



Prevalence of Certifications and Licenses among the College-Educated Population in the United States

by John Finamore and Daniel Foley¹

The number of college graduates in the United States doubled between 1993 and 2015, from 29 million to 58 million, according to data from the National Survey of College Graduates (NSCG), sponsored by the National Center for Science and Engineering Statistics within the National Science Foundation. During this time, the number of college graduates educated or employed in science and engineering (S&E) or S&E-related fields grew from 14 million in 1993 to 31 million in 2015.

The NSCG is an important source of information on the education and career paths of the nation's college-educated scientists and engineers as well as college graduates not educated or employed in S&E fields. In 2015, for the first time, the NSCG collected information to allow the examination of certification and licensure prevalence among the nation's college-educated population. In February 2015, 39% of the college-educated population in the United States held a currently active certification or license. Certifications and licenses generally are associated with an occupation, technology, or industry, and recognize professionals who meet established knowledge, skill, and competency standards necessary to

perform a specific job. Some occupations require a certification or license as a condition of employment. For other occupations, these credentials are designed to improve an individual's abilities and increase the potential for promotion or advancement.

This InfoBrief describes certification and licensure prevalence among the nation's college-educated population and examines the effect of these credentials on employment. Among individuals with at least a bachelor's degree, the prevalence rate for certifications and licenses varied by degree level, labor force status, and occupation field. Within occupation fields that had higher certification and license prevalence rates, college-educated individuals with a certification or license typically earned more than those without these credentials.

Certification and Licensure Prevalence, by Educational Attainment

Certifications and licenses among the college-educated population were most prevalent at the professional degree and master's degree levels. Of professional degree holders, 87% also held at least one certification or license, as

did 48% of all master's degree holders (table 1). For bachelor's and doctorate degree holders, the certification and licensure prevalence rates were similar at approximately 30%. The high certification and licensure prevalence rates among individuals with professional degrees and master's degrees may be attributed to the occupation fields these degree holders pursue and the credential requirements associated with these fields. The majority of professional degree holders work in health or legal occupations (82%), and a sizable percentage of master's degree holders are employed in education (22%). Most health, legal, and education positions have certification or license requirements to maintain employment.

Certification and Licensure Prevalence, by Labor Force Status and Occupation

Within the college-educated population, employed individuals were more likely to hold a currently active certification or license (43%) than unemployed individuals (24%) or individuals not in the labor force (24%).² Among workers, the certification and license prevalence rates varied across occupations. At the broad occupation level, workers in S&E occupations (24%)

TABLE 1. Prevalence of certifications and licenses among college graduates, by highest degree of educational attainment and labor force status: 2015

Characteristic	Total	No certification or license		At least one certification or license	
		Number	Percent	Number	Percent
All college graduates	58,006,000	35,403,000	61.0	22,603,000	39.0
Highest degree of educational attainment					
Bachelor's	36,530,000	25,154,000	68.9	11,376,000	31.1
Master's	16,207,000	8,413,000	51.9	7,794,000	48.1
Doctorate	2,003,000	1,405,000	70.1	598,000	29.9
Professional	3,266,000	431,000	13.2	2,835,000	86.8
Labor force status					
Employed	45,941,000	26,258,000	57.2	19,683,000	42.8
Full time	38,469,000	21,894,000	56.9	16,575,000	43.1
Part time	7,472,000	4,365,000	58.4	3,108,000	41.6
Unemployed	1,689,000	1,287,000	76.2	402,000	23.8
Not in labor force	10,375,000	7,858,000	75.7	2,518,000	24.3

NOTES: Detail may not add to total because of rounding. College graduates include individuals under the age of 76 with degrees at the bachelor's level or higher. Total includes an estimated 412,000 graduates who reported having never worked for pay or profit and were included in those with no certification or license.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, National Survey of College Graduates, 2015.

were less likely to hold a certification or license than those in S&E-related occupations (77%) or non-S&E occupations (38%). The specific occupations in which college-educated workers had the highest certification or license prevalence rates were legal occupations (94%), science and engineering pre-college teachers (91%), health occupations (89%), and other education-related occupations (84%)³ (table 2).

Certification and Licensure Prevalence and Median Annual Salary

Overall, employed college graduates with a certification or license earned more than those without a credential beyond their highest college degree. The median annual salary for an individual with a certification or license in addition to a college degree was \$64,000 compared to \$56,000 for an individual with only a college degree. The association of a certification or license with a higher median salary varied by occupation. For occupation fields in which at least one-third of workers reported a certification or license, the individuals that held a certification or license gener-

ally showed a higher median annual salary compared to those with no credential beyond their highest college degree.

Definitions

In the NSCG, *college graduates* are defined as individuals under the age of 76 who have earned a degree at the bachelor's level or higher.

A *certification* refers to a credential awarded by a certification body based on an individual demonstrating through an examination process that he or she has acquired the designated knowledge, skills, and abilities to perform a specific job. The examination can be either written, oral, or performance-based. Certification is a time-limited credential that is renewed through a recertification process.⁴

A *license* refers to a credential awarded by a government agency that constitutes legal authority to do a specific job. Licenses are based on some combination of degree or certificate attainment, certifications, assessments, or work experience; are time-limited; and must be renewed periodically.⁴

For detailed information on the occupation categories and degree field categories collected in the NSCG, please see <https://ncesdata.nsf.gov/docs/occ03maj.html> and <https://ncesdata.nsf.gov/docs/ed03maj.html>.

Data Sources, Limitations, and Availability

Data presented here are from the 2015 NSCG, an ongoing longitudinal survey that biennially collects a wide range of information on the employment, education, and demographic characteristics of the nation's college-educated population. Through the use of a rotating panel sample design, the NSCG collects data from individuals during four survey cycles over a 6-year period.

The 2015 NSCG surveyed approximately 90,000 individuals representing college graduates residing in the United States as of February 2015 with at least one degree earned before January 2014. By surveying the college-educated population, the NSCG provides information on individuals educated or employed in S&E fields as well as those educated or employed in S&E-related and non-S&E

TABLE 2. Prevalence of certifications and licenses and median annual salary for employed college graduates, by occupation: 2015

Occupation	Total	No certification or license			At least one certification or license		
		Number	Percent	Median Annual Salary (\$)	Number	Percent	Median Annual Salary (\$)
All employed college graduates	45,941,000	26,258,000	57.2	56,000	19,683,000	42.8	64,000
S&E occupations	6,407,000	4,891,000	76.3	83,000	1,516,000	23.7	85,000
Computer and mathematical scientists	3,156,000	2,510,000	79.5	87,000	646,000	20.5	89,000
Biological, agricultural, and environmental life sciences	631,000	526,000	83.3	55,000	106,000	16.7	62,000
Physical and related scientists	331,000	291,000	87.9	71,000	40,000	12.1	68,000
Social and related scientists	570,000	362,000	63.4	55,000	208,000	36.6	66,000
Psychologists	213,000	52,000	24.2	40,000	161,000	75.8	66,000
Other social and related scientists	357,000	310,000	86.9	61,000	47,000	13.1	60,000
Engineers	1,719,000	1,204,000	70.0	90,000	515,000	30.0	90,000
Civil, architectural or sanitary engineers	251,000	70,000	28.1	64,000	180,000	71.9	85,000
Other engineers	1,468,000	1,133,000	77.2	92,000	335,000	22.8	95,000
S&E-related occupations	7,867,000	1,844,000	23.4	64,000	6,024,000	76.6	68,000
Health occupations	4,883,000	562,000	11.5	35,000	4,321,000	88.5	70,000
S&E managers	967,000	475,000	49.2	125,000	491,000	50.8	120,000
S&E pre-college teachers	1,029,000	96,000	9.3	35,000	933,000	90.7	50,000
S&E technicians and technologists	782,000	612,000	78.2	70,000	170,000	21.8	68,000
Other S&E-related occupations	207,000	98,000	47.3	60,000	109,000	52.7	75,000
Non-S&E occupations	31,667,000	19,523,000	61.7	50,000	12,143,000	38.3	60,000
Non-S&E managers and management-related occupations	10,290,000	6,888,000	66.9	75,000	3,403,000	33.1	90,000
Non-S&E pre-college teachers	4,080,000	675,000	16.5	22,000	3,405,000	83.5	48,000
Lawyers and judges	1,252,000	81,000	6.5	96,000	1,171,000	93.5	105,000
Other non-S&E occupations	16,044,000	11,880,000	74.0	40,000	4,165,000	26.0	49,000

S&E = science and engineering.

NOTES: Detail may not add to total because of rounding. Salaries are rounded to the nearest \$1,000. College graduates include individuals under the age of 76 with degrees at the bachelor's level or higher.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, National Survey of College Graduates, 2015.

fields. For further survey information, please visit the NSCG website (<https://www.nsf.gov/statistics/srvygrads>).

The estimates in this InfoBrief are based on responses from a sample of the population and may differ from actual values because of sampling variability or other factors. As a result, apparent differences between the estimates for two or more groups may not be statistically significant. All comparative statements have undergone statistical testing and are significant at the 90% confidence level unless otherwise noted. In this report, the variances of estimates were calculated using the successive difference replication method.

Data presented in this report are available through NCSES's Scientists and

Engineers Statistical Data System data tool at <https://sestat.nsf.gov/sestat/sestat.html>. The 2015 NSCG public use data files are available at <https://sestat.nsf.gov/datadownload>.

Notes

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2. There is no significant difference in the certification and licensure prevalence rates for unemployed individuals and individuals not in the labor force.

3. There is no significant difference in the certification and licensure prevalence rates for workers in legal occupations and S&E pre-college teachers, and there is no significant difference in the certification and licensure prevalence rates for S&E pre-college teachers and workers in health occupations.

4. The Interagency Working Group on Expanded Measures of Enrollment and Attainment (GEMEnA) developed these working definitions of industry-recognized certifications and occupational licenses to establish and maintain consistency in measurement across federal statistical surveys. For more information, please visit the GEMEnA website (<https://nces.ed.gov/surveys/GEMEnA/>).

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