SIDEBAR

Projected Growth of Employment in S&E Occupations

This sidebar presents the most recent data from the Bureau of Labor Statistics (BLS) on occupation projections for the period 2014–24. While interpreting the data, readers should keep in mind that employment projections are uncertain. Many industry and government decisions that affect hiring are closely linked to national and global fluctuations in aggregate economic activity, which are difficult to forecast long in advance. In addition, technological and other innovations will influence demand for workers in specific occupations. The assumptions underlying projections are sensitive to fundamental empirical relationships and, as a result, may become less accurate as overall economic conditions change.*

BLS occupational projections for the period 2014–24 suggest that total employment in occupations that NSF classifies as S&E will increase at a faster rate (11%) than employment in all occupations (7%) (Table 3-A; Figure 3-A; Appendix Table 3-2). These projections are based only on the demand for narrowly defined S&E occupations and do not include the wider range of occupations in which S&E degree holders often use their training.

Job openings include both new jobs and openings caused by existing workers permanently leaving the occupations. During the period 2014–24, job openings in NSF-identified S&E occupations are projected to represent nearly one-third (30%) of current employment in 2014, which is similar to the proportion of job openings in all occupations (31%) (Figure 3-B).

TABLE 3-A

Bureau of Labor Statistics projections of employment and job openings in S&E and other selected occupations: 2014–24

(Thousands)

Occupation	BLS National Employment Matrix 2014 estimate	BLS projected 2024 employment	Job openings from growth and net replacements, 2014–24	10-year growth in total employment (%)	10-year job openings as percentage of 2014 employment
All occupations	150,540	160,329	46,507	6.5	30.9
All S&E	6,262	6,957	1,881	11.1	30.0
Computer and mathematical scientists	3,714	4,268	1,064	14.9	28.6
Life scientists	311	330	117	6.1	37.5
Physical scientists	297	317	93	6.7	31.2
Social scientists	304	341	97	12.4	31.9
Engineers	1,636	1,701	511	4.0	31.2
S&E-related occupations					
S&E managers	919	1,034	308	12.5	33.5
S&E technicians and technologists	1,158	1,172	335	1.2	28.9
Computer programmers	329	302	81	-8.0	24.7
Health care practitioners and technicians	8,237	9,585	3,162	16.4	38.4
Selected other occupations					
Postsecondary teachers	1,869	2,089	551	11.7	29.5
Lawyers	779	823	158	5.6	20.3

BLS = Bureau of Labor Statistics.

Note(s)

Estimates of current and projected employment for 2014–24 are from BLS's National Employment Matrix; data in the matrix are from the Occupational Employment Statistics (OES) survey and the Current Population Survey (CPS). Together, these sources cover paid workers, self-employed workers, and unpaid family workers in all industries, agriculture, and private households. Because data are derived from multiple sources, they can often differ from employment data provided by the OES survey, CPS, or other employment surveys alone. BLS does not make projections for S&E occupations as a group nor does it do so for some of the S&E and S&E-related occupational categories as defined by the National Science Foundation (NSF); numbers in the table are based on the sum of BLS projections for occupations that the NSF includes in the respective categories. See Appendix Table 3-2.

Source(s)

BLS, Employment Projections program, 2014–24, special tabulations of 2014–24 Employment Projections.

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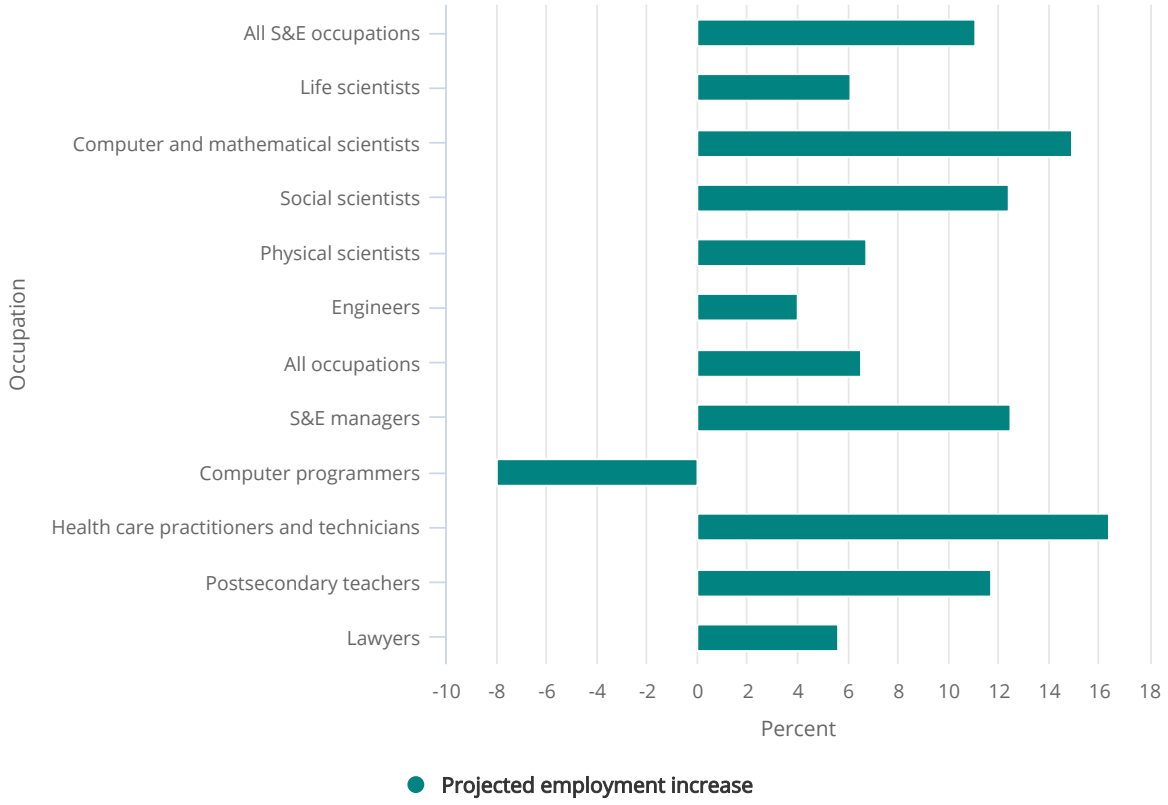
FIGURE 3-A

Projected increases in employment for S&E and other selected occupations: 2014–24



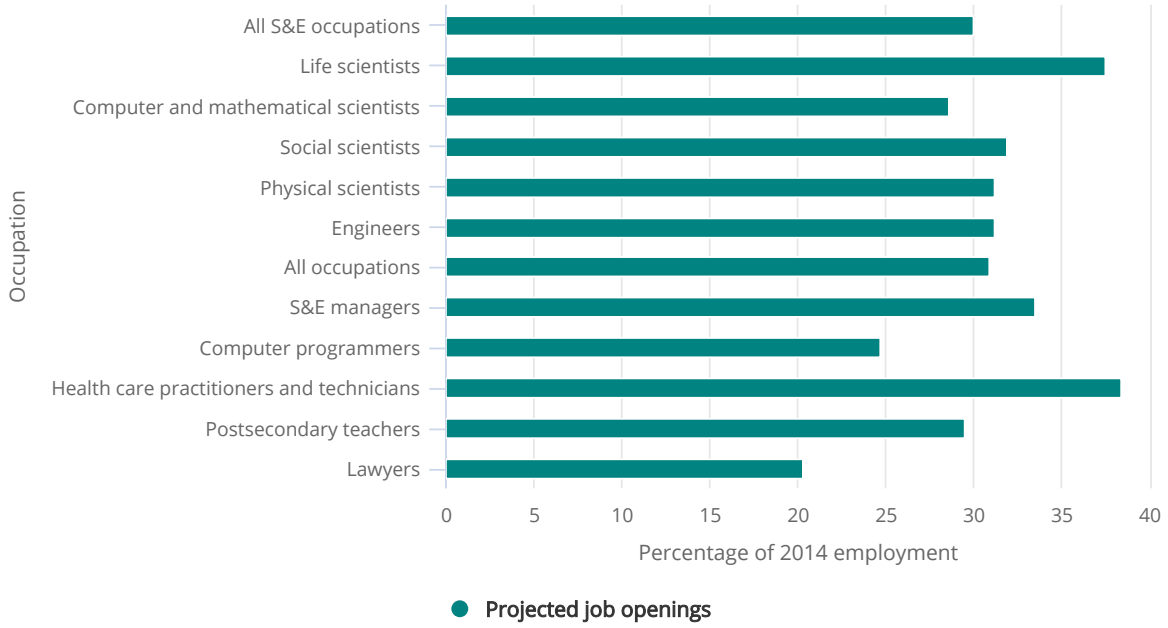
Source(s)

Bureau of Labor Statistics, Employment Projections program, special tabulations (2015) of 2014–24 Employment Projections, https://www.bls.gov/emp/. See Appendix Table 3-2.

Science and Engineering Indicators 2018

FIGURE 3-B

Projected job openings in S&E and other selected occupations: 2014–24



Source(s)

Bureau of Labor Statistics, Employment Projections program, special tabulations (2015) of 2014–24 Employment Projections, https://www.bls.gov/emp/. See Appendix Table 3-2.

Science and Engineering Indicators 2018

Of the BLS-projected net job openings in NSF-identified S&E occupations, the majority (57%) are projected to be in computer and mathematical sciences occupations, the largest subcategory of S&E occupations (Table 3-A). This occupational group also has the largest projected growth rate (15%) among NSF-identified S&E groups. Engineering occupations, the second largest subcategory of S&E occupations, are expected to generate about one-fourth (27%) of all job openings in S&E occupations during the period 2014–24; however, the growth rate in these occupations (4%) is projected to be lower than the growth rate for all occupations (7%). The other broad categories of S&E occupations—life sciences, social sciences, and physical sciences occupations—account for much smaller proportions of S&E occupations and are projected to have a growth rate between 6% and 12%. Job openings in the broad categories of S&E occupations are projected to represent relatively similar proportions of current employment in their respective fields, ranging from 29% to 38%.

In addition to S&E occupations, Table 3-A also shows S&E-related and selected other occupations that include significant numbers of S&E-trained workers. Among these occupations, the health care practitioners and technicians group, which employs more workers than all S&E occupations combined, is projected to grow 16%, more than double the growth rate for all occupations. The postsecondary teachers group, which includes all fields of instruction, and the S&E managers group are projected to grow 12% and 13%, respectively, both of which are slightly higher than the 11% projected growth rate for all S&E occupations. In contrast, BLS projects that the computer programmers group and the S&E technicians and

technologists group will grow more slowly than all S&E occupations, with the computer programmers group declining in number during this time period.

* The mean absolute percentage error in the 1996 BLS projection of 2006 employment in detailed occupations was 17.6% (Wyatt 2010). The inaccuracies in the 1996 projection of 2006 employment were primarily the result of not anticipating the housing bubble or increases in oil prices (Wyatt 2010).