

*Employment outlook: 1996–2006*

# Occupational employment projections to 2006

*Occupations requiring at least an associate's degree are expected to grow faster than those requiring less education or training*

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Total employment is projected to increase by 18.6 million jobs over the 1996–2006 period, rising from 132.4 million to 150.9 million, according to the latest projection of the Bureau of Labor Statistics (BLS).<sup>1</sup> The projected 14-percent change in employment is less than the 19-percent increase attained during the previous 10-year period, 1986–96, when the economy added 21 million jobs. Consequently, growth rates among the major occupational groups will be very different from the past, resulting in a change in the structure of employment from 1996 to 2006.

The economy will continue generating jobs for workers at all levels of education and training, although average growth is projected to be greater for detailed occupations requiring at least an associate's degree than for occupations requiring less training. Still, many occupations requiring less formal education or training are projected to have above-average growth as well. Many slower growing occupations, some requiring little education and training and others having significant educational requirements, will add significant numbers of jobs primarily due to their large employment bases. There also will be numerous job openings due to the need to replace workers who leave the labor force or move to other occupations.

This article compares the 1996–2006 projected changes in the structure of employment at the major occupational group level with the

changes that occurred in the previous 10-year period, 1986–1996. It also identifies the detailed occupations that are projected to grow at the fastest rate, as well as those with the largest numerical increases, displaying the current educational requirements and earnings of the occupations in each of these growth categories. A discussion of the detailed occupations projected to have the largest employment declines follows. Also discussed are the total number of job openings projected to occur due to growth in the economy and the net replacement needs resulting from workers who leave the labor force or transfer to other occupations. The article concludes with a discussion of the distribution of employment in the base year (1996) and projected job openings by levels of education and earnings.

## Major groups

Among the major occupational groups, employment in professional specialty occupations will increase the fastest and add the most jobs from 1996 to 2006. (See table 1.) The group with the second fastest growth rate is technicians and related support occupations. This is a small group, however, and is expected to account for the second smallest numerical increase in jobs over the period. The next fastest growing group is service occupations. Together, professional specialty occupations and service occupations, which are on opposite ends of the educational attainment and

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earnings spectrum, are expected to provide nearly half of the total job growth from 1996 to 2006. In addition, two other groups are projected to have faster-than-average growth rates—executive, administrative, and managerial occupations; and marketing and sales workers. Employment in precision production, craft, and repair occupations; operators, fabricators, and laborers; and administrative support occupations, including clerical is expected to increase, but at a slower rate than overall employment. Finally, employment in the major group, agriculture, forestry, fishing, and related occupations, is projected to remain virtually unchanged over the projected period.

As a result of the different growth rates among the major occupational groups, the structure of total employment will change by the year 2006. Executive, administrative, and managerial occupations; professional specialty occupations; technicians and related support occupations; marketing and sales occupations; and service occupations each will increase their share of total employment, as they did in the previous 10-year period, 1986–96. The group with the largest increase in employment share in the former period, professional specialty occupations, is expected to again have the largest share over the coming period. On the other hand, administrative support occupations, including clerical; agriculture, forestry, fishing and related occupations; precision production, craft, and repair occupations; and operators, fabricators, and laborers all are expected to decline as a proportion of total employment, as they did in the 1986–96 period.

While the group administrative support occupations, including clerical, is expected to register the largest decrease in employment share from 1996 to 2006, precision production,

craft, and repair occupations; and operators, fabricators, and laborers both had larger declines in the previous 10-year period. The ranking of the major occupational groups by employment size is expected to be virtually the same in 2006 as it was in 1996, with administrative support occupations, including clerical ranked first, and agriculture, forestry, fishing and related occupations ranked last.

The number of *executive, administrative, and managerial workers* is projected to increase by 17 percent, or 2.3 million, from 1996 to 2006. This rate of growth is significantly slower than that of the 1986–96 period, when the group added 3 million jobs. Moreover, while managers had the second fastest growth rate among the major occupational groups in the earlier period, they are expected to rank fifth in terms of percent change in employment over the coming period. The result will be only a slight increase in the share of total employment represented by these workers.

Part of the reason for the expected slowdown in job growth among executive, administrative, and managerial workers is the trend toward job restructuring. Although employment in many different fields may be affected by this trend, the use of middle-level managers in the future is expected to be reduced more than many other occupations. This is especially true in manufacturing, an industry in which the employment of managers is projected to increase by a mere 5,700 jobs through 2006. In contrast, this group added 109,000 workers from 1986 to 1996, even while overall employment in manufacturing declined by nearly half-a-million jobs over the period.

Employment among managers also is projected to slow down considerably in construction and government. Over the 1996–2006 period, employment is projected to grow by only

**Table 1. Employment by major occupational group, 1986, 1996, and projected 2006**

(Numbers in thousands of jobs)

Occupational group	Employment						Change			
	Number			Percent distribution			Number		Percent	
	1986	1996	2006	1986	1996	2006	1986–96	1996–2006	1986–96	1996–2006
Total, all occupations ...	111,375	132,353	150,927	100.0	100.0	100.0	20,978	18,574	18.8	14.0
Executive, administrative, and managerial .....	10,568	13,542	15,866	9.5	10.2	10.5	2,974	2,324	28.1	17.2
Professional specialty .....	13,589	18,173	22,998	12.2	13.7	15.2	4,584	4,826	33.7	26.6
Technicians and related support .....	3,724	4,618	5,558	3.3	3.5	3.7	894	940	24.0	20.4
Marketing and sales .....	11,496	14,633	16,897	10.3	11.1	11.2	3,137	2,264	27.3	15.5
Administrative support, including clerical .....	20,871	24,019	25,825	18.7	18.1	17.1	3,147	1,806	15.1	7.5
Service .....	17,427	21,294	25,147	15.6	16.1	16.7	3,867	3,853	22.2	18.1
Agriculture, forestry, fishing, and related occupations, ..	3,661	3,785	3,823	3.3	2.9	2.5	124	37	3.4	1.0
Precision production, craft, and repair .....	13,832	14,446	15,448	12.4	10.9	10.2	614	1,002	4.4	6.9
Operators, fabricators, and laborers .....	16,206	17,843	19,365	14.6	13.5	12.8	1,637	1,522	10.1	8.5

73,000 jobs in construction and 43,000 jobs in government, compared to a growth of 177,000 jobs and 275,000 jobs, respectively, from 1986 to 1996. In several other major industry sectors, however, the number of executive, administrative, and managerial workers is expected to grow substantially. The services industry division<sup>2</sup> is expected to account for the largest job growth (1.2 million jobs), followed by finance, insurance, and real estate (284,000 jobs), wholesale and retail trade (274,000 jobs), and transportation, communications, and public utilities (76,000 jobs). The number of self-employed executive, administrative, and managerial workers is expected to increase by 386,000 jobs—more than any other major occupational group—to over 2 million by 2006.

Employment in *professional specialty occupations* is projected to grow the fastest and increase more—by nearly 5 million workers—than any other major group in the coming period, 1996–2006. This group had the fastest rate of increase and the largest job growth during the previous 10-year period. In terms of employment share, professional specialty occupations are expected to experience the largest increase, rising from 13.7 percent of total employment in 1996, to 15.3 percent in 2006. Nearly 70 percent of the job growth is expected among teachers, librarians, and counselors; computer, mathematical, and operations research occupations; and health assessment and treating occupations. These subgroups also registered the largest job gains among the professional specialties during the previous period. Employment in the engineering subgroup is expected to add 244,000 jobs by 2006, a significant turnaround from the small job losses posted since the mid-1980s.

Professional specialty occupations are projected to increase in all major industrial sectors of the economy except mining, in which employment among professionals is likely to continue its long-term decline. Even in manufacturing, an industry in which overall employment is projected to decline by 350,000 workers by 2006, employment of professional workers is expected to increase by 162,000 jobs (mainly for computer engineers, scientists, and systems analysts). Despite the widespread growth among professionals, nearly 90 percent of the employment increase for these workers is expected to occur in the services industry division, led by educational services and health services.

Other service industries expected to contribute significantly to the growth of professional workers include social services; business services; and engineering and management services. Employment of professionals in Federal, State, and local government is projected to grow by 153,000—less than half the increase of the 1986–96 period. The number of self-employed professional specialty workers is expected to total more than 1.7 million by 2006, an increase of nearly 222,000 jobs. Opportunities for people who want to start their own businesses will be especially abundant among computer, mathematical,

and operations research occupations; writers, artists, and entertainers; and health assessment and treating occupations. In contrast, the number of self-employed workers in health diagnosing occupations, such as physicians and dentists, is projected to decline by nearly 20,000.

Employment of *technicians and related support workers* is projected to grow by 940,000 jobs by 2006. The 20-percent change in employment over the period is slightly less than the 24-percent increase attained in the previous period, 1986–96. About 60 percent of the projected employment growth among technicians—571,000 jobs—is expected within the subgroup, health technicians and technologists. Considerable growth also is expected among engineering and science technicians and technologists; computer programmers; and paralegals.

Virtually all of the projected job growth for technicians and related support workers is expected in the services industry division. Within services, about half of the jobs for technicians are expected in the large and rapidly growing health services industry. Engineering and management services and business services also are expected to show large employment increases for this occupation. Compared with the previous period, projected job increases for technicians through 2006 are expected to be smaller in agriculture, forestry, and fishing; transportation, communications, and public utilities; wholesale and retail trade; finance, insurance and real estate; and government. As in the earlier period, employment of technicians in mining and manufacturing is expected to continue its downward trend through 2006.

Employment in *marketing and sales occupations* is projected to increase by 2.3 million workers from 1996 to 2006, or 16 percent. By contrast, both the numerical change and the percent change for this group was much greater from 1986 to 1996—3.1 million workers and 27 percent, respectively. The group's projected share of total employment will increase slightly by 2006. The reduced job growth for marketing and sales workers is attributable, in part, to a projected employment increase in wholesale and retail trade that is 1.6 million less than the job gains posted during the previous period.

The slowing of employment growth among marketing and sales workers results partly from the increased use of automated sales systems, which decreases the overall demand for labor in the wholesale and retail trade sectors. Substantial employment growth among marketing and sales workers is expected in the services industry division (621,000 jobs); an increase of 92,000 jobs for these workers is expected in transportation, communications, and public utilities. In finance, insurance, and real estate, employment among sales workers is expected to grow by 154,000 jobs by 2006, after having declined by 52,000 jobs during the previous period. Finally, the number of self-employed marketing and sales workers is expected to grow to nearly 2 million by 2006, an increase of 148,000 jobs over the 1996 level.

The number of workers in *administrative support occupations, including clerical* is projected to increase by 1.8 million jobs, or 8 percent, from 1996 to 2006. This is in marked contrast to the previous 10-year period, when this group added 3.1 million jobs and grew by 15 percent. Consequently, the share of total employment represented by these workers is projected to decline significantly, from 18.1 percent in 1996 to 17.1 percent by 2006—the largest drop for a major occupational group. Nevertheless, with a projected employment level of 25.8 million workers in 2006, administrative support occupations, including clerical, is expected to remain the largest major occupational group, as it was in both 1986 and 1996.

Several detailed occupations within administrative support occupations, including clerical, are expected to decline in the coming period, instead of growing as they did from 1986 to 1996. Computer and peripheral equipment operators; book-keeping, accounting, and auditing clerks; secretaries, except legal and medical; duplicating, mail, and other office machine operators; and general office clerks all are projected to decline as these occupations continue to be affected by technological change, such as office automation.

Occupations that involve a great deal of contact with people, and therefore are less affected by changing technology, are projected to have average or higher-than-average rates of growth and substantial numerical job gains. These occupations include adjusters, investigators and collectors (322,000 jobs); hotel desk clerks (30,000 jobs); receptionists and information clerks (318,000 jobs); clerical supervisors and managers (262,000 jobs); and teacher aides and educational assistants (370,000 jobs). The projected increase of 2 million jobs for administrative support occupations, including clerical, in services; finance, insurance, and real estate; and transportation, communications, and public utilities is expected to be partially offset by projected declines in virtually every other major industry division, the largest of which are in government and manufacturing.

Employment in *service occupations* is projected to increase by 3.9 million, or 18 percent, the second largest numerical gain and third largest rate of growth among the major occupational groups. Employment in this group increased by about the same number of jobs during the recent past. The proportion of total employment represented by these workers is expected to continue increasing, as it has been since 1986, and account for a share of total employment in 2006 that is just slightly less than that for administrative support occupations, including clerical (the largest projected major occupational group).

Nearly two-thirds of the 3.9 million additional service jobs projected through 2006 are in the rapidly growing services industry division, led by health services, social services, and business services. In addition, retail trade and government are expected to provide more than 1.3 million service jobs. Health

service occupations, which grew by 341,000 workers from 1986 to 1996, are projected to increase by more than twice that amount (706,000 jobs).

Other occupational subgroups with large projected job increases include food preparation and service workers (1.2 million jobs); cleaning and building service occupations, except private households (168,000 jobs); protective service occupations (457,000 jobs); and personal service occupations (1.1 million jobs). Employment in private household occupations is expected to continue its long-term decline, registering a loss of 121,000 jobs by 2006. Finally, the number of self-employed service workers is expected to increase by 257,000 jobs, to nearly 1.5 million by 2006—the second largest gain among the major occupational groups. Opportunities will be especially plentiful among cleaning and building service occupations, except private household; child care workers; and cosmetologists and related workers.

*Agriculture, forestry, fishing, and related occupations* are projected to grow by 37,000 jobs in the coming period, after adding 124,000 over the 1986–96 period. Within this major group, projected job losses for farm operators and managers (especially self-employed farmers) and farm workers are partially offset by projected increases for gardening, nursery, and greenhouse and lawn service occupations. Agriculture, forestry, fishing, and related workers are expected to decline to 2.5 percent of total employment, remaining the smallest of the major occupational groups through 2006.

Employment in *precision production, craft, and repair occupations* is projected to increase by 1 million jobs and grow by 7 percent from 1996 to 2006. This slower-than-average growth rate is a continuation of the 1986–96 trend, in which employment grew by 4 percent, adding 614,000 jobs. These workers are expected to account for 10.2 percent of total employment in 2006—down from 10.9 percent in 1996. The largest job growth in this group is expected among mechanics, installers, and repairers (656,000 jobs); construction trades workers (304,000 jobs); blue-collar worker supervisors (48,000 jobs); and plant and system occupations (32,000 jobs). These job categories also registered large increases during the 1980s.

The precision production occupations, which are highly concentrated in manufacturing, are expected to decline by about 38,000 jobs, due to continuing advances in technology, changes in production methods, and the overall decline in manufacturing employment. These projected job losses, however, are expected to be offset by the very significant gains in services and construction. The number of self-employed precision production, craft, and repair workers is expected to grow to 1.7 million, an increase of 112,000 jobs, the majority of which will be for blue-collar worker supervisors; construction trades workers; and mechanics, installers, and repairers.

The number of *operators, fabricators, and laborers* is expected to increase by 1.5 million workers, or 9 percent, from

1996 to 2006. In the previous 10-year period, this group of workers increased by 10 percent. The proportion of total employment represented by these workers is projected to decline from 13.5 percent to 12.8 percent over the period. Most of the job growth in this group is expected among transportation and material moving machine and vehicle operators (especially truck drivers, with an increase of 442,000 jobs) and helpers, laborers, and material movers, hand (especially hand packers and packagers, with an increase of 222,000 jobs).

The manufacturing sector is expected to experience a loss of 160,000 jobs for operators, fabricators, and laborers, largely resulting from increased automation as well as the overall projected decline in manufacturing employment. However, the projected declines will be more than offset by the gains in services; transportation; and wholesale and retail trade. Jobs for these workers in the trade sector, which increased by 413,000 jobs from 1986 to 1996, are projected to increase much more slowly through 2006 (253,000 jobs), largely as a result of the increased utilization of automated material moving equipment.

### Detailed occupations

BLS has developed projections for more than 500 detailed occupations. The growth rates range from an increase of 118 percent for database administrators, computer support specialists, and all other computer scientists, to a decline of 75 percent for typesetting and composing machine operators and tenders. (See table 2.) In the following section, projected occupational employment is analyzed from two perspectives, percent change and numerical change, because one can be large and the other small, depending on the size of employment in the base year. The employment of occupational therapy assistants and aides, for example, is projected to grow very rapidly over the 1996–2006 period (69 percent), while adding 11,000 jobs. In contrast, the employment of retail salespersons, which is expected to grow by only 10 percent in the coming period, will increase by 408,000 jobs. An interesting comparison exists between the total increase in employment from those occupations that are projected as the fastest growing (table 3), and the increase from those projected to account for the largest numerical increase (table 4). The first group accounts for 20 percent of the projected overall growth in employment, while the second group accounts for nearly half of the increase (several occupations are included in both of the groups).

Educational requirements and earnings of workers are quite varied among the 30 occupations that are projected to grow the fastest, as well as the 30 occupations with the largest numerical increases. (See the appendix for a description of the education and training categories used in this article.) About half of the fastest-growing occupations require education or training beyond high school; the top three require at least a bachelor's

degree and had median weekly earnings in 1996 that were much higher than the average for all full-time wage and salary workers (\$483). About a third of the occupations with the largest job growth require some type of postsecondary education or training. The remainder of the occupations on the two lists require high school graduation or less education, and most had below-average earnings in 1996. Although employers will continue to require workers at all levels of education and training, those with the most education or work experience usually will have more options in the job market and better prospects for obtaining the higher-paying jobs.

*Fastest growing occupations.* Most of the 30 fastest-growing occupations are concentrated in one or more of the rapidly growing industries shown in table 3.<sup>3</sup> Several of these occupations are found in the very rapidly growing computer and data processing services industry, which is expected to more than double its employment size to 2.5 million workers by 2006. The three fastest growing occupations have significant employment in this industry: database administrators, computer support specialists, and all other computer scientists; computer engineers; and systems analysts.

The demand for computer engineers and computer systems analysts is being spurred by the rapid advances in computer technology and the continuing demand for new computer applications, including Internet, Intranet, and World Wide Web applications. Rapid growth is expected in the number of database administrators to reorganize and restructure data to better suit the needs of users, and to aid in design implementation and ensure system security. Strong demand also is projected for computer support specialists to provide technical assistance to computer users in the areas of hardware, software, and systems. All three of these occupations also are found in table 4, which lists the occupations with the largest projected numerical job growth through 2006. They experienced a very fast rate of growth and large numerical increases in employment from 1986 to 1996 as well.

Two other fast-growing occupations also are expected to benefit from the proliferation of computers in the workplace. Employment of desktop publishing specialists will grow due to the increasing proportion of page layout and design that will be performed using computers. Similarly, the demand for data processing equipment repairers should rise in response to the overall growth of computer equipment, the development of new computer applications, and lower computer prices.

Almost half of the 30 fastest growing occupations have significant employment in the health services sector, which is expected to increase more than twice as fast as the economy as a whole and add over 3 million jobs by 2006. These health-related occupations also dominated this list in the earlier period. Employment among personal and home care aides and home health aides is concentrated in the home health care

**Table 2. Employment by occupation, 1996 and projected 2006**

(Numbers in thousands of jobs)

Occupation	Employment				Change		Total job openings due to growth and net replacements, 1996-2006 <sup>1</sup>
	Number		Percent distribution		Number	Percent	
	1996	2006	1996	2006			
Total, all occupations .....	132,353	150,927	100.0	100.0	18,574	14.0	50,563
Executive, administrative, and managerial occupations .....	13,542	15,866	10.2	10.5	2,324	17.2	5,174
Managerial and administrative occupations .....	9,539	11,262	7.2	7.5	1,723	18.1	3,745
Administrative services managers .....	291	324	.2	.2	33	11.3	95
Communication, transportation, and utilities operations managers .....	156	179	.1	.1	23	14.5	56
Construction managers .....	249	294	.2	.2	45	18.0	98
Education administrators .....	386	430	.3	.3	45	11.6	146
Engineering, science, and computer systems managers .....	343	498	.3	.3	155	45.2	228
Financial managers .....	800	946	.6	.6	146	18.3	297
Food service and lodging managers .....	589	757	.4	.5	168	28.5	293
Funeral directors and morticians .....	33	33	.0	.0	1	2.0	8
General managers and top executives .....	3,210	3,677	2.4	2.4	467	14.6	1,149
Government chief executives and legislators .....	93	95	.1	.1	2	2.2	22
Industrial production managers .....	207	202	.2	.1	-5	-2.5	44
Marketing, advertising, and public relations managers .....	482	620	.4	.4	138	28.5	226
Personnel, training, and labor relations managers .....	216	254	.2	.2	38	17.8	97
Property and real estate managers .....	271	315	.2	.2	44	16.4	87
Purchasing managers .....	232	251	.2	.2	18	7.8	71
All other managers and administrators .....	1,981	2,387	1.5	1.6	406	20.5	828
Management support occupations .....	4,003	4,604	3.0	3.1	601	15.0	1,429
Accountants and auditors .....	1,002	1,127	.8	.7	125	12.4	330
Budget analysts .....	66	73	.0	.0	8	11.7	20
Claims examiners, property and casualty insurance .....	57	69	.0	.0	13	22.2	20
Construction and building inspectors .....	66	76	.1	.1	10	14.5	29
Cost estimators .....	188	217	.1	.1	29	15.5	45
Credit analysts .....	40	46	.0	.0	6	15.8	14
Employment interviewers, private or public employment service .....	87	101	.1	.1	14	16.3	39
Inspectors and compliance officers, except construction .....	163	172	.1	.1	8	5.2	36
Loan officers and counselors .....	209	268	.2	.2	59	28.1	99
Management analysts .....	244	296	.2	.2	52	21.2	79
Personnel, training, and labor relations specialists .....	328	387	.2	.3	59	17.9	153
Purchasing agents, except wholesale, retail, and farm products .....	224	238	.2	.2	14	6.4	77
Tax examiners, collectors, and revenue agents .....	64	66	.0	.0	1	2.3	14
Underwriters .....	95	100	.1	.1	6	6.1	29
Wholesale and retail buyers, except farm products .....	183	183	.1	.1	0	-1	48
All other management support workers .....	988	1,185	.7	.8	198	20.0	396
Professional specialty occupations .....	18,173	22,998	13.7	15.2	4,826	26.6	8,286
Engineers .....	1,382	1,632	1.0	1.1	250	18.1	580
Aeronautical and astronautical engineers .....	53	57	.0	.0	4	7.8	10
Chemical engineers .....	49	57	.0	.0	7	15.0	22
Civil engineers, including traffic engineers .....	196	231	.1	.2	35	17.9	82
Electrical and electronics engineers .....	367	472	.3	.3	105	28.5	197
Industrial engineers, except safety engineers .....	115	131	.1	.1	16	13.6	39
Mechanical engineers .....	228	264	.2	.2	36	15.8	81
Metallurgists and metallurgical, ceramic, and materials engineers .....	18	20	.0	.0	1	6.8	6
Mining engineers, including mine safety engineers .....	3	3	.0	.0	0	-12.6	1

See footnotes at end of table.

**Table 2. Continued—Employment by occupation, 1996 and projected 2006**

(Numbers in thousands of jobs)

Occupation	Employment				Change		Total job openings due to growth and net replacements, 1996–2006 <sup>1</sup>
	Number		Percent distribution		Number	Percent	
	1996	2006	1996	2006			
Nuclear engineers .....	14	14	0.0	0.0	1	5.2	4
Petroleum engineers .....	13	11	.0	.0	-2	-14.3	4
All other engineers .....	326	373	.2	.2	47	14.4	134
Architects and surveyors .....	212	232	.2	.2	20	9.7	66
Architects, except landscape and marine ....	94	113	.1	.1	18	19.6	39
Landscape architects .....	17	20	.0	.0	3	20.7	7
Surveyors .....	101	99	.1	.1	-1	-1.4	20
Life scientists .....	180	221	.1	.1	41	22.6	65
Agricultural and food scientists .....	24	29	.0	.0	5	19.6	10
Biological scientists .....	83	103	.1	.1	21	25.1	26
Foresters and conservation scientists .....	37	43	.0	.0	6	17.4	14
Medical scientists .....	35	44	.0	.0	9	25.1	14
All other life scientists .....	1	1	.0	.0	0	-3.0	0
Computer, mathematical, and operations research occupations .....	1,028	2,038	.8	1.4	1,010	98.2	1,099
Actuaries .....	16	16	.0	.0	0	1.9	3
Computer systems analysts, engineers, and scientists .....	933	1,937	.7	1.3	1,004	107.6	1,072
Computer engineers and scientists .....	427	912	.3	.6	485	113.4	518
Computer engineers .....	216	451	.2	.3	235	109.1	250
Database administrators, computer support specialists, and all other computer scientists .....	212	461	.2	.3	249	117.8	268
Systems analysts .....	506	1,025	.4	.7	520	102.8	554
Statisticians .....	14	14	.0	.0	0	.7	2
Mathematicians and all other mathematical scientists .....	16	17	.0	.0	1	9.1	4
Operations research analysts .....	50	54	.0	.0	4	7.8	18
Physical scientists .....	207	242	.2	.2	36	17.3	81
Chemists .....	91	108	.1	.1	17	18.3	36
Geologists, geophysicists, and oceanographers .....	47	54	.0	.0	7	14.6	17
Meteorologists .....	7	8	.0	.0	1	8.2	2
Physicists and astronomers .....	18	17	.0	.0	0	-1.6	4
All other physical scientists .....	43	55	.0	.0	12	27.5	21
Social scientists .....	263	288	.2	.2	24	9.2	63
Economists .....	51	60	.0	.0	9	18.6	23
Psychologists .....	143	154	.1	.1	11	8.0	25
Urban and regional planners .....	29	31	.0	.0	1	4.7	6
All other social scientists .....	41	43	.0	.0	2	5.1	9
Social, recreational, and religious workers .....	1,469	1,939	1.1	1.3	470	32.0	792
Clergy .....	208	236	.2	.2	28	13.2	68
Directors, religious activities and education .....	85	115	.1	.1	30	35.5	46
Human services workers .....	178	276	.1	.2	98	55.4	131
Recreation workers .....	233	285	.2	.2	52	22.3	155
Residential counselors .....	180	254	.1	.2	74	41.2	115
Social workers .....	585	772	.4	.5	188	32.1	277
Lawyers and judicial workers .....	699	820	.5	.5	120	17.2	222
Judges, magistrates, and other judicial workers .....	78	79	.1	.1	2	2.2	14
Lawyers .....	622	740	.5	.5	118	19.0	209
Teachers, librarians, and counselors .....	6,565	7,914	5.0	5.2	1,349	20.6	2,714
Teachers, preschool and kindergarten .....	499	596	.4	.4	98	19.6	190
Teachers, elementary .....	1,491	1,644	1.1	1.1	153	10.3	438
Teachers, secondary school .....	1,406	1,718	1.1	1.1	312	22.2	731
Teachers, special education .....	407	648	.3	.4	241	59.1	299
College and university faculty .....	864	1,026	.7	.7	162	18.8	412

See footnotes at end of table.

**Table 2. Continued—Employment by occupation, 1996 and projected 2006**

(Numbers in thousands of jobs)

Occupation	Employment				Change		Total job openings due to growth and net replacements, 1996–2006 <sup>1</sup>
	Number		Percent distribution		Number	Percent	
	1996	2006	1996	2006			
Other teachers and instructors .....	878	1,118	0.7	0.7	240	27.3	326
Farm and home management advisors ..	16	10	.0	.0	-6	-38.3	1
Instructors and coaches, sports and physical training .....	303	427	.2	.3	123	40.7	151
Adult and vocational education teachers	559	682	.4	.5	123	21.9	174
Instructors, adult (nonvocational) education .....	248	299	.2	.2	51	20.6	74
Teachers and instructors, vocational education and training .....	311	383	.2	.3	72	23.0	100
All other teachers and instructors .....	671	770	.5	.5	99	14.8	192
Librarians, archivists, curators, and related workers .....	174	185	.1	.1	10	5.9	53
Curators, archivists, museum technicians, and restorers .....	20	23	.0	.0	3	14.7	8
Librarians, professional .....	154	162	.1	.1	7	4.8	45
Counselors .....	175	209	.1	.1	33	19.1	73
Health diagnosing occupations .....	877	1,039	.7	.7	162	18.4	305
Chiropractors .....	44	55	.0	.0	12	27.1	20
Dentists .....	162	175	.1	.1	13	8.1	47
Optometrists .....	41	46	.0	.0	5	11.7	13
Physicians .....	560	678	.4	.4	118	21.0	197
Podiatrists .....	11	12	.0	.0	1	10.1	3
Veterinarians and veterinary inspectors .....	58	71	.0	.0	13	22.7	25
Health assessment and treating occupations .....	2,684	3,393	2.0	2.2	709	26.4	1,090
Dietitians and nutritionists .....	58	69	.0	.0	11	18.2	22
Pharmacists .....	172	194	.1	.1	22	12.6	64
Physician assistants .....	64	93	.0	.1	30	46.6	39
Registered nurses .....	1,971	2,382	1.5	1.6	411	20.8	683
Therapists .....	419	655	.3	.4	236	56.3	282
Occupational therapists .....	57	95	.0	.1	38	66.1	44
Physical therapists .....	115	196	.1	.1	81	70.8	94
Recreational therapists .....	38	46	.0	.0	8	21.3	12
Respiratory therapists .....	82	119	.1	.1	37	45.8	46
Speech-language pathologists and audiologists .....	87	131	.1	.1	44	50.6	54
All other therapists .....	40	67	.0	.0	27	67.4	32
Writers, artists, and entertainers .....	1,726	2,138	1.3	1.4	412	23.8	772
Artists and commercial artists .....	276	354	.2	.2	78	28.3	135
Athletes, coaches, umpires, and related workers .....	42	49	.0	.0	7	15.5	19
Dancers and choreographers .....	23	30	.0	.0	7	28.0	12
Designers .....	342	431	.3	.3	89	26.1	149
Designers, except interior designers .....	279	351	.2	.2	72	25.7	120
Interior designers .....	63	80	.0	.1	17	27.5	28
Musicians .....	274	366	.2	.2	92	33.4	130
Photographers and camera operators .....	154	180	.1	.1	26	16.9	48
Camera operators, television, motion picture, video .....	20	23	.0	.0	3	14.5	6
Photographers .....	134	157	.1	.1	23	17.3	42
Producers, directors, actors, and entertainers .....	105	130	.1	.1	25	23.6	48
Public relations specialists and publicity writers .....	110	140	.1	.1	30	27.2	69
Radio and TV announcers and newscasters .....	52	52	.0	.0	0	-.6	21
Reporters and correspondents .....	60	58	.0	.0	-2	-3.1	17
Writers and editors, including technical writers .....	286	347	.2	.2	61	21.2	124
All other professional workers .....	880	1,104	.7	.7	224	25.5	437
Technicians and related support occupations .....	4,618	5,558	3.5	3.7	940	20.4	1,927
Health technicians and technologists .....	2,301	2,872	1.7	1.9	571	24.8	1,011

See footnotes at end of table.



**Table 2. Continued—Employment by occupation, 1996 and projected 2006**

(Numbers in thousands of jobs)

Occupation	Employment				Change		Total job openings due to growth and net replacements, 1996–2006 <sup>1</sup>
	Number		Percent distribution		Number	Percent	
	1996	2006	1996	2006			
Cardiology technologists .....	17	23	0.0	0.0	6	34.9	9
Clinical laboratory technologists and technicians .....	285	328	.2	.2	42	14.9	70
Dental hygienists .....	133	197	.1	.1	64	48.2	104
Electroneurodiagnostic technologists .....	6	8	.0	.0	2	24.0	3
EKG technicians .....	15	11	.0	.0	-4	-24.2	3
Emergency medical technicians .....	150	217	.1	.1	67	45.1	96
Licensed practical nurses .....	699	848	.5	.6	148	21.2	296
Medical records technicians .....	87	132	.1	.1	44	50.9	61
Nuclear medicine technologists .....	13	15	.0	.0	2	13.3	4
Opticians, dispensing and measuring .....	67	76	.1	.1	9	14.1	24
Pharmacy technicians .....	83	92	.1	.1	9	11.1	25
Psychiatric technicians .....	66	72	.1	.0	6	9.1	15
Radiologic technologists and technicians .....	174	224	.1	.1	50	28.9	77
Surgical technologists .....	49	64	.0	.0	15	31.9	25
Veterinary technicians and technologists .....	27	34	.0	.0	7	27.4	13
All other health professionals and paraprofessionals .....	430	531	.3	.4	101	23.5	185
Engineering and science technicians and technologists .....	1,236	1,342	.9	.9	106	8.6	378
Engineering technicians .....	698	767	.5	.5	70	10.0	228
Electrical and electronic technicians and technologists .....	297	341	.2	.2	43	14.5	121
All other engineering technicians and technologists .....	400	427	.3	.3	26	6.6	107
Drafters .....	310	317	.2	.2	7	2.3	68
Science and mathematics technicians .....	228	258	.2	.2	29	12.9	82
Technicians, except health and engineering and science .....	1,082	1,345	.8	.9	263	24.3	538
Aircraft pilots and flight engineers .....	110	125	.1	.1	15	13.8	38
Air traffic controllers and airplane dispatchers .....	29	29	.0	.0	0	-3	8
Broadcast technicians .....	46	53	.0	.0	7	15.1	20
Computer programmers .....	568	697	.4	.5	129	22.8	306
Legal assistants and technicians, except clerical .....	221	310	.2	.2	90	40.7	112
Paralegals .....	113	189	.1	.1	76	67.7	86
Title examiners and searchers .....	26	29	.0	.0	3	13.4	6
All other legal assistants, including law clerks .....	82	92	.1	.1	10	12.1	20
Programmers, numerical, tool, and process control .....	7	7	.0	.0	0	5.7	2
Technical assistants, library .....	78	100	.1	.1	22	28.0	44
All other technicians .....	24	23	.0	.0	0	-2.0	7
Marketing and sales occupations .....	14,633	16,897	11.1	11.2	2,264	15.5	6,522
Cashiers .....	3,146	3,677	2.4	2.4	530	16.8	1,902
Counter and rental clerks .....	374	458	.3	.3	84	22.5	217
Insurance sales workers .....	409	426	.3	.3	18	4.3	95
Marketing and sales worker supervisors .....	2,316	2,562	1.7	1.7	246	1.6	618
Real estate agents, brokers, and appraisers .....	408	441	.3	.3	32	7.9	98
Brokers, real estate .....	78	89	.1	.1	11	14.1	23
Real estate appraisers .....	48	54	.0	.0	6	12.1	14
Sales agents, real estate .....	282	298	.2	.2	16	5.5	61
Salespersons, retail .....	4,072	4,481	3.1	3.0	408	10.0	1,701
Securities and financial services sales workers .....	263	363	.2	.2	100	37.8	124
Travel agents .....	142	176	.1	.1	34	24.0	66
All other sales and related workers .....	3,503	4,314	2.6	2.9	811	23.2	1,702
Administrative support occupations, including clerical .....	24,019	25,825	18.1	17.1	1,806	7.5	6,907
Adjusters, investigators, and collectors .....	1,283	1,605	1.0	1.1	322	25.1	523
Adjustment clerks .....	401	584	.3	.4	183	45.5	207

See footnotes at end of table.

**Table 2. Continued—Employment by occupation, 1996 and projected 2006**

(Numbers in thousands of jobs)

Occupation	Employment				Change		Total job openings due to growth and net replacements, 1996–2006 <sup>1</sup>
	Number		Percent distribution		Number	Percent	
	1996	2006	1996	2006			
Bill and account collectors .....	269	381	0.2	0.3	112	41.8	168
Insurance claims and policy processing occupations .....	466	526	.4	.3	60	12.9	126
Insurance adjusters, examiners, and investigators .....	165	203	.1	.1	38	23.1	60
Insurance claims clerks .....	121	153	.1	.1	31	25.7	48
Insurance policy processing clerks .....	179	171	.1	.1	-9	-5.0	18
Welfare eligibility workers and interviewers .....	109	76	.1	.1	-34	-30.8	17
All other adjusters and investigators .....	38	39	.0	.0	0	1.3	5
Communications equipment operators .....	328	295	.2	.2	-33	-9.9	70
Telephone operators .....	319	289	.2	.2	-30	-9.3	68
Central office operators .....	48	26	.0	.0	-23	-47.0	9
Directory assistance operators .....	33	18	.0	.0	-16	-47.1	6
Switchboard operators .....	237	246	.2	.2	9	3.7	53
All other communications equipment operators .....	9	6	.0	.0	-3	-33.7	2
Computer operators .....	291	198	.2	.1	-94	-32.1	45
Computer operators, except peripheral equipment .....	258	181	.2	.1	-77	-29.8	40
Peripheral computer equipment operators .....	33	17	.0	.0	-17	-50.0	5
Information clerks .....	1,591	1,958	1.2	1.3	366	23.0	731
Hotel desk clerks .....	144	174	.1	.1	30	21.0	94
Interviewing clerks, except personnel and social welfare .....	98	115	.1	.1	17	17.7	46
New accounts clerks, banking .....	110	115	.1	.1	5	4.5	37
Receptionists and information clerks .....	1,074	1,392	.8	.9	318	29.7	518
Reservation and transportation ticket agents and travel clerks .....	166	162	.1	.1	-4	-2.7	38
Mail clerks and messengers .....	268	291	.2	.2	23	8.6	89
Mail clerks, except mail machine operators and postal service .....	130	137	.1	.1	7	5.7	40
Messengers .....	138	154	.1	.1	16	11.3	50
Postal clerks and mail carriers .....	403	443	.3	.3	40	9.9	134
Postal mail carriers .....	332	369	.3	.2	37	11.2	117
Postal service clerks .....	71	74	.1	.0	3	3.8	17
Material recording, scheduling, dispatching, and distributing occupations .....	3,859	4,084	2.9	2.7	225	5.8	830
Dispatchers .....	234	258	.2	.2	24	10.1	58
Dispatchers, except police, fire, and ambulance .....	148	165	.1	.1	17	11.4	38
Dispatchers, police, fire, and ambulance .....	86	93	.1	.1	7	7.7	19
Meter readers, utilities .....	55	56	.0	.0	1	2.2	15
Order fillers, wholesale and retail sales .....	227	255	.2	.2	28	12.1	73
Procurement clerks .....	56	55	.0	.0	-1	-1.9	8
Production, planning, and expediting clerks .....	239	254	.2	.2	15	6.3	50
Stock clerks .....	1,844	1,898	1.4	1.3	54	2.9	326
Traffic, shipping, and receiving clerks .....	985	1,070	.7	.7	85	8.6	235
Weighers, measurers, checkers, and samplers, recordkeeping .....	47	50	.0	.0	3	6.1	14
All other material recording, scheduling, and distribution workers .....	170	188	.1	.1	17	10.3	51
Records processing occupations .....	3,870	3,887	2.9	2.6	16	.4	891
Advertising clerks .....	18	18	.0	.0	0	-1.3	4
Brokerage clerks .....	76	91	.1	.1	15	19.1	22
Correspondence clerks .....	31	41	.0	.0	10	30.8	16
File clerks .....	293	315	.2	.2	22	7.4	132
Financial records processing occupations .....	2,848	2,790	2.2	1.8	-58	-2.0	538
Billing, cost, and rate clerks .....	335	391	.3	.3	55	16.5	115

See footnotes at end of table.

**Table 2. Continued—Employment by occupation, 1996 and projected 2006**

(Numbers in thousands of jobs)

Occupation	Employment				Change		Total job openings due to growth and net replacements, 1996–2006 <sup>1</sup>
	Number		Percent distribution		Number	Percent	
	1996	2006	1996	2006			
Billing, posting, and calculating machine operators .....	102	100	0.1	0.1	-1	-1.4	18
Bookkeeping, accounting, and auditing clerks .....	2,250	2,147	1.7	1.4	-102	-4.5	379
Payroll and timekeeping clerks .....	161	151	.1	.1	-10	-5.9	26
Library assistants and bookmobile drivers .....	125	145	.1	.1	19	15.4	75
Order clerks, materials, merchandise, and service .....	329	338	.2	.2	8	2.6	75
Personnel clerks, except payroll and timekeeping .....	124	126	.1	.1	2	1.4	27
Statement clerks .....	25	25	.0	.0	-1	-2.8	3
Secretaries, stenographers, and typists .....	4,153	4,081	3.1	2.7	-72	-1.7	834
Secretaries .....	3,403	3,427	2.6	2.3	25	.7	70
Legal secretaries .....	284	319	.2	.2	35	12.5	85
Medical secretaries .....	239	314	.2	.2	76	31.7	117
Secretaries, except legal and medical ...	2,881	2,794	2.2	1.9	-87	-3.0	501
Stenographers and/or court reporters .....	98	101	.1	.1	4	3.7	21
Typists, including word processing .....	653	552	.5	.4	-100	-15.4	111
Other clerical and administrative support workers .....	7,972	8,983	6.0	6.0	1,011	12.7	2,759
Bank tellers .....	545	550	.4	.4	5	.8	232
Clerical supervisors and managers .....	1,369	1,630	1.0	1.1	262	19.1	579
Court clerks .....	53	57	.0	.0	5	8.7	11
Credit authorizers, credit checkers, and loan and credit clerks .....	252	256	.2	.2	3	1.3	42
Credit authorizers .....	16	10	.0	.0	-6	-38.5	2
Credit checkers .....	42	33	.0	.0	-9	-22.2	3
Loan and credit clerks .....	181	200	.1	.1	19	10.2	37
Loan interviewers .....	12	13	.0	.0	1	4.5	2
Customer service representatives, utilities .....	151	206	.1	.1	55	36.3	85
Data entry keyers, except composing .....	418	453	.3	.3	35	8.3	55
Data entry keyers, composing .....	18	10	.0	.0	-8	-44.6	1
Duplicating, mail, and other office machine operators .....	196	149	.1	.1	-47	-24.1	78
General office clerks .....	3,111	3,326	2.4	2.2	215	6.9	923
Municipal clerks .....	22	24	.0	.0	2	9.3	5
Proofreaders and copy markers .....	26	16	.0	.0	-10	-38.5	7
Real estate clerks .....	24	25	.0	.0	2	6.4	7
Statistical clerks .....	78	65	.1	.0	-13	-17.3	13
Teacher aides and educational assistants ...	981	1,352	.7	.9	370	37.7	500
All other clerical and administrative support workers .....	727	864	.5	.6	137	18.8	222
Service occupations .....	21,294	25,147	16.1	16.7	3,853	18.1	10,374
Cleaning and building service occupations, except private household .....	3,545	3,713	2.7	2.5	168	4.7	868
Institutional cleaning supervisors .....	108	115	.1	.1	6	5.7	32
Janitors and cleaners, including maids and housekeeping cleaners .....	3,134	3,262	2.4	2.2	128	4.1	743
Pest controllers and assistants .....	60	73	.0	.0	13	22.2	24
All other cleaning and building service workers .....	243	263	.2	.2	20	8.3	68
Food preparation and service occupations .....	8,396	9,571	6.3	6.3	1,175	14.0	4,792
Chefs, cooks, and other kitchen workers .....	3,402	3,984	2.6	2.6	583	17.1	1,734
Cooks, except short order .....	1,344	1,519	1.0	1.0	175	13.0	495
Bakers, bread and pastry .....	182	231	.1	.2	48	26.4	92
Cooks, institution or cafeteria .....	435	455	.3	.3	21	4.7	124
Cooks, restaurant .....	727	833	.5	.6	106	14.6	279
Cooks, short order and fast food .....	804	978	.6	.6	174	21.6	365

See footnotes at end of table.

**Table 2. Continued—Employment by occupation, 1996 and projected 2006**

(Numbers in thousands of jobs)

Occupation	Employment				Change		Total job openings due to growth and net replacements, 1996–2006 <sup>1</sup>
	Number		Percent distribution		Number	Percent	
	1996	2006	1996	2006			
Food preparation workers .....	1,253	1,487	0.9	1.0	234	18.7	873
Food and beverage service occupations .....	4,766	5,296	3.6	3.5	530	11.1	2,904
Bartenders .....	390	392	.3	.3	2	.4	152
Dining room and cafeteria attendants and bar helpers .....	439	501	.3	.3	62	14.1	204
Food counter, fountain, and related workers .....	1,720	1,963	1.3	1.3	243	14.1	1,251
Hosts and hostesses, restaurant, lounge, or coffee shop .....	260	278	.2	.2	18	6.7	91
Waiters and waitresses .....	1,957	2,163	1.5	1.4	206	10.5	1,205
All other food preparation and service workers .....	228	290	.2	.2	62	27.1	155
Health service occupations .....	2,167	2,874	1.6	1.9	706	32.6	1,062
Ambulance drivers and attendants, except EMT's .....	18	25	.0	.0	7	36.5	11
Dental assistants .....	202	278	.2	.2	77	38.1	126
Medical assistants .....	225	391	.2	.3	166	74.0	210
Nursing aides and psychiatric aides .....	1,415	1,757	1.1	1.2	342	24.2	533
Nursing aides, orderlies, and attendants .....	1,312	1,645	1.0	1.1	333	25.4	510
Psychiatric aides .....	103	112	.1	.1	9	8.6	23
Occupational therapy assistants and aides .....	16	26	.0	.0	11	68.7	14
Pharmacy assistants .....	47	52	.0	.0	5	10.7	14
Physical and corrective therapy assistants and aides .....	84	151	.1	.1	66	78.6	86
All other health service workers .....	160	192	.1	.1	33	20.4	69
Personal service occupations .....	2,750	3,875	2.1	2.6	1,126	40.9	1,622
Amusement and recreation attendants .....	288	426	.2	.3	138	47.9	191
Baggage porters and bellhops .....	38	40	.0	.0	2	5.4	9
Barbers .....	59	54	.0	.0	-6	-9.6	19
Child care workers .....	830	1,129	.6	.7	299	36.1	391
Cosmetologists and related workers .....	641	720	.5	.5	78	12.2	249
Hairdressers, hairstylists, and cosmetologists .....	586	644	.4	.4	58	9.9	214
Manicurists .....	43	62	.0	.0	19	44.7	31
Shampooers .....	13	13	.0	.0	1	7.1	4
Flight attendants .....	132	178	.1	.1	46	35.1	78
Homemaker-home health aides .....	697	1,247	.5	.8	550	78.8	653
Home health aides .....	495	873	.4	.6	378	76.5	445
Personal and home care aides .....	202	374	.2	.2	171	84.7	208
Ushers, lobby attendants, and ticket takers .....	64	82	.0	.1	18	28.4	30
Private household workers .....	802	681	.6	.5	-121	-15.1	252
Child care workers, private household .....	275	250	.2	.2	-25	-9.0	136
Cleaners and servants, private household .....	505	421	.4	.3	-84	-16.7	111
Cooks, private household .....	8	3	.0	.0	-5	-62.1	2
Housekeepers and butlers .....	14	7	.0	.0	-7	-50.7	3
Protective service occupations .....	2,523	2,980	1.9	2.0	457	18.1	1,162
Firefighting occupations .....	293	308	.2	.2	16	5.3	128
Fire fighters .....	225	238	.2	.2	14	6.1	102
Fire fighting and prevention supervisors .....	54	54	.0	.0	1	1.1	19
Fire inspection occupations .....	14	16	.0	.0	1	9.2	7
Law enforcement occupations .....	1,024	1,217	.8	.8	193	18.9	463
Correction officers .....	320	423	.2	.3	103	32.3	152
Police and detectives .....	704	793	.5	.5	90	12.7	312
Police and detective supervisors .....	90	89	.1	.1	-1	-7	31
Police detectives and investigators .....	70	75	.1	.0	5	7.8	29
Police patrol officers .....	413	486	.3	.3	73	17.8	216
Sheriffs and deputy sheriffs .....	88	96	.1	.1	8	9.3	24
Other law enforcement occupations .....	43	47	.0	.0	3	7.7	11
Other protective service workers .....	1,206	1,455	.9	1.0	249	20.6	570

See footnotes at end of table.

**Table 2. Continued—Employment by occupation, 1996 and projected 2006**

(Numbers in thousands of jobs)

Occupation	Employment				Change		Total job openings due to growth and net replacements, 1996–2006 <sup>1</sup>
	Number		Percent distribution		Number	Percent	
	1996	2006	1996	2006			
except public .....	58	69	0.0	0.0	11	18.5	23
Guards .....	955	1,175	.7	.8	221	23.1	420
Crossing guards .....	61	55	.0	.0	-6	-9.2	15
All other protective service workers .....	133	156	.1	.1	23	17.2	113
All other service workers .....	1,112	1,453	.8	1.0	341	30.7	615
Agriculture, forestry, fishing, and related occupations .....	3,785	3,823	2.9	2.5	37	1.0	1,124
Animal caretakers, except farm .....	130	158	.1	.1	28	21.4	62
Farm operators and managers .....	1,292	1,175	1.0	.8	-118	-9.1	247
Farmers .....	1,109	997	.8	.7	-112	-10.1	208
Farm managers .....	184	178	.1	.1	-6	-3.2	39
Farm workers .....	873	798	.7	.5	-75	-8.6	241
Fishers, hunters, and trappers .....	47	37	.0	.0	-10	-20.7	10
Captains and other officers, fishing vessels .....	8	7	.0	.0	0	-4.4	2
Fishers, hunters, and trappers .....	39	30	.0	.0	-9	-23.9	8
Forestry and logging occupations .....	122	123	.1	.1	1	1.0	39
Forest and conservation workers .....	40	41	.0	.0	1	2.5	15
Timber cutting and logging occupations .....	82	82	.1	.1	0	.3	25
Fallers and buckers .....	17	16	.0	.0	-1	-3.5	5
Logging tractor operators .....	21	22	.0	.0	1	4.4	5
Log handling equipment operators .....	33	34	.0	.0	1	3.1	11
All other timber cutting and related logging workers .....	11	10	.0	.0	-1	-10.3	3
Gardening, nursery, and greenhouse and lawn service occupations .....	925	1,105	.7	.7	180	19.5	398
Gardeners, nursery workers and laborers, landscaping and groundskeeping .....	817	975	.6	.6	158	19.4	357
Lawn service managers .....	55	67	.0	.0	12	22.2	19
Nursery and greenhouse managers .....	10	12	.0	.0	2	19.1	3
Pruners .....	26	30	.0	.0	4	16.2	11
Sprayers/applicators .....	18	21	.0	.0	4	21.2	8
Supervisors, farming, forestry, and agricultural related occupations .....	88	92	.1	.1	4	4.2	21
Veterinary assistants .....	33	42	.0	.0	9	28.0	18
All other agricultural, forestry, fishing, and related workers .....	275	293	.2	.2	18	6.5	90
Precision production, craft, and repair occupations .....	14,446	15,448	10.9	10.2	1,002	6.9	4,350
Blue collar worker supervisors .....	1,899	1,947	1.4	1.3	48	2.5	467
Construction trades .....	3,710	4,014	2.8	2.7	304	8.2	1,127
Bricklayers and stone masons .....	142	162	.1	.1	19	13.6	41
Carpenters .....	979	1,038	.7	.7	59	6.0	232
Carpet installers .....	64	72	.0	.0	8	12.2	28
Ceiling tile installers and acoustical carpenters .....	16	18	.0	.0	1	8.7	4
Concrete and terrazzo finishers .....	137	147	.1	.1	10	7.4	45
Drywall installers and finishers .....	133	140	.1	.1	7	4.9	47
Electricians .....	575	627	.4	.4	52	9.1	173
Glaziers .....	36	38	.0	.0	2	5.3	10
Hard tile setters .....	29	30	.0	.0	1	4.1	8
Highway maintenance workers .....	171	158	.1	.1	-14	-7.9	45
Insulation workers .....	65	78	.0	.1	13	19.3	28
Painters and paperhangers, construction and maintenance .....	444	509	.3	.3	66	14.8	164
Paving, surfacing, and tamping equipment operators .....	79	103	.1	.1	24	29.9	41
Pipelayers and pipelaying fitters .....	62	66	.0	.0	4	5.7	20
Plasterers .....	32	36	.0	.0	4	13.3	11
Plumbers, pipefitters, and steamfitters .....	389	406	.3	.3	18	4.5	102
Roofers .....	138	144	.1	.1	6	4.3	47
Structural and reinforcing metal workers .....	67	73	.1	.0	6	9.0	22

See footnotes at end of table.

**Table 2. Continued—Employment by occupation, 1996 and projected 2006**

(Numbers in thousands of jobs)

Occupation	Employment				Change		Total job openings due to growth and net replacements, 1996–2006 <sup>1</sup>
	Number		Percent distribution		Number	Percent	
	1996	2006	1996	2006			
All other construction trades workers .....	150	169	0.1	0.1	19	12.5	58
Extractive and related workers, including							
blasters .....	220	220	.2	.1	0	–.1	61
Oil and gas extraction occupations .....	65	53	.0	.0	–13	–19.2	13
Roustabouts .....	28	18	.0	.0	–9	–33.7	6
All other oil and gas extraction occupations .....	37	34	.0	.0	–3	–8.4	7
Mining, quarrying, and tunneling occupations .....	16	12	.0	.0	–4	–25.8	3
All other extraction and related workers .....	138	155	.1	.1	17	12.0	44
Mechanics, installers, and repairers .....	5,233	5,889	4.0	3.9	656	12.5	1,905
Communications equipment mechanics, installers, and repairers .....	116	121	.1	.1	5	4.3	29
Central office and PBX installers and repairers .....	81	85	.1	.1	4	5.2	21
Radio mechanics .....	8	7	.0	.0	–1	–7.2	2
All other communications equipment mechanics, installers, and repairers .....	27	28	.0	.0	1	5.1	7
Electrical and electronic equipment mechanics, installers, and repairers .....	562	627	.4	.4	66	11.7	2
Data processing equipment repairers .....	80	121	.1	.1	42	52.3	67
Electrical powerline installers and repairers .....	108	111	.1	.1	3	3.0	25
Electronic home entertainment equipment repairers .....	33	27	.0	.0	–6	–19.0	7
Electronics repairers, commercial and industrial equipment .....	60	67	.0	.0	7	11.8	19
Station installers and repairers, telephone .....	37	10	.0	.0	–27	–73.5	7
Telephone and cable TV line installers and repairers .....	201	242	.2	.2	41	20.5	82
All other electrical and electronic equipment mechanics, installers, and repairers .....	44	50	.0	.0	6	13.0	15
Machinery and related mechanics, installers, and repairers .....	1,899	2,173	1.4	1.4	274	14.4	670
Industrial machinery mechanics .....	459	489	.3	.3	30	6.6	131
Maintenance repairers, general utility .....	1,362	1,608	1.0	1.1	246	18.0	522
Millwrights .....	78	76	.1	.1	–2	–2.2	18
Vehicle and mobile equipment mechanics and repairers .....	1,597	1,764	1.2	1.2	168	10.5	578
Aircraft mechanics, including engine specialists .....	137	155	.1	.1	18	13.2	50
Aircraft engine specialists .....	25	27	.0	.0	2	8.9	8
Aircraft mechanics .....	112	128	.1	.1	16	14.2	42
Automotive body and related repairers .....	225	254	.2	.2	29	12.8	98
Automotive mechanics .....	775	871	.6	.6	96	12.4	298
Bus and truck mechanics and diesel engine specialists .....	266	288	.2	.2	22	8.2	78
Farm equipment mechanics .....	44	37	.0	.0	–7	–15.9	10
Mobile heavy equipment mechanics .....	104	111	.1	.1	7	6.5	30
Motorcycle, boat, and small engine mechanics .....	45	49	.0	.0	3	7.1	15
Motorcycle repairers .....	12	13	.0	.0	1	5.7	4
Small engine specialists .....	34	36	.0	.0	3	7.6	11
Other mechanics, installers, and repairers .....	1,060	1,203	.8	.8	143	13.5	403
Bicycle repairers .....	13	17	.0	.0	4	33.5	7
Camera and photographic equipment repairers .....	14	18	.0	.0	3	24.0	7
Coin and vending machine servicers and repairers .....	21	19	.0	.0	–1	–6.5	4
Electric meter installers and repairers .....	12	8	.0	.0	–4	–33.7	3
Electromedical and biomedical equipment							

See footnotes at end of table.

**Table 2. Continued—Employment by occupation, 1996 and projected 2006**

(Numbers in thousands of jobs)

Occupation	Employment				Change		Total job openings due to growth and net replacements, 1996–2006 <sup>1</sup>
	Number		Percent distribution		Number	Percent	
	1996	2006	1996	2006			
repairers .....	10	11	0.0	0.0	1	11.7	3
Elevator installers and repairers .....	25	27	.0	.0	2	8.0	8
Heat, air conditioning, and refrigeration mechanics and installers .....	256	300	.2	.2	44	17.0	104
Home appliance and power tool repairers ...	71	73	.1	.0	2	3.5	20
Locksmiths and safe repairers .....	25	29	.0	.0	4	15.0	10
Musical instrument repairers and tuners .....	9	10	.0	.0	1	7.4	3
Office machine and cash register servicers .....	62	73	.0	.0	11	17.8	28
Precision instrument repairers .....	38	38	.0	.0	-1	-2.2	10
Riggers .....	9	8	.0	.0	-2	-18.3	2
Tire repairers and changers .....	94	101	.1	.1	7	7.0	44
Watchmakers .....	7	7	.0	.0	0	-5.1	2
All other mechanics, installers, and repairers .....	394	467	.3	.3	73	18.4	149
Production occupations, precision .....	3,054	3,016	2.3	2.0	-38	-1.2	680
Assemblers, precision .....	380	383	.3	.3	3	.7	93
Aircraft assemblers, precision .....	25	27	.0	.0	2	9.9	7
Electrical and electronic equipment assemblers, precision .....	194	193	.1	.1	-1	-.6	47
Electromechanical equipment assemblers, precision .....	51	51	.0	.0	0	.6	13
Fitters, structural metal, precision .....	15	12	.0	.0	-3	-18.3	3
Machine builders and other precision machine assemblers .....	57	58	.0	.0	1	1.6	12
All other precision assemblers .....	38	41	.0	.0	3	8.2	11
Food workers, precision .....	299	301	.2	.2	2	.6	93
Bakers, manufacturing .....	44	47	.0	.0	3	7.0	13
Butchers and meatcutters .....	217	205	.2	.1	-12	-5.7	57
All other precision food and tobacco workers .....	38	49	.0	.0	11	29.3	22
Inspectors, testers, and graders, precision .....	634	610	.5	.4	-24	-3.8	115
Metal workers, precision .....	934	924	.7	.6	-10	-1.1	195
Boilermakers .....	18	18	.0	.0	-1	-3.2	4
Jewelers and silversmiths .....	32	31	.0	.0	-1	-1.7	6
Machinists .....	386	384	.3	.3	-2	-.5	85
Sheet metal workers and duct installers	237	236	.2	.2	-1	-.4	50
Shipfitters .....	9	9	.0	.0	0	-.6	2
Tool and die makers .....	134	124	.1	.1	-9	-7.0	21
All other precision metal workers .....	117	120	.1	.1	3	2.9	27
Printing workers, precision .....	141	124	.1	.1	-17	-12.1	44
Bookbinders .....	4	4	.0	.0	-1	-15.0	1
Prepress printing workers, precision .....	123	106	.1	.1	-16	-13.4	41
Compositors and typesetters, precision .....	6	3	.0	.0	-3	-50.3	1
Job printers .....	15	15	.0	.0	1	4.9	3
Paste-up workers .....	15	4	.0	.0	-11	-75.0	2
Desktop publishing specialists .....	30	53	.0	.0	22	73.5	27
Photoengravers .....	5	3	.0	.0	-2	-35.8	1
Camera operators .....	11	10	.0	.0	-2	-14.9	2
Film strippers, printing .....	26	7	.0	.0	-20	-75.0	4
Platemakers .....	14	12	.0	.0	-2	-15.1	2
All other printing workers, precision .....	13	14	.0	.0	0	1.1	2
Textile, apparel, and furnishings workers, precision .....	230	212	.2	.1	-18	-7.7	34
Custom tailors and sewers .....	87	73	.1	.0	-15	-16.7	11
Patternmakers and layout workers, fabric and apparel .....	14	14	.0	.0	0	-3.3	2
Shoe and leather workers and repairers, precision .....	21	17	.0	.0	-4	-20.1	2
Upholsterers .....	57	57	.0	.0	0	.4	8

See footnotes at end of table.

**Table 2. Continued—Employment by occupation, 1996 and projected 2006**

(Numbers in thousands of jobs)

Occupation	Employment				Change		Total job openings due to growth and net replacements, 1996-2006 <sup>1</sup>
	Number		Percent distribution		Number	Percent	
	1996	2006	1996	2006			
All other precision textile, apparel, and furnishings workers .....	50	51	0.0	0.0	1	2.8	12
Woodworkers, precision .....	229	249	.2	.2	19	8.4	48
Cabinetmakers and bench carpenters ...	121	128	.1	.1	7	6.1	19
Furniture finishers .....	30	33	.0	.0	3	11.5	9
Wood machinists .....	45	51	.0	.0	6	13.9	11
All other precision woodworkers .....	33	36	.0	.0	2	6.8	9
Other precision workers .....	206	213	.2	.1	7	3.3	57
Dental laboratory technicians, precision	47	48	.0	.0	0	.7	12
Optical goods workers, precision .....	19	19	.0	.0	0	.4	4
Photographic process workers, precision	14	14	.0	.0	0	-2.7	5
All other precision workers .....	126	133	.1	.1	7	5.4	36
Plant and system occupations .....	330	362	.2	.2	32	9.9	110
Chemical plant and system operators .....	36	36	.0	.0	0	-.8	9
Electric power generating plant operators, distributors, and dispatchers .....	47	49	.0	.0	2	4.3	14
Power distributors and dispatchers .....	15	15	.0	.0	-1	-3.7	4
Power generating and reactor plant operators .....	31	34	.0	.0	3	8.3	10
Gas and petroleum plant and system occupations .....	33	29	.0	.0	-3	-10.5	8
Stationary engineers .....	27	26	.0	.0	-2	-5.9	5
Water and liquid waste treatment plant and system operators .....	98	121	.1	.1	23	23.2	38
All other plant and system operators .....	88	101	.1	.1	13	14.8	35
Operators, fabricators, and laborers .....	17,843	19,365	13.5	12.8	1,522	8.5	5,900
Machine setters, set-up operators, operators, and tenders .....	4,898	4,956	3.7	3.3	58	1.2	1,378
Numerical control machine tool operators and tenders, metal and plastic .....	92	117	.1	.1	25	27.4	42
Combination machine tool setters, set-up operators, operators, and tenders .....	96	113	.1	.1	17	17.8	34
Machine tool cut and form setters, operators, and tenders, metal and plastic .....	723	677	.5	.4	-46	-6.4	174
Drilling and boring machine tool setters and set-up operators, metal and plastic .....	46	36	.0	.0	-10	-22.0	8
Grinding machine setters and set-up operators, metal and plastic .....	63	56	.0	.0	-7	-11.4	14
Lathe and turning machine tool setters and set-up operators, metal and plastic .....	71	61	.1	.0	-10	-13.7	13
Machine forming operators and tenders, metal and plastic .....	174	168	.1	.1	-6	-3.2	51
Machine tool cutting operators and tenders, metal and plastic .....	127	105	.1	.1	-22	-17.4	25
Punching machine setters and set-up operators, metal and plastic .....	51	47	.0	.0	-4	-8.3	10
All other machine tool setters, set-up operators, metal and plastic .....	191	204	.1	.1	13	6.7	53
Metal fabricating machine setters, operators, and related workers .....	157	162	.1	.1	5	3.3	42
Metal fabricators, structural metal products .....	46	50	.0	.0	5	10.6	13
Soldering and brazing machine operators and tenders .....	11	11	.0	.0	0	.6	3
Welding machine setters, operators, and tenders .....	100	101	.1	.1	0	.3	26
Metal and plastic processing machine setters, operators, and related workers .....	466	528	.4	.3	62	13.4	198
Electrolytic plating machine operators and tenders, setters and set-up							

See footnotes at end of table.



**Table 2. Continued—Employment by occupation, 1996 and projected 2006**

(Numbers in thousands of jobs)

Occupation	Employment				Change		Total job openings due to growth and net replacements, 1996–2006 <sup>1</sup>
	Number		Percent distribution		Number	Percent	
	1996	2006	1996	2006			
operators, metal and plastic .....	42	46	0.0	0.0	4	10.4	17
Foundry mold assembly and shakeout workers .....	10	10	.0	.0	0	–4.0	3
Furnace operators and tenders .....	21	20	.0	.0	–1	–4.6	3
Heat treating machine operators and tenders, metal and plastic .....	21	20	.0	.0	–1	–3.7	6
Metal molding machine operators and tenders, setters and set-up operators .....	45	49	.0	.0	4	9.1	17
Plastic molding machine operators and tenders, setters and set-up operators .....	183	216	.1	.1	34	18.3	87
All other metal and plastic machine setters, operators, and related workers .....	144	167	.1	.1	23	15.6	65
Printing, binding, and related workers .....	383	394	.3	.3	11	2.9	81
Bindery machine operators and set-up operators .....	81	85	.1	.1	4	4.9	16
Prepress printing workers, production .....	19	8	.0	.0	–11	–56.2	3
Photoengraving and lithographic machine operators and tenders .....	6	5	.0	.0	–1	–9.5	1
Typesetting and composing machine operators and tenders .....	14	3	.0	.0	–10	–75.1	2
Printing press operators .....	215	226	.2	.1	11	5.0	45
Letterpress operators .....	14	9	.0	.0	–5	–34.8	2
Offset lithographic press operators .....	76	80	.1	.1	4	5.9	15
Printing press machine setters, operators and tenders .....	119	129	.1	.1	10	8.6	27
All other printing press setters and set-up operators .....	6	7	.0	.0	1	14.4	2
Screen printing machine setters and set-up operators .....	29	31	.0	.0	2	6.1	6
All other printing, binding, and related workers .....	38	44	.0	.0	5	14.0	11
Textile and related setters, operators, and related workers .....	933	777	.7	.5	–156	–16.7	164
Extruding and forming machine operators and tenders, synthetic or glass fibers .....	22	24	.0	.0	2	9.7	6
Pressing machine operators and tenders, textile, garment, and related materials .....	78	80	.1	.1	3	3.5	19
Sewing machine operators, garment .....	453	334	.3	.2	–118	–26.1	73
Sewing machine operators, non-garment .....	130	128	.1	.1	–2	–1.9	21
Textile bleaching and dyeing machine operators and tenders .....	26	28	.0	.0	3	10.0	7
Textile draw-out and winding machine operators and tenders .....	183	155	.1	.1	–28	–15.4	31
Textile machine setters and set-up operators .....	41	27	.0	.0	–14	–34.4	7
Woodworking machine setters, operators, and other related workers .....	130	118	.1	.1	–12	–9.0	31
Head sawyers and sawing machine operators and tenders, setters and set-up operators .....	66	59	.0	.0	–6	–9.7	16
Woodworking machine operators and tenders, setters and set-up operators .....	64	59	.0	.0	–5	–8.3	14
Other machine setters, set-up operators, operators, and tenders .....	1,919	2,070	1.5	1.4	151	7.9	612
Boiler operators and tenders, low pressure .....	17	14	.0	.0	–4	–20.7	3

See footnotes at end of table.

**Table 2. Continued—Employment by occupation, 1996 and projected 2006**

(Numbers in thousands of jobs)

Occupation	Employment				Change		Total job openings due to growth and net replacements, 1996–2006 <sup>1</sup>
	Number		Percent distribution		Number	Percent	
	1996	2006	1996	2006			
Cement and gluing machine operators and tenders .....	35	30	0.0	0.0	-5	-15.5	9
Chemical equipment controllers, operators and tenders .....	79	82	.1	.1	3	4.4	23
Cooking and roasting machine operators and tenders, food and tobacco .....	30	32	.0	.0	2	7.7	9
Crushing and mixing machine operators and tenders .....	145	144	.1	.1	0	-3	36
Cutting and slicing machine setters, operators and tenders .....	95	103	.1	.1	8	8.3	30
Dairy processing equipment operators, including setters .....	13	12	.0	.0	-2	-13.0	3
Electronic semiconductor processors .....	58	65	.0	.0	7	12.3	18
Extruding and forming machine setters, operators and tenders .....	107	106	.1	.1	-1	-1.3	27
Furnace, kiln, or kettle operators and tenders .....	28	25	.0	.0	-3	-9.3	4
Laundry and drycleaning machine operators and tenders, except pressing .....	180	219	.1	.1	39	21.9	83
Motion picture projectionists .....	8	5	.0	.0	-4	-45.1	2
Packaging and filling machine operators and tenders .....	354	410	.3	.3	56	15.8	121
Painting and coating machine operators .....	171	185	.1	.1	14	8.4	56
Coating, painting, and spraying machine operators, tenders, setters, and set-up operators .....	122	127	.1	.1	5	4.1	35
Painters, transportation equipment .....	49	58	.0	.0	9	18.9	21
Paper goods machine setters and set-up operators .....	51	44	.0	.0	-7	-14.5	12
Photographic processing machine operators and tenders .....	49	53	.0	.0	4	8.0	21
Separating and still machine operators and tenders .....	19	17	.0	.0	-1	-6.0	5
Shoe sewing machine operators and tenders .....	11	6	.0	.0	-5	-41.7	2
Tire building machine operators .....	14	12	.0	.0	-2	-15.0	3
All other machine operators, tenders, setters, and set-up operators .....	454	504	.3	.3	51	11.1	144
Hand workers, including assemblers and fabricators .....	2,813	2,898	2.1	1.9	85	3.0	671
Cannery workers .....	66	62	.0	.0	-5	-6.8	12
Coil winders, tapers, and finishers .....	22	21	.0	.0	-1	-3.2	5
Cutters and trimmers, hand .....	46	48	.0	.0	2	3.9	13
Electrical and electronic assemblers .....	229	226	.2	.1	-3	-1.5	48
Grinders and polishers, hand .....	74	72	.1	.0	-1	-2.0	9
Machine assemblers .....	59	57	.0	.0	-2	-3.6	12
Meat, poultry, and fish cutters and trimmers, hand .....	151	186	.1	.1	35	23.0	72
Painting, coating, and decorating workers, hand .....	31	34	.0	.0	3	10.3	11
Pressers, hand .....	14	13	.0	.0	-2	-12.4	2
Sewers, hand .....	13	13	.0	.0	0	.9	2
Solderers and brazers .....	26	32	.0	.0	5	20.7	12
Welders and cutters .....	352	384	.3	.3	32	9.0	122
All other assemblers, fabricators, and hand workers .....	1,729	1,751	1.3	1.2	22	1.3	351
Transportation and material moving machine and vehicle operators .....	5,157	5,857	3.9	3.9	699	13.6	1,559
Motor vehicle operators .....	3,775	4,344	2.9	2.9	569	15.1	1,129
Bus drivers .....	592	710	.4	.5	117	19.8	197
Bus drivers, except school .....	167	192	.1	.1	24	14.6	47

See footnotes at end of table.

**Table 2. Continued—Employment by occupation, 1996 and projected 2006**

(Numbers in thousands of jobs)

Occupation	Employment				Change		Total job openings due to growth and net replacements, 1996-2006 <sup>(1)</sup>
	Number		Percent distribution		Number	Percent	
	1996	2006	1996	2006			
Bus drivers, school .....	425	518	0.3	0.3	93	21.8	150
Taxi drivers and chauffeurs .....	106	114	.1	.1	8	7.6	24
Truck drivers .....	3,050	3,492	2.3	2.3	442	14.5	903
Driver/sales workers .....	331	370	.3	.2	39	11.6	119
Truck drivers light and heavy .....	2,719	3,123	2.1	2.1	404	14.9	784
All other motor vehicle operators .....	27	28	.0	.0	1	3.3	5
Rail transportation workers .....	83	79	.1	.1	-4	-4.7	21
Locomotive engineers .....	21	23	.0	.0	2	7.1	6
Railroad brake, signal, and switch operators .....	18	13	.0	.0	-5	-28.2	4
Railroad conductors and yardmasters .....	25	25	.0	.0	0	-1.8	6
Rail yard engineers, dinkey operators, and hostlers .....	5	4	.0	.0	-1	-19.6	1
Subway and streetcar operators .....	13	14	.0	.0	1	9.2	4
Water transportation and related workers .....	51	49	.0	.0	-2	-3.8	19
Able seamen, ordinary seamen, and marine oilers .....	22	20	.0	.0	-1	-6.2	8
Captains and pilots, ship .....	14	13	.0	.0	0	-1.6	5
Mates, ship, boat, and barge .....	7	7	.0	.0	0	2.4	3
Ship engineers .....	9	8	.0	.0	-1	-6.6	3
Material moving equipment operators .....	1,097	1,212	.8	.8	114	10.4	338
Crane and tower operators .....	45	45	.0	.0	0	-1.1	8
Excavation and loading machine operators .....	97	107	.1	.1	10	10.5	28
Grader, bulldozer, and scraper operators .....	107	111	.1	.1	5	4.3	14
Hoist and winch operators .....	9	10	.0	.0	0	4.8	3
Industrial truck and tractor operators .....	479	536	.4	.4	57	11.9	156
Operating engineers .....	157	180	.1	.1	23	14.4	57
All other material moving equipment operators .....	202	222	.2	.1	20	9.7	72
All other transportation and material moving equipment operators .....	151	173	.1	.1	22	14.5	52
Helpers, laborers, and material movers, hand .....	4,975	5,654	3.8	3.7	679	13.7	2,292
Freight, stock, and material movers, hand .....	808	849	.6	.6	41	5.1	333
Hand packers and packagers .....	986	1,208	.7	.8	222	22.5	485
Helpers, construction trades .....	546	596	.4	.4	49	9.0	245
Machine feeders and offbearers .....	265	263	.2	.2	-2	-8	69
Parking lot attendants .....	68	86	.1	.1	18	26.2	30
Refuse collectors .....	116	123	.1	.1	7	6.0	52
Service station attendants .....	174	174	.1	.1	0	.1	69
Vehicle washers and equipment cleaners .....	274	343	.2	.2	69	25.2	149
All other helpers, laborers, and material movers, hand .....	1,737	2,012	1.3	1.3	275	15.8	862

<sup>1</sup> Total job openings represent the sum of employment increases and net replacements. If employment change is negative, job openings due to growth are zero and total job openings equal net replacements.

services and individual and miscellaneous social services industries. These occupations were the two fastest growing occupations in the previous 10-year period. Home health aides provide personal and physical care for an increasing number of elderly people and for patients who are recovering from surgery and other serious health conditions. Personal and home care aides perform a variety of light housekeeping tasks for those in need of home care.

Employment of physical therapists and physical and cor-

rective therapy assistants and aides is expected to grow rapidly in the coming period, due to the increased use of new medical technologies that treat the kinds of life-threatening and disabling conditions requiring these services. Another factor is the aging population, whose members are particularly vulnerable to chronic and debilitating conditions requiring therapeutic services. The group occupational therapists and occupational therapy assistants and aides also is expected to increase due to medical advances that are expected to make

it possible for more patients with critical problems to survive. These workers help individuals with mentally, physically, developmentally, or emotionally disabling conditions to develop, recover, or maintain daily living and work skills.

Employment of medical records technicians is expected to grow rapidly despite slower-than-average growth in the hospital industry, which employs the majority of these workers. Growth will be due to the need to maintain records for an increasing number of medical tests, treatments, and procedures that will undergo increasing scrutiny by third-party payers, courts, and consumers. Employment of medical assistants

is expected to be driven by the increase in the number of group and other health care practices that use support personnel. These workers are employed primarily in outpatient settings, which are projected to grow rapidly.

The demand for dental hygienists is expected to be spurred by the growth in the population and the growing awareness of the need for preventive dental care. Projected rapid growth in the employment of physician's assistants stems from an anticipated expansion of the health services industry and an emphasis on cost containment. Employment of emergency medical technicians is projected to grow rapidly as a result of

**Table 3. Fastest growing occupations, 1996–2006**

(Numbers in thousands of jobs)

Occupation	Employment		Change		Quartile rank by 1996 median weekly earnings of full-time workers <sup>1</sup>	Education and training category
	1996	2006	Number	Percent		
Database administrators, computer support specialists, and all other computer scientists .....	212	461	249	118	1	Bachelor's degree
Computer engineers .....	216	451	235	109	1	Bachelor's degree
Systems analysts .....	506	1,025	520	103	1	Bachelor's degree
Personal and home care aides .....	202	374	171	85	4	Short-term on-the-job training
Physical and corrective therapy assistants and aides .....	84	151	66	79	4	Moderate-term on-the-job training
Home health aides .....	495	873	378	76	4	Short-term on-the-job training
Medical assistants .....	225	391	166	74	3	Moderate-term on-the-job training
Desktop publishing specialists .....	30	53	22	74	2	Long-term on-the-job training
Physical therapists .....	115	196	81	71	1	Bachelor's degree
Occupational therapy assistants and aides .....	16	26	11	69	3	Moderate-term on-the-job training
Paralegals .....	113	189	76	68	2	Associate's degree
Occupational therapists .....	57	95	38	66	1	Bachelor's degree
Teachers, special education .....	407	648	241	59	1	Bachelor's degree
Human services workers .....	178	276	98	55	4	Moderate-term on-the-job training
Data processing equipment repairers .....	80	121	42	52	2	Postsecondary vocational training
Medical records technicians .....	87	132	44	51	2	Associate's degree
Speech-language pathologists and audiologists .....	87	131	44	51	1	Master's degree
Dental hygienists .....	133	197	64	48	1	Associate's degree
Amusement and recreation attendants .....	288	426	138	48	3	Short-term on-the-job training
Physician assistants .....	64	93	30	47	1	Bachelor's degree
Respiratory therapists .....	82	119	37	46	1	Associate's degree
Adjustment clerks .....	401	584	183	46	3	Short-term on-the-job training
Engineering, science, and computer systems managers .....	343	498	155	45	1	Work experience plus bachelor's and/or higher degree
Emergency medical technicians .....	150	217	67	45	3	Postsecondary vocational training
Manicurists .....	43	62	19	45	4	Postsecondary vocational training
Bill and account collectors .....	269	381	112	42	3	Short-term on-the-job training
Residential counselors .....	180	254	74	41	1	Bachelor's degree
Instructors and coaches, sports and physical training .....	303	427	123	41	2	Moderate-term on-the-job training
Dental assistants .....	202	278	77	38	3	Moderate-term on-the-job training
Securities and financial services sales workers .....	263	363	100	38	1	Bachelor's degree

<sup>1</sup>The quartile rankings are presented in the following four categories, each representing the appropriate quartile from high to low: 1 = very high, 2 = high, 3 = low, 4 = very low. The rankings were based on quartiles using one-

fourth of total employment to define each quartile.

SOURCE: Current Population Survey.

**Table 4. Occupations with the largest job growth, 1996–2006**

(Numbers in thousands of jobs)

Occupation	Employment		Change		Quartile rank by 1996 median weekly earnings of full-time workers <sup>1</sup>	Education and training category
	1996	2006	Number	Percent		
Cashiers .....	3,146	3,677	530	17	4	Short-term on-the-job training
Systems analysts .....	506	1,025	520	103	1	Bachelor's degree
General managers and top executives .....	3,210	3,677	467	15	1	Work experience plus bachelor's or higher degree
Registered nurses .....	1,971	2,382	411	21	1	Associate's degree
Salespersons, retail .....	4,072	4,481	408	10	3	Short-term on-the-job training
Truck drivers light and heavy .....	2,719	3,123	404	15	2	Short-term on-the-job training
Home health aides .....	495	873	378	76	4	Short-term on-the-job training
Teacher aides and educational assistants .....	981	1,352	370	38	4	Short-term on-the-job training
Nursing aides, orderlies, and attendants .....	1,312	1,645	333	25	4	Short-term on-the-job training
Receptionists and information clerks .....	1,074	1,392	318	30	4	Short-term on-the-job training
Teachers, secondary school .....	1,406	1,718	312	22	1	Bachelor's degree
Child care workers .....	830	1,129	299	36	4	Short-term on-the-job training
Clerical supervisors and managers .....	1,369	1,630	262	19	2	Work experience in a related occupation
Database administrators, computer support specialists, and all other computer scientists .....	212	461	249	118	1	Bachelor's degree
Marketing and sales worker supervisors .....	2,316	2,562	246	11	2	Work experience in a related occupation
Maintenance repairers, general utility .....	1,362	1,608	246	18	2	Long-term on-the-job training
Food counter, fountain, and related workers .....	1,720	1,963	243	14	4	Short-term on-the-job training
Teachers, special education .....	407	648	241	59	1	Bachelor's degree
Computer engineers .....	216	451	235	109	1	Bachelor's degree
Food preparation workers .....	1,253	1,487	234	19	4	Short-term on-the-job training
Hand packers and packagers .....	986	1,208	222	23	4	Short-term on-the-job training
Guards .....	955	1,175	221	23	3	Short-term on-the-job training
General office clerks .....	3,111	3,326	215	7	3	Short-term on-the-job training
Waiters and waitresses .....	1,957	2,163	206	11	4	Short-term on-the-job training
Social workers .....	585	772	188	32	2	Bachelor's degree
Adjustment clerks .....	401	584	183	46	3	Short-term on-the-job training
Cooks, short order and fast food .....	804	978	174	22	4	Short-term on-the-job training
Personal and home care aides .....	202	374	171	85	4	Short-term on-the-job training
Food service and lodging managers .....	589	757	168	28	2	Work experience in a related occupation
Medical assistants .....	225	391	166	74	3	Moderate-term on-the-job training

<sup>1</sup> The quartile rankings are presented in the following four categories, each representing the appropriate quartile from high to low: 1 = very high, 2 = high, 3 = low, 4 = very low. The rankings were based on quartiles using one-fourth of

total employment to define each quartile.

SOURCE: Current Population Survey.

an expanding population—especially among the elderly—and the expectation that States will permit these workers to perform primary care on the scene without transporting the patient to a medical facility.

Other health-related occupations in which employment is projected to grow rapidly include human services workers (many of whom work in social services and State and local governments); respiratory therapists; cardiology technologists; and speech-language pathologists and audiologists.

The remaining fast-growing occupations reflect a diversity of specialties. Paralegals are expected to be in great de-

mand in legal and related fields due to efforts to provide more cost-effective legal services to the public. This occupation grew even more rapidly during the 1986–96 period. The number of special education teachers is expected to grow due to legislation requiring training and employment for individuals with disabilities and to growing public interest in people with special needs. The majority of residential counselors are employed in the very rapidly growing residential care industry, which provides social and personal care for children, the aged, and others with limited ability for self-care. The employment of adjustment clerks is projected to grow at a rapid

pace as business establishments put added emphasis on maintaining good customer relations, by resolving consumer complaints in a friendly and timely fashion. Finally, the number of jobs for bill and account collectors will rise as consumer debt continues to increase and firms strive to keep losses at a minimum.

*Occupations with the largest job growth.* In addition to the growth rate, employment size is an important factor in determining the numerical growth in the occupation. Most of the occupations with the largest projected job growth are concentrated in four industry sectors that are expected to account for nearly two-thirds of the total growth in wage and salary jobs from 1996 to 2006: retail trade, business services, health services, and educational services. (See table 4). Within retail trade, employment is projected to grow substantially for marketing and sales worker supervisors; salespersons, retail; cashiers; waiters and waitresses; food preparation workers; food counter, fountain, and related workers; cooks, short order and fast food; and food service and lodging managers. Except for the last two categories, each of these groups grew significantly faster and had larger numerical increases over the 1986–96 period than is projected for the 1996–2006 period.

The business services sector also is expected to contribute significantly to the future job growth of several occupations. As mentioned in the discussion of the fastest growing jobs, the computer services and data processing industry is expected to generate numerous future opportunities for systems analysts; computer engineers; and database administrators, computer support specialists, and all other computer scientists. Other growth occupations within business services include general managers and top executives; clerical supervisors and managers; and janitors and cleaners, including maids and housekeeping cleaners. The latter occupation is expected to benefit from the growing trend throughout industry to contract out for cleaning services.

The health services sector is expected to provide numerous opportunities for registered nurses; nursing aides, orderlies, and attendants; medical assistants; home health aides; and personal and home care aides. (The last two also are on the list of the fastest growing occupations.) Of the occupations in this group, only registered nurses and home health aides were also on the list of the 30 occupations with the largest job growth during the 1986–96.

The public and private education industry is projected to provide large employment increases for secondary school teachers; teacher aides and educational assistants; and special education teachers. The remaining occupations listed in table 4 are found in a wide variety of industries throughout the economy, and their growth, as a consequence, is dependent upon many factors. Jobs for receptionists and information clerks, for example, are projected to increase significantly

because such workers interact a great deal with people and their duties are difficult to automate.

Employment among child care workers, which experienced a very large increase in jobs from 1986 to 1996, is expected to continue growing significantly through 2006, as a result of anticipated growth in the number of young children as well as a change in the type of child care arrangements parents may choose. The trend toward formal institutional child care and away from informal arrangements with family or friends is expected to continue in the coming period. Other very large occupations that are projected to provide numerous additional jobs include truckdrivers, light and heavy; maintenance repairers, general utility; adjustment clerks; social workers; and hand packers and packagers.

*Declining occupations.* Projected declines in industry employment and changes in occupational staffing patterns will contribute to reduced demand for workers in several occupations over the 1996–2006 period. (See table 5.) This section of the article focuses on those occupations with the largest *numerical* job declines rather than on those with the fastest *rates* of decline. Many detailed occupations in the latter category are very small and, consequently, the resulting employment declines are not very significant.

Industry employment change is the major cause of projected employment declines for farmers; sewing machine operators, garment; textile draw-out and winding machine operators and tenders; textile machine setters and set-up operators; electrical and electronic equipment assemblers, precision; and child care workers and cleaners and servants, both of which are in the private household industry. Declining occupations that are expected to be affected almost equally by industry employment changes and by occupational structure changes include farmworkers and the following occupations in the telephone industry: station installers and repairers; central office operators; and directory assistance operators.

Most of the other declining occupations are affected more by occupational structure changes, which are the result of technological advances, organizational changes, and other factors that affect the demand for workers, than by industry employment changes. The number of typists and word processors is expected to decline by 100,000 across all industries because of productivity improvements resulting from office automation and the increased use of word processing equipment by professional and managerial employees. The employment decline for these workers was much sharper over the 1986–96 period—nearly 330,000 jobs. Employment of payroll and timekeeping clerks is projected to continue its long-term decline, but at a much slower rate than in the previous period.

Several other occupations, all of which registered employment increases in the 1980s, are projected to decline through

**Table 5. Occupations with the largest job decline, 1996–2006**

(Numbers in thousands of jobs)

Occupation	Employment		Change	
	1996	2006	Number	Percent
Sewing machine operators, garment ...	453	334	-118	-26
Farmers .....	1,109	997	-112	-10
Bookkeeping, accounting, and auditing clerks .....	2,250	2,147	-102	-5
Typists, including word processing .....	653	552	-100	-15
Secretaries, except legal and medical .....	2,881	2,794	-87	-3
Cleaners and servants, private household .....	505	421	-84	-17
Computer operators, except peripheral equipment .....	258	181	-77	-30
Farm workers .....	873	798	-75	-9
Duplicating, mail, and other office machine operators .....	196	149	-47	-24
Welfare eligibility workers and interviewers .....	109	76	-34	-31
Textile draw-out and winding machine operators and tenders .....	183	155	-28	-15
Station installers and repairers, telephone .....	37	10	-27	-74
Child care workers, private household .....	275	250	-25	-9
Inspectors, testers, and graders, precision .....	634	610	-24	-4
Central office operators .....	48	26	-23	-47
Machine tool cutting operators and tenders, metal and plastic .....	127	105	-22	-17
Film strippers, printing .....	26	7	-20	-75
Peripheral computer equipment operators .....	33	17	-17	-50
Directory assistance operators .....	33	18	-16	-47
Custom tailors and sewers .....	87	73	-15	-17
Textile machine setters and set-up operators .....	41	27	-14	-34
Highway maintenance workers .....	171	158	-14	-8
Statistical clerks .....	78	65	-13	-17
Butchers and meatcutters .....	217	205	-12	-6
Paste-up workers .....	15	4	-11	-75
Typesetting and composing machine operators and tenders .....	14	3	-10	-75
Drilling and boring machine tool setters and set-up operators, metal and plastic .....	46	36	-10	-22
Proofreaders and copy markers .....	26	16	-10	-38
Lathe and turning machine tool setters and set-up operators, metal and plastic .....	71	61	-10	-14
Payroll and timekeeping clerks .....	161	151	-10	-6

2006 due to a much greater impact of office automation. These include bookkeeping, accounting, and auditing clerks; duplicating, mail, and other office machine operators; secretaries, except legal and medical; general office clerks; and statistical clerks. The demand for computer operators, except peripheral equipment, which increased somewhat modestly from 1986 to 1996, is expected to fall because these employees work primarily with large mainframe computer systems—the part of the overall computer market that is projected to slow down.

Employment among peripheral computer equipment opera-

tors is expected to continue its long-term decline through 2006. Typesetting and composing machine operators and tenders; film strippers; and paste-up workers (employed in the printing industry), are expected to be adversely impacted by the proliferation of desktop publishing technology, which uses computers to develop page layout and design. Technological improvements in this industry also will adversely affect proofreaders and copy markers. The installation of computer controlled technology in other manufacturing industries, including advanced systems that combine production tasks and link machines, will reduce the demand for lathe and turning machine setters and set-up operators, metal and plastic; and drilling and boring machine tool setters and set-up operators, metal and plastic.

### Total job openings

In addition to occupational employment growth, another aspect of the demand for workers is the need to replace workers who leave their jobs to enter other occupations, retire, or leave the labor force for other reasons. Job openings resulting from replacement needs are very important because, in most occupations, they exceed those resulting from employment growth. Even occupations that are projected to decline provide some job openings. (See table 2.)

The measurement of replacement needs is very complex because of the continuous movement of workers into and out of occupations. The measure

used in this article is based on the net change in employment (entrants minus separations) in each age cohort over the projection period. Consequently, net replacements do not measure all workers who leave an occupation, nor do they represent the total number of jobs that will be filled due to the need to replace workers. These net replacements understate the total number of job openings in an occupation because they relate only to the difference between the number of experienced workers who enter and the number who leave that occupation. However, net replacements are used in this article because the mea-

sure best represents the job openings for new labor force entrants over the projection period.<sup>4</sup>

Over the 1996–2006 period, more job openings are expected to result from replacement needs (32.0 million) than from employment growth in the economy (18.6 million). However, this pattern differs for the professional specialty occupations group, which has the fastest rate of growth among the major groups, and for many detailed occupations that are projected to grow more rapidly than average. In contrast, for the major occupational groups that are projected to grow more slowly than average—administrative support occupations, including clerical; precision production, craft, and repair occupations; operators, fabricators, and laborers; and farming, forestry, and fishing occupations—the number of job openings attributable to net replacements is expected to exceed the number of openings due to growth.

The number of job openings for service occupations is projected to be 10.4 million in the 1996–2006 period, exceeding the number for professional occupations, the next largest group, by more than 2 million. Accounting for 1 out of every 5 total job openings, numerous opportunities for service workers are expected to result from both net replacements and employment growth. A large number of replacements are expected to result from the movement of young workers in food preparation and service occupations to other occupations.

## Education, training requirements, earnings

Occupations generally requiring post-secondary institutional training accounted for 3 out of 10 workers employed in 1996. Conversely, the overwhelming majority of occupations require a high school diploma or less education. The largest education and training category is short-term, on-the-job training, in which workers can learn job skills in a few weeks or fewer. In 1996, the 53.5 million workers in those occupations accounted for 40 percent of total employment. (See table 6.) The most common occupations in this category are operators, fabricators, and laborers; and administrative support occupations, including clerical. These workers had the lowest weekly earnings of all the education and training groups—nearly 30 percent below the average for all full-time wage and salary workers. Although very few detailed occupations in this group appear on the list of fastest growing occupations, more than half of those with the largest job growth fall into this category. The projected increase in employment for all detailed occupations requiring short-term training is 7.2 million jobs. The total number of job openings due to employment growth plus net replacement needs is 22 million jobs, or 43 percent of the projected total number of job openings for all occupations.

The next largest training category is occupations requiring moderate-term, on-the-job training, in which workers can gen-

erally learn their skills after 1 to 12 months of combined on-the-job experience and informal training. This category accounted for nearly 17 million workers and 13 percent of total employment in 1996. Although the projected growth in employment is 1.5 million jobs, net replacements are expected to add 4.2 million additional job openings through 2006. The occupations in this group had weekly earnings that were below the average for all full-time workers, but 27 percent higher than the lowest training category.

Occupations in which workers generally require more than a year of on-the-job experience and formal training—such as police patrol officers; securities and financial services sales workers; and maintenance repairers, general utility—accounted for 8 percent of total employment. An additional 8 percent were employed mostly as supervisors in occupations requiring experience in another occupation that did not require post-secondary education. Total employment in these two training categories combined is projected to increase by 2.1 million, and total job openings are expected to be 8 million by 2006. Both categories had above-average earnings in 1996.

Occupations requiring postsecondary training but less than a bachelor's degree accounted for 6 percent of total employment in 1996, and are projected to have 2.3 million total job openings by 2006. The below-average earnings of workers with postsecondary vocational training are heavily weighted by the relatively low earnings among secretaries, a category that accounted for nearly half of the group's employment in 1996.

Several occupations in this educational category had significantly higher-than-average earnings, including aircraft mechanics; data processing equipment repairers; drafters; and sales agents, real estate. The remainder of occupations requiring postsecondary training but less than a bachelor's degree, generally require training leading to an associate's degree. This group accounted for 3 percent of all jobs in the base year and is expected to provide 1.6 million total job openings by 2006. Employees in this category earned significantly more than average in 1996. It is important to note, however, that half of the employees in this group are registered nurses. While most nurses currently get their training in associate's degree programs, a considerable number have obtained a bachelor's degree, which indicates that there is some overlapping of educational requirements among the groups.

Occupations requiring a bachelor's degree accounted for nearly 19 percent of all workers in 1996, but about a third of these workers needed experience in another occupation requiring at least a bachelor's degree before getting their current job. For both categories combined, employment is projected to grow by 5.6 million jobs and total job openings are expected to be nearly 11 million by 2006. Many of the fastest growing occupations and those with the largest projected nu-



**Table 6. Employment and total job openings, 1996-2006, and 1996 median weekly earnings by education and training category**

(Numbers in thousands of jobs)

Education and training category	Employment				Change		Total job openings due to growth and net replacements, 1996-2006 <sup>1</sup>		1996 median weekly earnings, full-time workers
	Number		Percent distribution		Number	Percent	Number	Percent distribution	
	1996	2006	1996	2006					
Total, all occupations .....	132,353	150,927	100.0	100.0	18,574	14.0	50,563	100.0	\$483
First professional degree .....	1,707	2,015	1.3	1.3	308	18.0	582	1.2	1,057
Doctoral degree .....	1,016	1,209	.8	.8	193	19.0	460	.9	847
Master's degree .....	1,371	1,577	1.0	1.0	206	15.0	430	.9	682
Work experience plus bachelor's or higher degree .....	8,971	10,568	6.8	7.0	1,597	17.8	3,481	6.9	786
Bachelor's degree .....	15,821	19,838	12.0	13.1	4,017	25.4	7,343	14.5	686
Associate's degree .....	4,122	5,036	3.1	3.3	915	22.2	1,614	3.2	639
Postsecondary vocational training ...	8,091	8,689	6.1	5.8	598	7.4	2,329	4.6	444
Work experience in a related occupation .....	9,966	11,177	7.5	7.4	1,211	12.2	3,285	6.5	534
Long-term on-the-job training .....	12,373	13,497	9.3	8.9	1,125	9.1	3,988	7.9	490
Moderate-term on-the-job training .....	16,792	18,260	12.7	12.1	1,468	8.7	5,628	11.1	434
Short-term on-the-job training .....	52,125	59,062	39.4	39.1	6,937	13.3	21,422	42.4	337

<sup>1</sup> Total job openings represent the sum of employment increases and net replacements. If employment change is negative, job openings due to growth are zero and total job openings equal net replacements.

merical increases require a bachelor's degree and all had higher-than-average weekly earnings in 1996.

Occupations requiring at least a bachelor's degree earned 42 percent more than the average, while those requiring work experience plus a bachelor's or higher degree earned 63 percent more. The overwhelming majority of employees in the latter category worked in managerial and administrative occupations in 1996. A relatively small proportion of occupations require more education than a bachelor's degree, including those requiring a first professional degree (1.3 percent), doctoral degree (0.8 percent), and master's degree (1.0). Together, these three categories are projected to add another 1.4 million job openings, 1996-2006.

All of the categories requiring at least an associate's degree are projected to have faster-than-average employment growth over the 1996-2006 period; those requiring less edu-

cation and training are expected to grow more slowly than average. Consequently, the share of total job openings resulting from employment growth and net replacement needs in each of the education and training categories differs from the distribution of employment in the base year. For example, occupations requiring a bachelor's degree and those requiring short-term, on-the-job training are expected to provide greater shares of total job openings through 2006 than they did in 1996. However, occupations in the latter category will have many more openings attributable to net replacement needs than to employment growth. In general, workers in occupations requiring the least amount of education and training have less job attachment than employees in other occupations. Therefore, occupations in the lowest training categories have a greater share of total job openings than their share of openings created by employment growth alone. □

## Footnotes

<sup>1</sup> Occupational projections presented in this article provide information to those interested in labor market issues. They also provide the background for analyses of future employment opportunities described in the forthcoming 1998-99 *Occupational Outlook Handbook*, BLS Bulletin 2500. Job outlook information in the 1998-99 *Handbook*, scheduled for release in early 1998, will use the projections presented in each of the articles that make up *Employment Outlook: 1996-2006*. For a description of the methodology used to develop employment projections, see *BLS Handbook of Methods*, Bulletin 2490 (Bureau of Labor Statistics, April 1997), pp. 122-29.

<sup>2</sup> The services industry division in this article includes State and local government hospitals and education. In the article on industry employment by James C. Franklin (this issue, pages 39-57), workers in State and local government hospitals and education are included in the estimates of government employment.

<sup>3</sup> This analysis excludes miscellaneous residual occupational groups.

<sup>4</sup> See the discussion on the uses of replacement needs information developed in *Occupational Projections and Training Data*, Bulletin 2471 (Bureau of Labor Statistics, January 1996).

## Appendix: Occupational education and training requirements categories

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**First professional degree.** *Occupations that require a professional degree.* Completion of the academic program usually requires at least 6 years of full-time equivalent academic study, including college study prior to entering the professional degree program.

**Doctoral degree.** *Occupations that generally require a Ph.D. or other doctoral degree.* Completion of the degree program usually requires at least 3 years of full-time equivalent academic work beyond the bachelor's degree.

**Master's degree.** *Occupations that generally require a master's degree.* Completion of the degree program usually requires 1 or 2 years of full-time equivalent study beyond the bachelor's degree.

**Work experience, plus a bachelor's or higher degree.** *Occupations that generally require work experience in an occupation requiring a bachelor's or higher degree.* Most occupations in this category are managerial occupations that require experience in a related nonmanagerial position.

**Bachelor's degree.** *Occupations that generally require a bachelor's degree.* Completion of the degree program generally requires at least 4 years, but not more than 5 years, of full-time equivalent academic work.

**Associate's degree.** *Occupations that generally require an associate's degree.* Completion of the degree program generally requires at least 2 years of full-time equivalent academic work.

**Post-secondary vocational training.** *Occupations that generally require completion of vocational school training.* Some programs

last only a few weeks while others may last more than a year. In some occupations, a license is needed that requires passing an examination after completion of the training.

**Work experience in a related occupation.** *Occupations that generally require skills obtained through work experience in a related occupation.* Some occupations requiring work experience are supervisory or managerial occupations.

**Long-term on-the-job training.** *Occupations that generally require more than 12 months of on-the-job training or combined work experience and formal classroom instruction for workers to develop the skills needed for average job performance.* This category includes formal and informal apprenticeships that may last up to 4 years and short-term intensive employer-sponsored training that workers must successfully complete. Individuals undergoing training are generally considered to be employed in the occupation. This category includes occupations in which workers may gain experience in nonwork activities, such as professional athletes who gain experience through participation in athletic programs in academic institutions.

**Moderate-term on-the-job training.** *Occupations in which workers can develop the skills needed for average job performance after 1 to 12 months of combined on-the-job experience and informal training.*

**Short-term on-the-job training.** *Occupations in which workers generally can develop the skills needed for average job performance after a short demonstration or up to 1 month of on-the-job experience and instruction.*