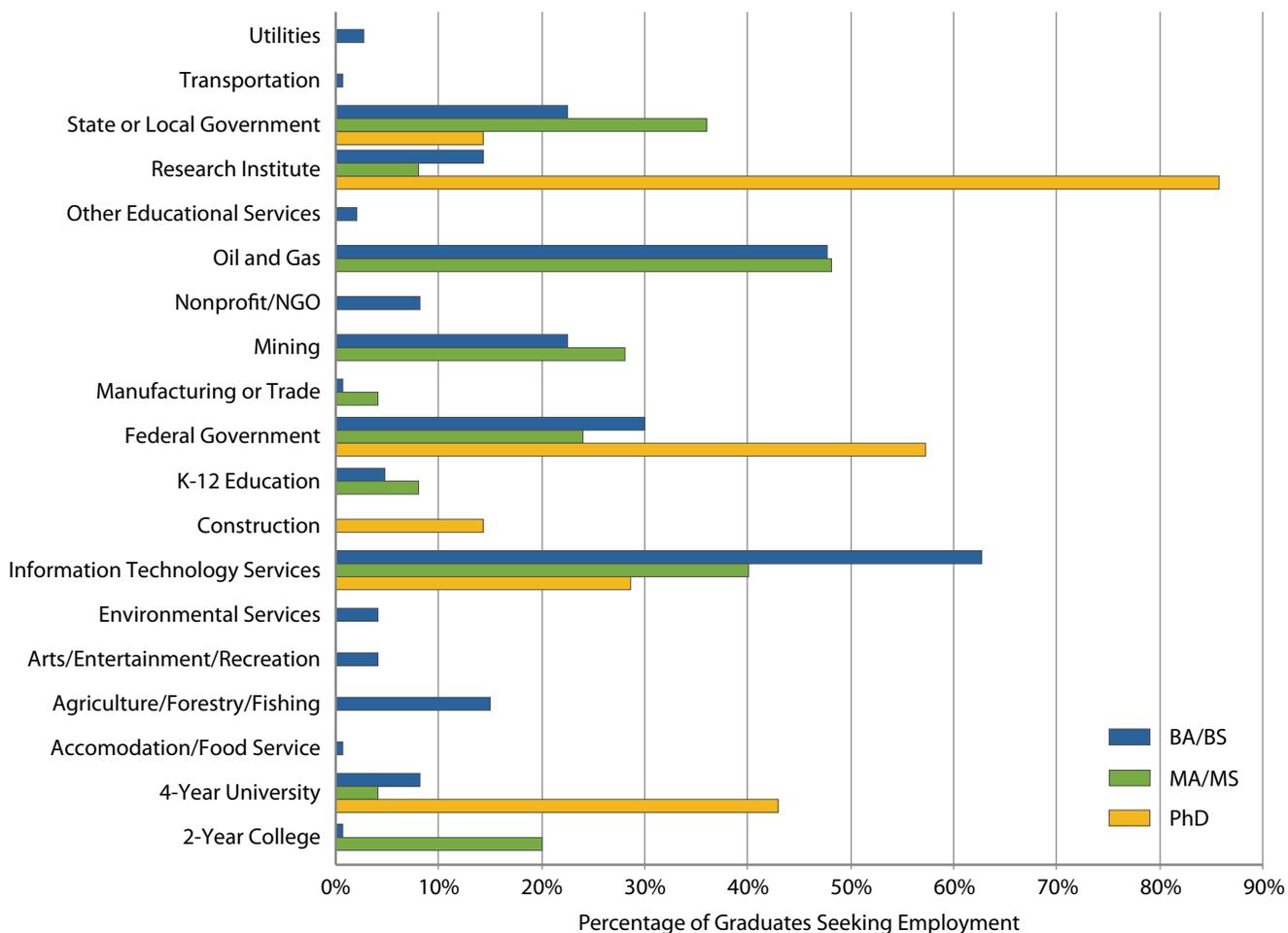
Graduate students seeking, or who have accepted a position within the geosciences



Industries where graduating students have accepted a job within the geosciences



Industries of interest for graduating students seeking a job within the geosciences



If the graduates had accepted a job position within the geosciences workforce, they were asked to provide information about that job, such as their new job title, company or organization, starting annual salary, any additional compensation, and the resources used to find the position. While the graduates who secured employment attended school in all regions of the country, the majority of the new job locations were in Texas, California, and Oklahoma. For example, the highest number of survey participants graduated from universities in Pennsylvania, but only four graduates found a geoscience job located in that state.

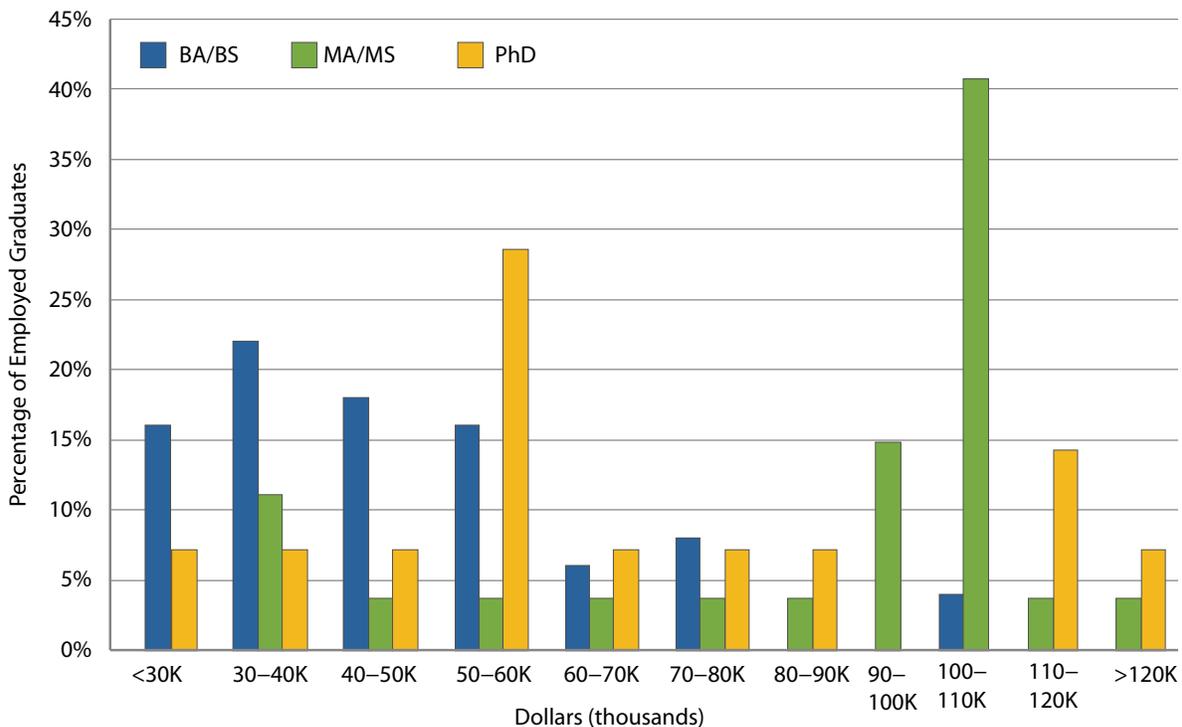
As expected, most bachelor's graduates found jobs with an annual salary between \$20,000 and \$60,000. On the other hand, while the salary range for master's and doctoral students vary widely depending on the position, it appears the master's graduates tend to find jobs with higher annual salaries than doctoral graduates. Every graduate making an annual salary of more than \$90,000 found their job

in the oil and gas industry. However, not every graduate with a job in the oil and gas industry has an annual salary above \$90,000.

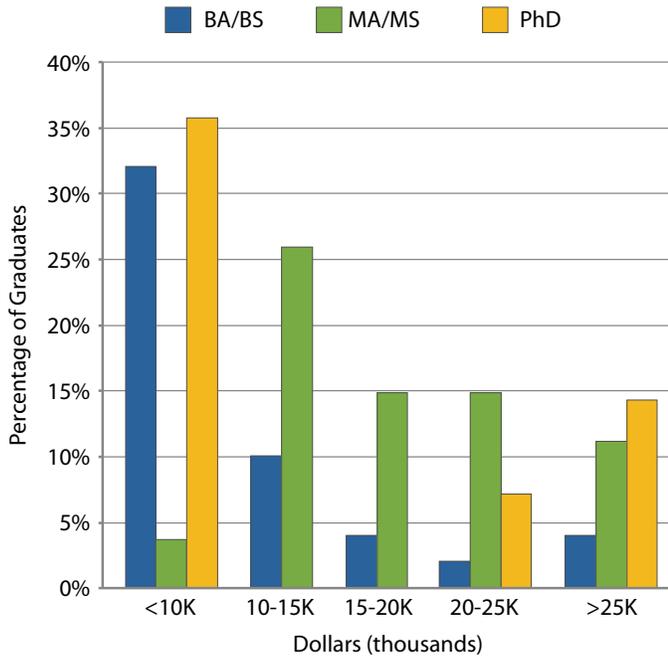
Sixty-two percent of all graduates with a job in the geosciences mentioned receiving additional compensation from their employer as a bonus, moving expenses, etc. Typically the amount given ranges from less than \$10,000 to \$15,000, but a handful of graduates at all degree levels received more than \$25,000 in additional compensation.

The graduates were asked to identify the resources they used to find their geoscience employment. Bachelor's graduates relied largely on their personal contacts and faculty referrals, whereas master's graduates found success through campus recruiting events/job fairs, the campus career center, and faculty referrals. Doctoral graduates tended to rely on the same resources as bachelor's graduates. These responses highlight the importance of faculty in helping students transition into the workforce.

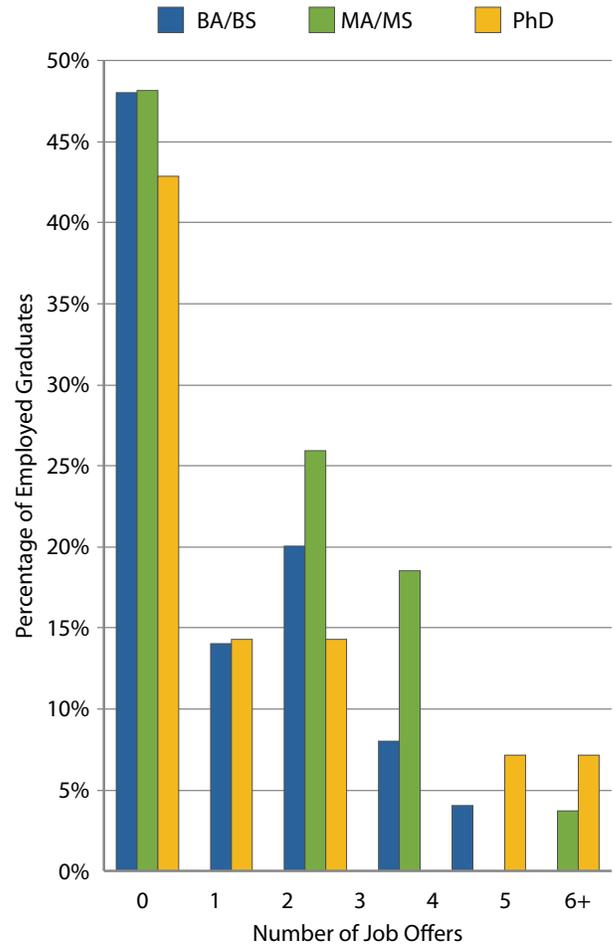
Starting salaries for graduates who accepted a job in the geosciences



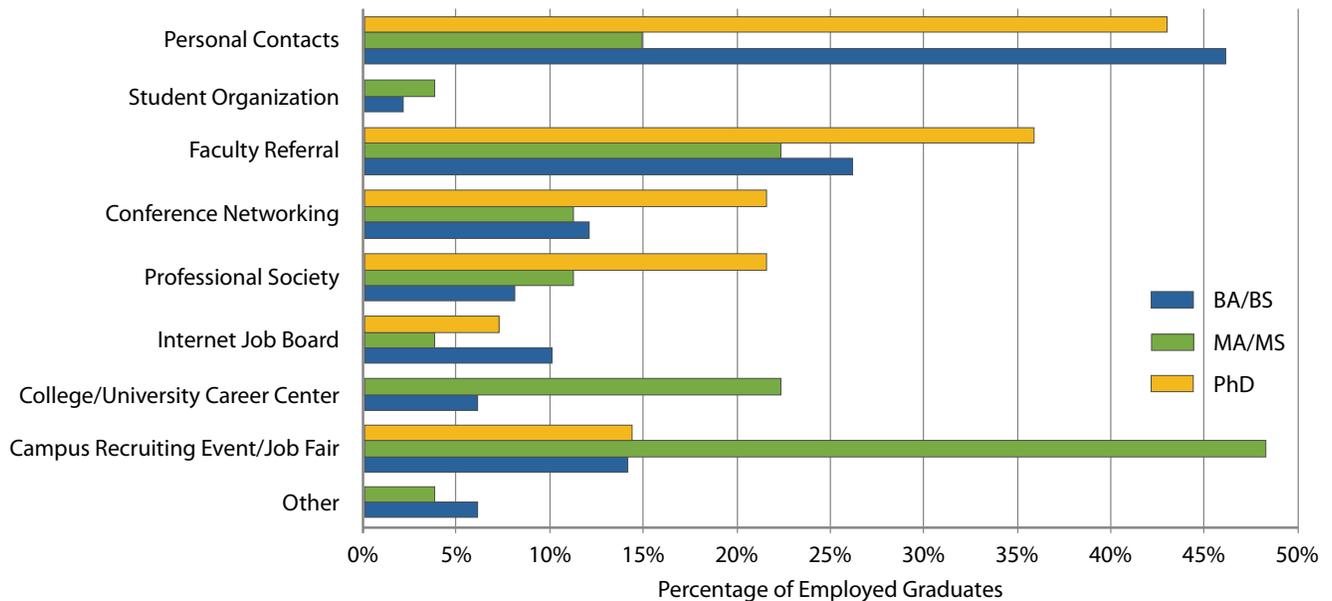
Additional compensation for graduates who accepted a job in the geosciences



Other job opportunities offered to graduates who accepted a job in the geosciences



Resources identified by students as useful for finding geoscience jobs



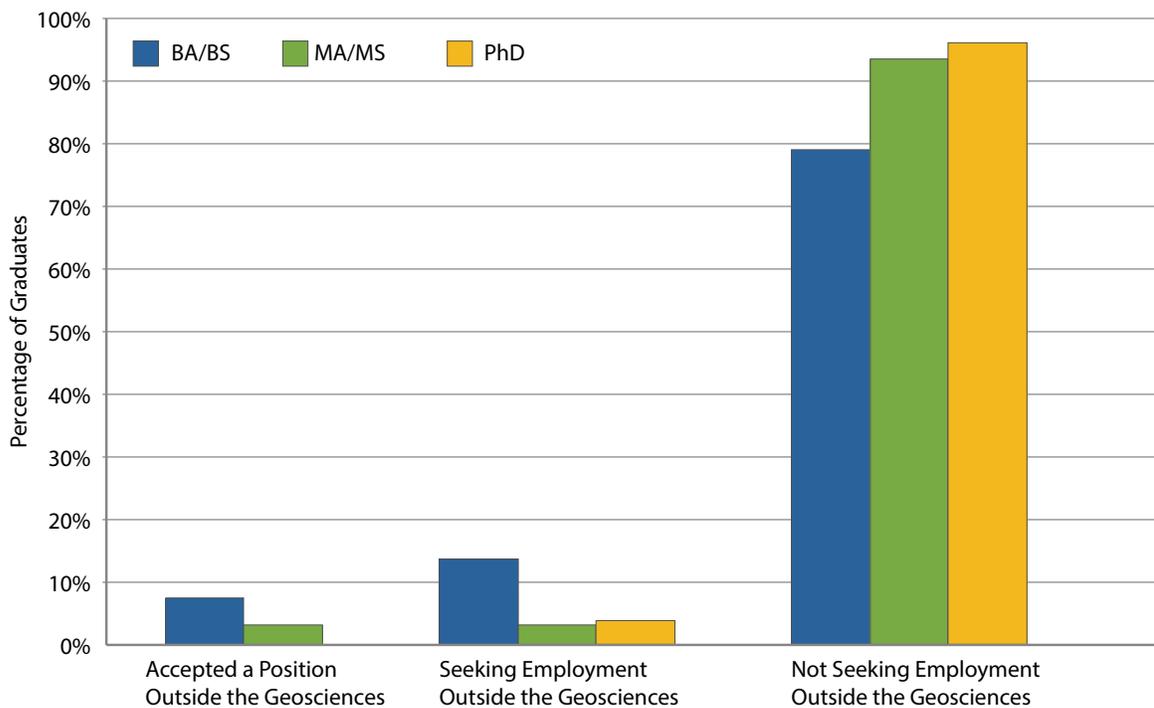
Future Plans: Working Outside of the Geosciences

Very few students are seeking or have secured jobs outside of the geosciences. Most of the graduates that have accepted a job position outside of the geosciences did so to earn income while seeking a job more closely related to their geoscience degree. The graduates that were seeking a job outside of the geosciences cited reasons such as a limited job market, the desire to keep all options open, and finding a temporary job before attending graduate school. However, many of the responses indicated a specific intent to pursue employment that they defined as outside of the geosciences. Multiple students commented their desire for an education job teaching Earth Science or a job in other areas, such as economics, policy, and engineering, which allows the

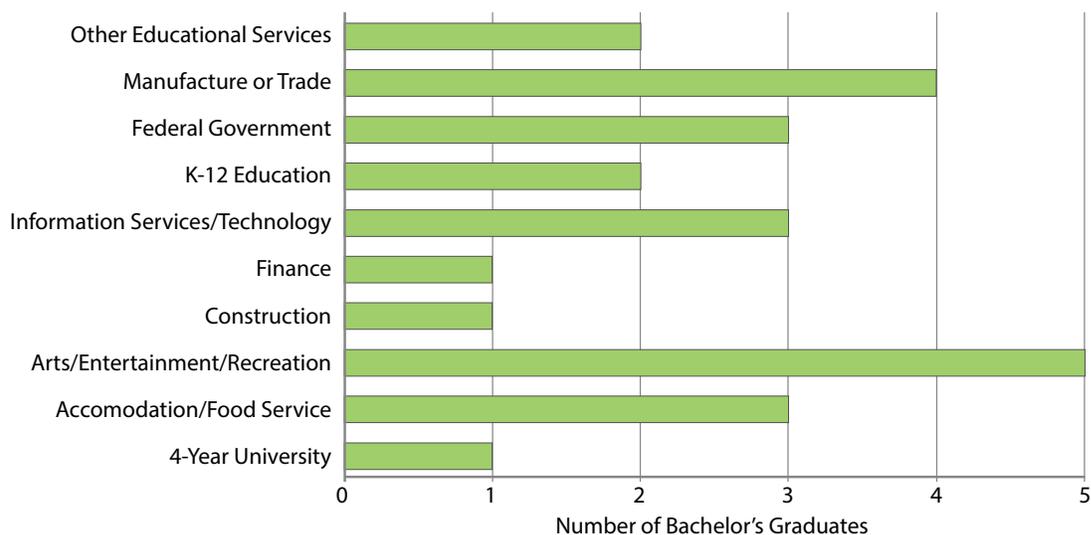
use of their geoscience knowledge. While these types of positions may not be considered traditional geoscience careers, AGI considers them still within the geosciences workforce.

Those graduates that had accepted a job outside of the geosciences were asked to provide more details about their jobs. The figures seen here focus only on the responses from bachelor's graduates due to the limited number of master's and doctoral graduates that accepted a job outside of the geosciences. For bachelor's graduates working outside of the geosciences, their annual salaries tended to be lower than those working within the geosciences, but these graduates also relied heavily on personal contacts to help find their current job position.

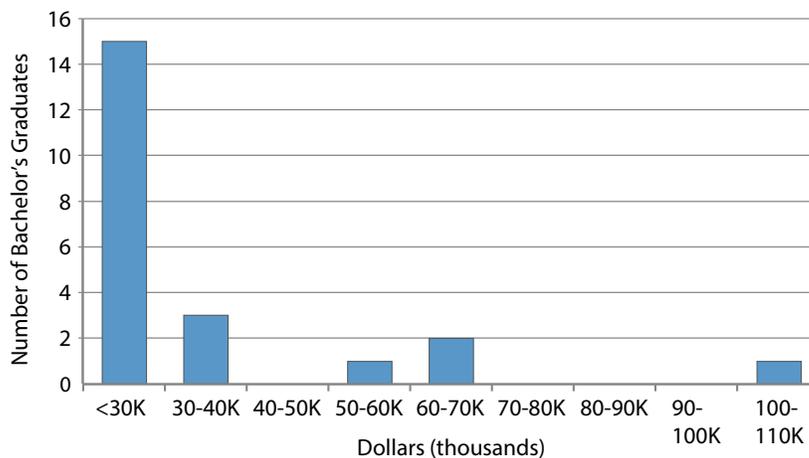
Graduating students seeking or have accepted a job position outside the geosciences



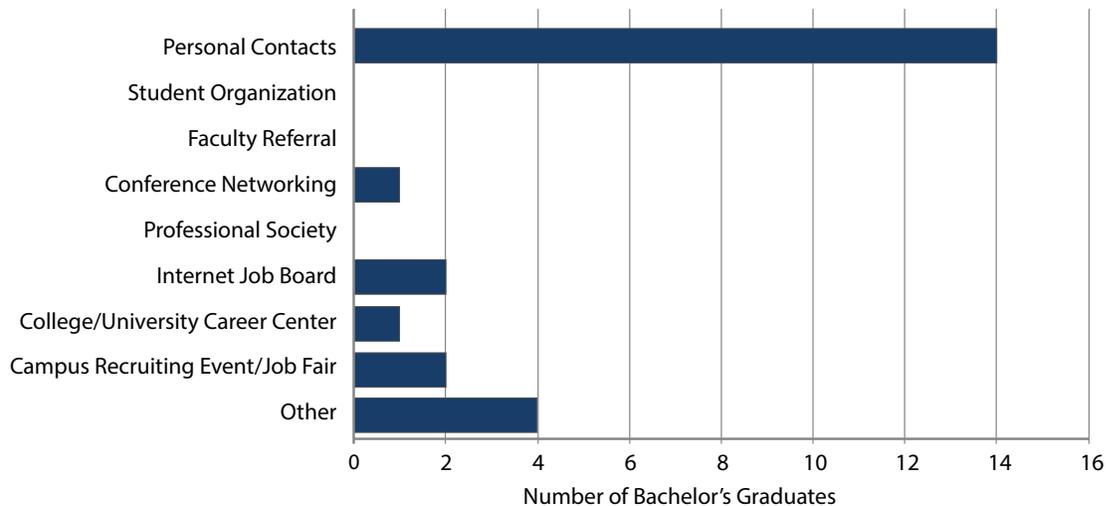
Industries where graduating bachelor's students have accepted a job outside the geosciences



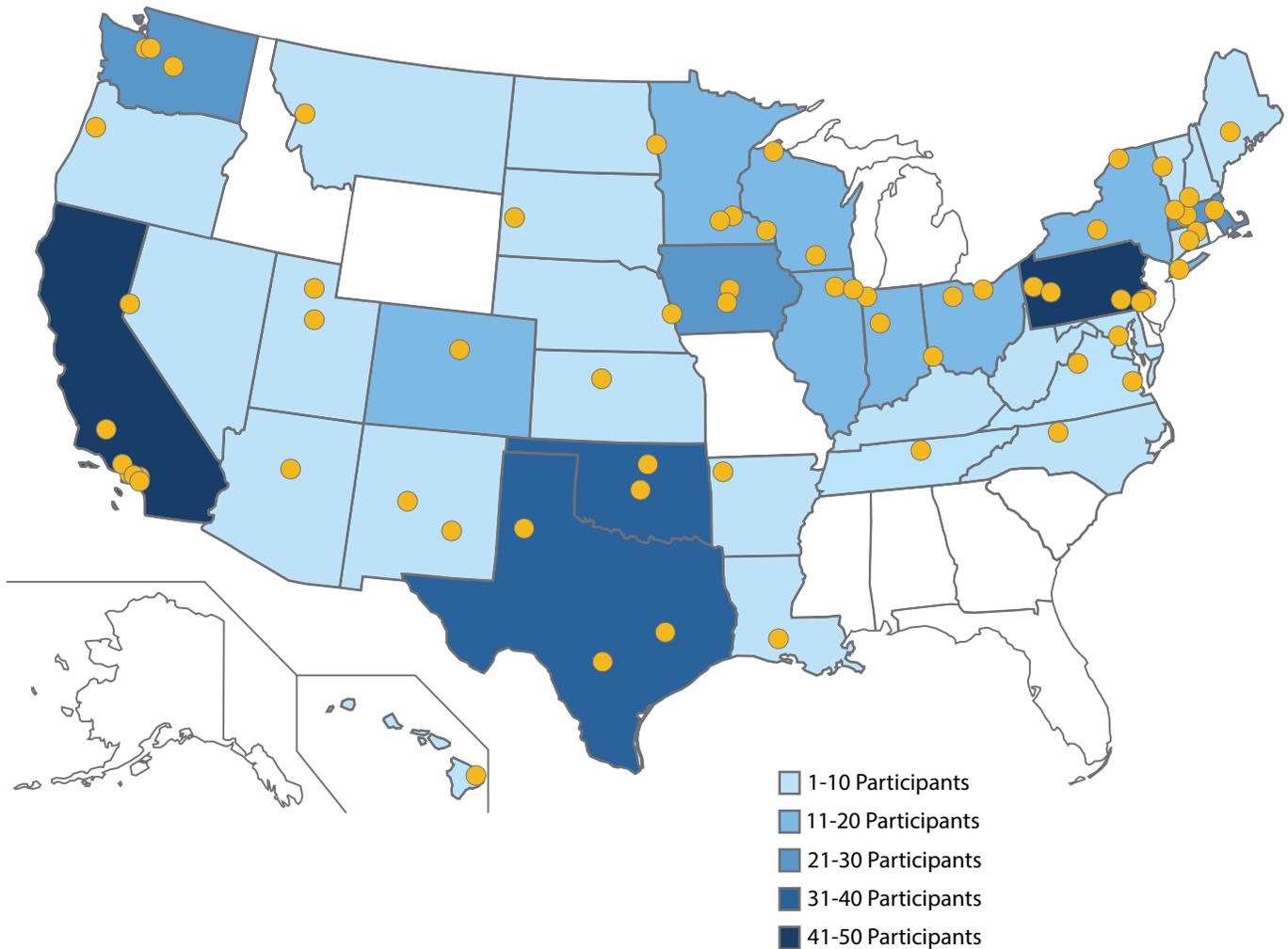
Starting salaries for bachelor's graduates that accepted a job outside of the geosciences



Resources identified by bachelor's graduates as useful for finding non-geoscience jobs



Appendices



Appendix I

The following is a list of all the institutions and departments with graduating students that took AGI's Geoscience Exit Survey in the Spring of 2013.

University/Department

Adelphi University, Department of Environmental Studies

Amherst College, Department of Geology

Boston College, Earth and Environmental Science

Bowling Green State University, Department of Geology

Brigham Young University, Department of Geological Sciences

Bryn Mawr College, Department of Geology

California Institute of Technology, Division of Geological and Planetary Sciences

California State Polytechnic University, Pomona
Department of Geological Sciences

California State University-Bakersfield, Department of Geology

California State University-Fullerton, Department of Geological Sciences

California State University-Northridge, Department of Geological Sciences

Carleton College, Department of Geology

Central Washington University, Department of Geological Sciences

Colby College, Department of Geology

College of William and Mary, Department of Geology	St. Lawrence University, Department of Geology
Colorado School of Mines, Department of Geology and Geological Engineering	Temple University, Department of Earth and Environmental Science
Cornell University, Department of Earth and Atmospheric Sciences	Tennessee Tech University, Department of Earth Sciences
Eastern New Mexico University, Department of Physical Sciences	Texas A&M University, Department of Atmospheric Sciences
Fort Hays State University, Department of Geosciences	Texas A&M University, Department of Environmental Programs
Franklin and Marshall College, Department of Geosciences	Texas A&M University, Department of Geography
Guilford College, Department of Geology and Earth Sciences	Texas A&M University, Department of Geology and Geophysics
Gustavus Adolphus College, Department of Geology	Texas A&M University, Department of Oceanography
Indiana University Northwest, Department of Geosciences	Texas Tech University, Department of Geosciences
Indiana University of Pennsylvania, Department of Geosciences	Trinity University, Department of Geosciences
Iowa State University, Department of Geological and Atmospheric Sciences	University of Arkansas, Department of Geoscience
James Madison University, Department of Geology and Environmental Sciences	University of California at Irvine, Department of Earth System Science
Keene State College, Department of Geology	University of Connecticut, Center for Integrative Geosciences
Miami University of Ohio, Department of Geology and Environmental Earth Science	University of Hawaii-Hilo, Department of Geology
Middlebury College, Department of Geology	University of Iowa, Department of Geoscience
New Mexico Institute of Mining and Technology, Department of Earth and Environmental Sciences	University of Louisiana at Lafayette, Department of Geology
North Dakota State University, Department of Geosciences	University of Maryland, Department of Geology
Northern Arizona University, Geology Department	University of Montana, Department of Geosciences
Northern Illinois University, Department of Geology and Environmental Geosciences	University of Nebraska-Omaha, Department of Geography/Geology
Northland College, Environmental Geosciences	University of Nevada-Reno, Mackay School of Earth Science and Engineering
Oberlin College, Department of Geology	University of Oklahoma, School of Geology and Geophysics
Oklahoma State University, Department of Geology	University of Washington, Department of Oceanography
Oregon State University, College of Earth, Ocean, and Atmospheric Sciences	University of Wisconsin-Madison, Department of Geology and Geophysics
Pacific Lutheran University, Department of Geoscience	Weber State University, Department of Geosciences
Purdue University, Department of Earth and Atmospheric Sciences	Wesleyan University, Department of Earth and Environmental Sciences
Slippery Rock University, Department of Geography, Geology, and the Environment	West Chester University, Department of Geology and Astronomy
Smith College, Department of Geosciences	Wheaton College, Department of Geology and Environmental Science
South Dakota School of Mines and Technology, Department of Geology and Geological Engineering	Williams College, Department of Geosciences
	Winona State University, Department of Geosciences

Appendix II

Carnegie Classifications of Institutions of Higher Learning (<http://classifications.carnegiefoundation.org/>)

This classification system was used for some of the analysis of the Spring 2013 results of AGI's Geoscience Student Exit Survey. The following are the definitions for the classification system and the participating institutions belonging to each category as defined and categorized by the Carnegie Foundation for the Advancement of Teaching.

Baccalaureate Colleges — Arts & Sciences (Bac/A&S)

Includes institutions where baccalaureate degrees represent at least 10 percent of all undergraduate degrees and where fewer than 50 master's degrees or 20 doctoral degrees were awarded during the update year. Excludes Special Focus Institutions and Tribal Colleges.

Among Institutions where bachelor's degrees represented at least half of all undergraduate degrees, those with at least half of bachelor's degree majors in arts and science fields were included in the "Arts & Sciences" group.

Exit Survey Departments (Bac/A&S):

Amherst College
Bryn Mawr College
Carleton College
Colby College
Franklin and Marshall College
Guilford College
Gustavus Adolphus College
Middlebury College
Northland College
Oberlin College
Smith College
St. Lawrence University
University of Hawaii-Hilo
Wesleyan University
Wheaton College
Williams College

Master's Colleges and Universities — Larger Programs (Master's/L)

Master's Colleges and Universities — Medium Programs (Master's/M)

Master's Colleges and Universities — Smaller Programs (Master's/S)

Generally includes institutions that awarded at least 50 master's degrees and fewer than 20 doctoral degrees during the update year (with occasional exceptions). Excludes Special Focus Institutions and Tribal Colleges.

Master's program size was based on the number of master's degrees awarded during the update year. Those awarding at least 200 degrees were included among larger programs; those awarding 100-199 were included among the medium programs; and those awarding 50-99 were included among the smaller programs. The smaller programs group also includes institutions that awarded fewer than 50 master's degrees if (a) their Enrollment Profile classification is Exclusively Graduate/Professional or (b) their Enrollment Profile classification is Majority Graduate/Professional and they awarded more graduate/professional degrees than undergraduate degrees.

Exit Survey Departments (Master's/L):

California State Polytechnic University
California State University-Bakersfield
California State University-Fullerton
California State University-Northridge
Fort Hays State University
James Madison University
Slippery Rock University
Tennessee Tech University

Exit Survey Departments (Master's/M):

Central Washington University
Indiana University Northwest
New Mexico Institute of Mining and Technology
Pacific Lutheran University
Trinity University
Weber State University
West Chester University
Winona State University

Exit Survey Departments (Master's/S)*:

Eastern New Mexico State University
Keene State College

**Research Universities —
Very High Research Activity (RU/VH)**

**Research Universities —
High Research Activity (RU/H)**

Doctoral/Research Universities (DRU)

Includes institutions that awarded at least 20 research doctoral degrees during the update year (excluding doctoral-level degrees that qualify recipients for entry into professional practice, such as the JD, MD, PharmD, DPT, etc.). Excludes Special Focus Institutions and Tribal Colleges.

Doctorate-granting institutions were assigned to one of three categories based on a measure of research activity. For more information about the analysis of research activity, please visit <http://classifications.carnegiefoundation.org/methodology/basic.php>.

Exit Survey Departments (RU/VH):

Cornell University
Iowa State University
North Dakota State University
Oregon State University
Purdue University
Texas A&M University
University of Arkansas
University of California at Irvine
University of Connecticut

University of Iowa
University of Maryland
University of Montana
University of Nevada-Reno
University of Oklahoma
University of Washington
University of Wisconsin-Madison

Exit Survey Departments (RU/H):

Boston College
Bowling Green State University
Brigham Young University
California Institute of Technology
College of William and Mary
Colorado School of Mines
Miami University of Ohio
Northern Arizona University
Northern Illinois University
Oklahoma State University
Temple University
University of Louisiana at Lafayette

Exit Survey Departments (DRU):

Adelphi University
Indiana University of Pennsylvania
University of Nebraska-Omaha

**Special Focus Institutions —
Schools of Engineering (Spec/Engg)**

Institutions awarding baccalaureate or higher-level degrees where a high concentration of degrees (above 75%) is in a single field or set of related fields. Excludes Tribal Colleges.

Exit Survey Departments (Spec/Engg)*:

South Dakota School of Mines and Technology

*Institutions in this classification were not included in comparisons using the Carnegie Classification system due to the small number of institutions in the Exit Survey belonging to the particular classification.



GEOSCIENCE STUDENT



The AGI Geoscience Workforce Program

(<http://www.agiweb.org/workforce/>) tracks the supply and demand of geoscientists by collecting original data and by analyzing existing data from federal, industry, and other sources. The Geoscience Workforce Program informs the geoscience community by reporting on workforce trends and by making predictions for future workforce needs.



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