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U.S. Department of Labor  
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# The 2008–18 job outlook in brief



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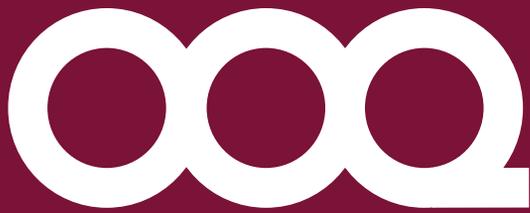
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Every 2 years, the U.S. Bureau of Labor Statistics projects employment prospects for hundreds of occupations in the *Occupational Outlook Handbook*. This special issue of the *Quarterly* summarizes that information in a table. The introduction explains the projections process, and the guide tells you how to get the most out of the table that follows.

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# The 2008–18 job outlook in brief

**S**ome occupations will fare better than others over the 2008–18 decade. Although it's impossible to predict the future, we can gain insight into job outlook by analyzing trends in population growth, technological advances, and business practices. This insight is helpful in planning a career.

The *Occupational Outlook Handbook*—published every 2 years by the U.S. Bureau of Labor Statistics (BLS)—features projections of long-term job growth and employment prospects for nearly 300 occupations. This special issue of the *Occupational Outlook Quarterly (OOQ)* includes a table summarizing that information so readers can compare occupations at a glance.

The next few pages help you get the most out of that table. Read on to learn what BLS projections mean, why employment is changing, and how BLS makes its projections.

# Understanding employment projections

BLS projections give a broad overview of future employment conditions. They show expected changes in employment over the entire 2008–18 decade, but they do not depict variation from one year to another. Also, BLS projections are national in scope. Because conditions vary significantly by location, jobseekers should supplement this general analysis with more specific information from State workforce agencies and career counselors. (See, for example, [www.careeronestop.org](http://www.careeronestop.org).)

BLS projections show expected job growth or decline in various occupations. Usually, occupations that are gaining jobs offer more opportunities for workers than other occupations do. Each job that is added to a growing occupation equals an opening for a worker trying to enter that occupation.

But job growth tells only part of the story. Opportunities in any occupation are also shaped by how many of today's workers will need to be replaced when they retire or leave their occupations for other reasons. Job prospects also depend on how much competition there is for jobs. An occupation is more difficult to enter if many people want to work in it or if many people qualify for it.

# Understanding job growth

In the table, projected employment change over the 2008–18 decade is shown in two ways: as a number and as a percent. The number shows the actual number of jobs projected to be added or lost in an occupation. Percent change shows the rate of expected job growth or decline.

Sometimes, occupations with large projected changes in employment are also growing or declining at a fast rate. For example, between 2008 and 2018, employment of registered nurses is expected to grow by almost 582,000 jobs—the largest projected gain of any occupation. And the occupation's projected growth rate of 22 percent is well above the 10-percent average for all occupations.

Other times, there is no correlation between projected numeric changes in employment and rapid growth or decline. Financial examiners, for example, are projected to add 11,000 jobs over the decade—a relatively small gain. But that increase represents growth of 41 percent—a rate that's four times faster than the projected average growth rate for all occupations. And office clerks are projected to gain 375,000 jobs—a considerable increase that represents a 12-percent growth rate, which is about average. In general, occupations with the



greatest numeric changes are those that already have large numbers of workers. The fastest rates of change are usually in occupations that have fewer workers.

## Job prospects

Increases and decreases in the number of jobs affect how easy it is to enter an occupation, but the total number of jobs is not the only factor. Employment prospects are also affected by how many workers leave and need to be replaced and by how many people want and qualify for jobs.

**Replacement needs.** Most of the job openings for people entering an occupation for the first time come not from job growth but from replacement needs, which are the needs to replace workers who retire or permanently leave the occupation for other reasons.

Replacement needs sometimes provide numerous job openings even in an occupation that is projected to decline. The total number of machinists, for example, is expected to fall in the coming decade. But the occupation still offers good job prospects because many of today's machinists are expected to retire soon, and some of them will need to be replaced. And occupations that have many jobs, high worker turnover, or many workers of



retirement age offer numerous opportunities, no matter what their level of growth.

**Competition.** If many qualified people are vying for jobs in an occupation, that occupation might be harder to enter. Occupations that are considered glamorous or prestigious, such as fashion designers and financial analysts, are often the most difficult to enter.

If an occupation has specific entry requirements, BLS economists can sometimes estimate how many people will qualify for future jobs and can compare that number with the number of projected job openings. This estimate of the expected supply of workers is based on historical data about the number of college degrees or technical certifications granted in subjects related to the occupation, information from technical journals and other relevant literature, interviews with occupational experts, and the judgment of the BLS economists who study the occupation.

## Why employment is changing

Occupations gain or lose jobs because of different, often conflicting, forces. Demand for what an occupation's workers produce drives up the number of jobs in an occupation. At the same time, some innovation might make each worker more productive and, thus, reduce the number needed to create goods or provide services. Demand and innovation combine to change employment and affect job prospects.

Similarly, a change in technology, business practices, population, or some other element can drive growth in some occupations while slowing it in others. Automation, for example, may slow growth in some production occupations, but it may speed growth in occupations in which workers install or repair automation equipment.

This section highlights three of the most prevalent influences on employment gains or losses: changes in the demand for goods and services, increased worker productivity,

and new business practices. Each is discussed frequently in the outlook table.

**Demand for goods and services.** As the population grows, so too does demand for many goods and services. This increased demand often results in a greater need for workers who produce those goods and provide those services, which, in turn, generates employment growth in many occupations. For example, a growing population's demand for more roads increases the need for construction workers, surveyors, and landscape architects.

Beyond population growth, demographic changes in the population affect demand for goods and services and, by extension, employment. For instance, as baby boomers age, demand for services related to health-care—and for workers in occupations providing these services—is expected to increase.

At the same time, the number of children will increase, and those children will need education and supervision, creating many new jobs for teachers and child care workers.

Another factor affecting the demand for goods and services is economic growth. An increase in business activity leads to growth in many occupations, from secretaries to securities analysts. And rising incomes and greater affluence spur employment growth in occupations related to luxury goods and financial planning.

Technological change can also affect employment in many occupations. Advances in information technology, for example, are expected to increase demand for workers who write software, design and maintain computer networks, or otherwise help businesses take advantage of those advances. And continuing development in telecommunications technology and the Internet is spurring demand for writers, artists, and graphic designers who create content for Web sites and other media.

Changes in the law also affect the goods and services demanded and the jobs created. Stricter financial regulations, for example, heighten demand for accountants and auditors.

In the same way, shifting tastes change the goods and services demanded by



consumers. These changes lead, in turn, to changes in employment. Continued demand for motorcycles, for example, is expected to create new jobs for small engine mechanics to repair these vehicles. And concern about personal appearance will strengthen demand for skin care specialists.

**Increased worker productivity.** Computers, automated machinery, and other labor-saving technology reduce the number of workers needed to produce goods and provide services, thus lowering employment. This is why jobs for farmers are projected to decline even as the production of food increases.

Rising worker productivity slows job growth in many occupations. For example, the expected lack of job gains among assemblers—who generally work in factories making manufactured goods—is due, in part, to increased automation, improved manufacturing processes, and other productivity-boosting developments.

**New business practices.** Sometimes, organizations change the way in which they produce goods or provide services, and establishments might begin to hire more workers in one occupation to remain competitive. For example, rapid employment growth for management analysts is projected as organizations conduct more public opinion research and increase their marketing efforts to stay competitive.

## How BLS develops projections

BLS economists analyze changing conditions, including the ones described above, to create specific estimates of job growth and decline. How do they do it? The process involves several steps.

Economists begin by estimating the total number of available workers based on population growth and labor force participation rates. Based on trends, they project demand for goods and services. The economists next project how employment will grow in the industries that provide those goods and services.

Finally, BLS economists analyze what types of work employers in those industries need. They estimate how many of an industry's jobs will be in a given occupation by researching production methods, business practices, and other factors—and analyzing how these elements are changing.

When making projections, economists rely on ongoing trends. But trends can change unexpectedly because of shifts in technology, consumer preferences, or trade patterns and because of natural disasters, wars, and other unpredictable events.

For more information about the employment projections program, visit online at [www.bls.gov/emp](http://www.bls.gov/emp) or call (202) 691-5700.



## A note about the economy in 2008

The usual practice for BLS is to prepare new projections every other year, with the base year of the projections decade being an even-numbered year. For this set of projections, the base year, 2008, happens to be during a significant downturn in the U.S. economy. Total employment of wage and salary workers fell by 532,000 between 2007 and 2008, and it continued to fall in 2009. The construction, manufacturing, and financial activities industry sectors, along with occupations that are concentrated in these industries, were hit particularly hard.

When developing long-term projections, however, the focus is on long-term trends in population, labor force, productivity, and output growth. The population and the labor force have been aging, and their growth rates are slowing. These long-term trends are expected to continue, regardless of the fluctuations in the economy. Readers should keep in mind, however, that the projected changes in employment between 2008 and 2018 usually include regaining part or all of the jobs that have been lost during the downturn.

# Guide to the table

The table that follows is divided into sections that correspond with the 10 groups in the Standard Occupational Classification System. Use the index beginning on page 50 to find a specific occupation.

## Employment data

The table provides a snapshot of how employment is expected to change in 289 occupations. For each occupation, it shows estimated employment in 2008, the projected numeric change in employment (that is, how many jobs are expected to be gained or lost) over the 2008–18 decade, and the projected percent change in employment (that is, the rate of job growth or loss). Then, a key phrase describes the rate of job growth as compared with other occupations (see box) and is followed by a summary of job prospects and factors affecting employment.

The employment data in the table come from the BLS National Employment Matrix, except where noted. The symbol  marks the occupations that are projected to grow much faster than average or to gain at least 200,000 new jobs.

## Occupational groups

Occupations that have similar job duties are grouped according to the tasks that the workers in them perform. The table lists employment and outlook summaries for occupations in the following 10 groups:

### **Management, business, and financial.**

Workers in these occupations establish plans and policies, manage money, and direct business activities.

**Professional and related.** Workers in this group perform a variety of skilled functions, such as diagnosing and treating illness, teaching, or designing.

**Service.** This group includes workers who assist the public in a number of ways, from providing child care services to providing community safety.

**Sales and related.** Workers in this group sell goods and services.

**Office and administrative support.** In these occupations, workers prepare and organize documents, provide information to the public, gather and deliver goods, and operate office software and equipment.

**Farming, fishing, and forestry.** Workers in this group tend and harvest renewable resources and manage forests and public parks.

**Construction trades and related.** Workers in these occupations build and repair homes, roads, and office buildings and other structures.

**Installation, maintenance, and repair.** These workers install and repair all types of goods and equipment.

**Production.** By operating machines and other equipment, workers in this group assemble goods or distribute energy.

**Transportation and material moving.** Workers in these occupations move people and materials.

The table also includes a statement about opportunities in the U.S. Armed Forces.

### Key phrases in the “Brief”

For descriptions about changing employment between 2008 and 2018:

<i>If the description reads...</i>	<i>Employment is projected to...</i>
Much faster than average growth	Increase 20 percent or more
Faster than average growth	Increase 14 to 19 percent
About average growth	Increase 7 to 13 percent
Slower than average growth	Increase 3 to 6 percent
Little or no change	Decrease 2 percent to increase 2 percent
Moderate decline	Decrease 3 to 9 percent
Rapid decline	Decrease 10 percent or more

For descriptions about opportunities or prospects:

If an occupation is projected to have “very good” or “excellent” opportunities or prospects, then many openings are expected relative to the number of jobseekers. The reference does not address the quality of job openings or of the occupation’s wages.



# Management, business, and financial

Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Management, business, and financial occupations</b>				
<b>Management occupations</b>				
<b>Administrative services managers</b>	259,400	32,300	12	About average growth. Employment of these workers is projected to increase as companies strive to maintain, secure, and efficiently operate their facilities. Competition should be keen for top managers; better opportunities are expected at the entry level.
<b>Advertising, marketing, promotions, public relations, and sales managers</b>	623,800	80,300	13	About average growth. Job growth is expected to result from companies' need to distinguish their products and services in an increasingly competitive marketplace. Keen competition is expected.
<b>Computer and information systems managers</b>	293,000	49,500	17	Faster than average growth. New applications of technology in the workplace should continue to drive demand for IT services, fueling employment growth of these managers. Job prospects are expected to be excellent.
<b>Construction managers</b>	551,000	94,800	17	Faster than average growth. As population and the number of businesses grow, building activity is expected to increase, which in turn will boost employment of construction managers. Prospects should be best for jobseekers who have a bachelor's or higher degree in a construction-related discipline, plus construction experience.
<b>Education administrators</b>	445,400	37,000	8	About average growth. Increasing student enrollments are expected to drive employment growth for these workers. Prospects are expected to be good.
<b>Engineering and natural sciences managers</b>	228,700	18,200	8	About average growth. Employment is expected to grow along with that of the scientists and engineers these workers supervise. Prospects should be better in the rapidly growing areas of environmental and biomedical engineering and medical and environmental sciences.
<b>Farmers, ranchers, and agricultural managers</b>	1,234,000	-64,600	-5	Moderate decline. As farm productivity increases and consolidation continues, a decline in the number of farmers and ranchers is expected. Agricultural managers at larger, well-financed operations should have better prospects. Small, local farming offers the best entry-level opportunities.

# Management, business, and financial



Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Financial managers</b>	539,300	41,200	8	About average growth. Business expansion and globalization will require financial expertise, which is expected to drive employment growth for these managers. Job growth, however, is expected to be tempered by mergers and downsizing. Keen competition is expected.
<b>Food service managers</b>	338,700	18,000	5	Slower than average growth. Job losses resulting from a declining number of eating and drinking places will be partially offset by the creation of new jobs in grocery and convenience stores, healthcare and elder care facilities, and other establishments. Opportunities for new managers should be good because of the need to replace workers who leave the occupation.
<b>Funeral directors</b>	30,000	3,600	12	About average growth. Projected employment growth reflects overall expansion of the death care services industry, due to the aging of the population. Job opportunities are expected to be good.
<b>Human resources, training, and labor relations managers and specialists</b>	904,900	197,400	22	 Much faster than average growth. Efforts to recruit and retain employees, the growing importance of employee training, and new legal standards are expected to increase employment of these workers. College graduates and those with certification should have the best opportunities.
<b>Industrial production managers</b>	156,100	-11,900	-8	Moderate decline. Increased domestic labor productivity and rising imports are expected to reduce the need for these managers. Jobseekers who have experience in production occupations—along with a degree in industrial engineering, management, or business administration—should have the best job prospects.
<b>Lodging managers</b>	59,800	2,800	5	Slower than average growth. Growth will be limited as the lodging industry streamlines operations and as new properties are smaller, limited-service hotels. But larger, full-service hotels—including resort and casino hotels—will continue to have openings.
<b>Medical and health services managers</b>	283,500	45,400	16	Faster than average growth. The healthcare industry is expected to continue growing and diversifying, requiring managers increasingly to run business operations. Opportunities should be good, especially for jobseekers who have work experience in healthcare and strong business management skills.



## Management, business, and financial

Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Property, real estate, and community association managers</b>	304,100	25,600	8	About average growth. Job growth is expected to be driven, in part, by a growing population and increasing use of third-party management companies for residential property oversight. Opportunities should be best for jobseekers who have a college degree and earn professional designation.
<b>Purchasing managers, buyers, and purchasing agents</b>	527,400	38,500	7	About average growth. Almost all of the growth is expected to be for purchasing agents, except wholesale, retail, and farm products, as more companies demand a greater number of goods and services.
<b>Top executives</b>	2,133,500	-7,800	0	Little or no change. The number of top executives is expected to remain steady, but employment may be adversely affected by consolidation and mergers. Keen competition is expected.

### Business and financial operations occupations

<b>Accountants and auditors</b>	1,290,600	279,400	22	  Much faster than average growth. An increase in the number of businesses, a more stringent regulatory environment, and increased corporate accountability are expected to drive job growth for accountants and auditors. Opportunities should be favorable; jobseekers with professional certification, especially a CPA, should have the best prospects.
<b>Appraisers and assessors of real estate</b>	92,400	4,200	5	Slower than average growth. Projected employment growth will be driven by economic expansion and population increases, both of which generate demand for real property. Job gains, however, will be limited somewhat by productivity increases related to increased use of computers and other technologies. Opportunities should be best in areas with active real estate markets.
<b>Budget analysts</b>	67,200	10,100	15	Faster than average growth. Projected employment growth will be driven by the continued demand for financial analysis in both the public and the private sectors. Jobseekers with a master's degree should have the best prospects.
<b>Claims adjusters, appraisers, examiners, and investigators</b>	306,300	20,900	7	About average growth. Job growth for adjusters and claims examiners should grow along with the growth of the healthcare industry. Employment growth for insurance investigators should be tempered by productivity increases associated with the Internet. Keen competition is expected for investigator jobs.

# Management, business, and financial



Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Cost estimators</b>	217,800	55,200	25	<p>★</p> <p>Much faster than average growth. Projected employment gains will be driven primarily by increased construction and repair activity, particularly that related to infrastructure. Jobseekers with a degree or extensive experience should have the best opportunities. In manufacturing, jobseekers who have a degree and are familiar with cost estimation software should have the best prospects.</p>
<b>Financial analysts</b>	250,600	49,600	20	<p>★</p> <p>Much faster than average growth. As investments become more numerous and complex, these workers will be needed for their expertise. Keen competition for openings is expected; jobseekers with a graduate degree and certification should have the best opportunities.</p>
<b>Insurance underwriters</b>	102,900	-4,300	-4	<p>Moderate decline. Productivity increases, such as automatic underwriting, have limited employment of these workers. But this factor should be partially offset by an increased emphasis on underwriting to boost revenues and counteract decreasing returns on investments. Good job prospects are expected.</p>
<b>Loan officers</b>	327,800	33,000	10	<p>About average growth. Overall economic expansion and population growth are expected to increase employment of these workers. However, increased automation through the use of the Internet loan application will temper employment growth. Good job opportunities are expected.</p>
<b>Management analysts</b>	746,900	178,300	24	<p>★</p> <p>Much faster than average growth. Organizations are expected to rely increasingly on outside expertise in an effort to maintain competitiveness and improve performance. Keen competition is expected. Opportunities are expected to be best for those who have a graduate degree, specialized expertise, and ability in salesmanship and public relations.</p>
<b>Meeting and convention planners</b>	56,600	8,800	16	<p>Faster than average growth. Increased globalization is expected to heighten demand for face-to-face meetings, contributing to employment growth of the workers who plan such meetings. Opportunities should be best for jobseekers who have a bachelor's degree and some related experience.</p>



## Professional and related

Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Personal financial advisors</b>	208,400	62,800	30 ★	Much faster than average growth. Employment growth for these workers is projected as large numbers of baby boomers retire and need advice on managing their retirement accounts. In addition, widespread transition from traditional pension plans to individually managed retirement savings programs should also create jobs. Keen competition is expected in this relatively high-paying occupation.
<b>Tax examiners, collectors, and revenue agents</b>	72,700	9,500	13	About average growth. Employment growth of revenue agents and tax collectors should remain strong. The Federal Government is expected to increase its tax enforcement efforts, but demand for these workers' services is expected to be adversely affected by the automation of examiners' tasks and outsourcing of collection duties to private agencies.

## Professional and related occupations

### Computer and mathematical occupations

<b>Actuaries</b>	19,700	4,200	21 ★	Much faster than average growth. Employment growth is projected as industries not traditionally associated with actuaries, such as financial services and consulting, employ these workers to assess risk. Keen competition is expected.
<b>Computer network, systems, and database administrators</b>	961,200	286,600 ★	30 ★	Much faster than average growth. Employment of these workers should grow as organizations increasingly use network technologies and collect and organize data. Job prospects are expected to be excellent.
<b>Computer scientists</b>	28,900	7,000	24 ★	Much faster than average growth. Employment is expected to increase because of high demand for sophisticated technological research. Job prospects should be excellent.
<b>Computer software engineers and computer programmers</b>	1,336,300	283,000 ★	21 ★	Much faster than average growth. Employment is expected to increase as businesses and other organizations continue to demand newer, more sophisticated software products. As a result of rapid growth, job prospects for software engineers should be excellent. The need to replace workers who leave the occupation is expected to generate numerous openings for programmers.

## Professional and related



Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Computer support specialists</b>	565,700	78,000	14	Faster than average growth. As technology becomes more complex and has wider applications, these workers will be needed to resolve problems. Prospects should be good; jobseekers with a bachelor's degree and relevant work experience should have the best opportunities.
<b>Computer systems analysts</b>	532,200	108,100	20	 Much faster than average growth. Employment growth is projected as organizations continue to adopt the most efficient technologies and as the need for information security grows. Job prospects should be excellent.
<b>Mathematicians</b>	2,900	700	22	 Much faster than average growth. Technological advances are expected to expand applications of mathematics, leading to employment growth of mathematicians. Competition is expected to be keen. Jobseekers with a strong background in math and a related discipline should have the best prospects.
<b>Operations research analysts</b>	63,000	13,900	22	 Much faster than average growth. As technology advances and companies further emphasize efficiency, demand for operations research analysis should continue to grow. Excellent opportunities are expected, especially for those who have an advanced degree.
<b>Statisticians</b>	22,600	2,900	13	About average growth. As data processing becomes faster and more efficient, employers are expected to need statisticians to analyze data. Projected employment growth for biostatisticians is related to the need for workers who can conduct research and clinical trials.

### Architects, surveyors, and cartographers

<b>Architects, except landscape and naval</b>	141,200	22,900	16	Faster than average growth. Changing demographics, such as the population's aging and shifting to warmer States, should lead to employment growth for architects to design new buildings to accommodate these changes. Job competition should be keen.
<b>Landscape architects</b>	26,700	5,300	20	 Much faster than average growth. Employment should grow as new construction and redevelopment create more opportunities for these workers. Opportunities should be good, but entry-level jobseekers should expect keen competition for openings in large firms.



## Professional and related

Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Surveyors, cartographers, photogrammetrists, and surveying and mapping technicians</b>	147,000	27,600	19	Faster than average growth. Increasing demand for geographic information should be the main source of employment growth. Jobseekers with a bachelor's degree and strong technical skills should have favorable prospects.

### Engineers

	1,571,900	178,300	11	About average growth. Competitive pressures and advancing technology are expected to result in businesses hiring more engineers. Overall, job opportunities are expected to be good. Professional, scientific, and technical services industries should generate most of the employment growth.
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### Drafters and engineering technicians

<b>Drafters</b>	251,900	10,700	4	Slower than average growth. Employment growth of drafters is expected to fall as computer-aided drafting systems allow other workers to complete tasks previously performed by drafters. Opportunities should be best for jobseekers who have at least 2 years of postsecondary training, strong technical skills, and experience with computer-aided drafting and design systems.
<b>Engineering technicians</b>	497,300	25,800	5	Slower than average growth. Laborsaving efficiencies and the automation of many engineering support activities will limit the need for new engineering technicians. In general, opportunities should be best for jobseekers who have an associate degree or other postsecondary training in engineering technology.

### Life scientists

<b>Agricultural and food scientists</b>	31,000	4,800	16	Faster than average growth. Job growth is expected to stem primarily from efforts to increase the quantity and quality of food for a growing population and to balance output with protection and preservation of soil, water, and ecosystems. Opportunities should be good for agricultural and food scientists in almost all fields.
<b>Biological scientists</b>	91,300	19,200	21	Much faster than average growth. Biotechnological research and development should continue to drive job growth. Doctoral degree holders are expected to face competition for research positions in academia.



## Professional and related



Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Conservation scientists and foresters</b>	29,800	3,600	12	About average growth. Increased conservation efforts and continued pressure to maximize efficient use of natural resources are expected to lead to more jobs for conservation scientists. Jobseekers with a bachelor's degree should have the best prospects.
<b>Medical scientists</b>	109,400	44,200	40	 Much faster than average growth. New discoveries in biological and medical science are expected to create strong employment growth for these workers. Medical scientists with both doctoral and medical degrees should have the best opportunities.
<b>Physical scientists</b>				
<b>Atmospheric scientists</b>	9,400	1,400	15	Faster than average growth. As research leads to continuing improvements in weather forecasting, employment of these workers is projected to grow, especially in private firms that provide weather consulting services to climate-sensitive industries such as farming or insurance. Atmospheric scientists face keen competition.
<b>Chemists and materials scientists</b>	94,100	3,300	3	Slower than average growth. Manufacturing companies' outsourcing of research and development and testing operations is expected to limit employment growth for these scientists. Most entry-level chemists should expect competition for jobs, particularly in declining chemical manufacturing industries.
<b>Environmental scientists and specialists</b>	85,900	23,900	28	 Much faster than average growth. A growing population and increased awareness of environmental concerns are expected to increase employment of environmental scientists. These workers should have good job prospects, particularly in State and local governments.
<b>Geoscientists and hydrologists</b>	41,700	7,400	18	Faster than average growth. The need for energy services, environmental protection services, and responsible land and water management is expected to spur employment growth for these workers. Jobseekers who have a master's degree in geoscience should have excellent opportunities.
<b>Physicists and astronomers</b>	17,100	2,700	16	Faster than average growth. An increased focus on basic research, particularly that related to energy, is expected to drive employment growth for these workers. Prospects should be favorable for physicists in applied research, development, and related technical fields and for astronomers in government and academia.



## Professional and related

Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Economists</b>	14,600	900	6	Slower than average growth. Although demand for economic analysis will grow, projected employment declines for economists in government sectors will temper overall growth. Jobseekers who have a graduate degree in economics should have the best prospects.
<b>Market and survey researchers</b>	273,200	77,200	28 	Much faster than average growth. Demand for market research is expected as businesses strive to increase sales and as governments rely on survey research to form public policy. Opportunities should be best for jobseekers who have a doctoral degree and strong quantitative skills.
<b>Psychologists</b>	170,200	19,700	12	About average growth. Employment growth is expected due to increased emphasis on mental health in a variety of specializations, including school counseling, depression, and substance abuse. Jobseekers with a doctoral degree should have the best opportunities.
<b>Urban and regional planners</b>	38,400	7,300	19	Faster than average growth. State and local governments are expected to hire urban and regional planners to help manage population growth and commercial development. Private businesses, mainly architecture and engineering firms, will also hire these workers to deal with storm water management, environmental regulation, and other concerns. Job prospects should be best for jobseekers with a master's degree.
<b>Sociologists and political scientists</b>	9,000	1,900	21 	Much faster than average growth. Employment growth of sociologists in a variety of fields is tied to expected demand for their research and analytical skills. Political scientists are expected to experience employment growth especially in nonprofit, political lobbying, and civic organizations. Opportunities should be best for jobseekers who have an advanced degree.
<b>Social scientists, other</b>	11,100	2,400	22 	Much faster than average growth. Anthropologists are projected to have significant employment growth in the management, scientific, and technical consulting industry. Expected job growth for archaeologists is associated with large-scale construction projects that must comply with Federal laws to preserve archaeological sites. Job competition is expected, especially for historians.

## Professional and related



Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Science technicians</b>	270,800	31,800	12	About average growth. The continued growth of scientific and medical research and the development and manufacturing of technical products are expected to drive employment growth for these workers. Opportunities are expected to be best for graduates of applied science technology programs who are knowledgeable about equipment used in laboratories or production facilities.
<b>Community and social services occupations</b>				
<b>Counselors</b>	665,500	116,800	18	Faster than average growth. Increasing demand for services provided by counselors is expected to result in employment growth. But growth will vary by specialty and will be faster for mental health, substance abuse and behavioral disorder, and rehabilitation counselors than for counselors of other specialties. Opportunities should be favorable, particularly in rural areas.
<b>Health educators</b>	66,200	12,000	18	Faster than average growth. As healthcare costs rise, insurance companies, businesses, and governments are expected to hire health educators to teach the public how to avoid and detect illnesses. Opportunities should be favorable, especially for those who have gained experience through volunteer work or internships.
<b>Probation officers and correctional treatment specialists</b>	103,400	19,900	19	Faster than average growth. Many States are expected to emphasize alternatives to incarceration, such as probation. As a result, employment growth should be strong for these workers. Opportunities should be excellent.
<b>Social and human service assistants</b>	352,000	79,400	23	 Much faster than average growth. As the elderly population grows, demand for the services provided by these workers is expected to increase. Opportunities are expected to be excellent, particularly for jobseekers with some postsecondary education, such as a certificate or associate degree in a related subject.
<b>Social workers</b>	642,000	103,400	16	Faster than average growth. The rapidly increasing elderly population is expected to spur demand for social services. Job prospects should be favorable because of the need to replace the many workers who are leaving the occupation permanently.



## Professional and related

Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Legal occupations</b>				
Court reporters	21,500	3,900	18	Faster than average growth. The continuing need for transcripts of legal proceedings, the growing demand for TV and other broadcast captioning, and the need to provide translating services for the deaf and the hard of hearing are expected to create jobs. Prospects should be excellent.
Judges, magistrates, and other judicial workers	51,200	1,800	4	Slower than average growth. Budget pressures are expected to limit the hiring of new judges, particularly in Federal courts. Alternatives to litigation are usually faster and less expensive, spurring employment growth for other judicial workers, such as arbitrators, mediators, and conciliators.
Lawyers	759,200	98,500	13	About average growth. Growth in both population and business activity is expected to result in more civil disputes and criminal cases and, thus, employment growth for lawyers. This growth is expected to be constrained, however, as paralegals and other workers perform some of the tasks previously done by lawyers. Keen competition is expected.
Paralegals and legal assistants	263,800	74,100	28	 Much faster than average growth. Increased demand for accessible, cost-efficient legal services is expected to increase employment for paralegals, who may perform more tasks previously done by lawyers. Keen competition is expected. Experienced, formally trained paralegals should have the best job prospects.
<b>Education, training, library, and museum occupations</b>				
Archivists, curators, and museum technicians	29,100	5,900	20	 Much faster than average growth. Employment for archivists is expected to increase as public and private organizations need categorization of and access to increasing volumes of records and information. Employment growth for curators and museum technicians should be strong as museum attendance levels remain high. Keen competition is expected.
Instructional coordinators	133,900	31,100	23	 Much faster than average growth. Continued efforts to improve educational standards are expected to result in more new jobs for these workers. Opportunities should be best for jobseekers who train teachers to use classroom technology and who have experience in reading, mathematics, and science.

## Professional and related



Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Librarians</b>	159,900	12,500	8	About average growth. Growth in the number of librarians is expected to be limited by government budget constraints and the increasing use of electronic resources. Although many openings are expected, there will be competition for jobs in some regions.
<b>Library technicians and library assistants</b>	242,500	24,200	10	About average growth. Budgetary constraints are among the reasons job growth may slow; however, continued automation of library systems should allow these workers to perform some tasks previously done by librarians, thereby increasing employment of technicians. Opportunities should be best for technicians with specialized training.
<b>Teacher assistants</b>	1,312,700	134,900	10	About average growth. An increase in the numbers of students in special education and students who are not native speakers of English is expected to create jobs for teacher assistants. Opportunities should be favorable.
<b>Teachers—adult literacy and remedial education</b>	96,000	14,500	15	Faster than average growth. As the need for educated workers increases, so will the need for teachers to instruct them. In addition, there should be employment growth for teachers to help immigrants and others improve their English language skills. Opportunities should be favorable.
<b>Teachers—postsecondary</b>	1,699,200	256,900	15	Faster than average growth. Enrollments in postsecondary institutions are expected to continue rising as more people attend college and as workers return to school to update their skills. Opportunities for part-time or temporary positions should be favorable, but significant competition exists for tenure-track positions.
<b>Teachers—preschool, except special education</b>	457,200	86,700	19	Faster than average growth. Continued emphasis on early childhood education is increasing the employment of preschool teachers. The need to replace workers who leave the occupation permanently should create good job opportunities.
<b>Teachers—kindergarten, elementary, middle, and secondary</b>	3,476,200	468,600	13	About average growth. Enrollment over the projections decade is expected to grow more slowly than in recent years. Prospects are usually better in urban and rural areas, for bilingual teachers, and for math and science teachers.
<b>Teachers—self-enrichment education</b>	253,600	81,300	32	Much faster than average growth. Demand for self-enrichment education will increase as more people embrace lifelong learning or seek to acquire or improve skills that make them more attractive to prospective employers. Opportunities should be favorable.



## Professional and related

Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Teachers—special education</b>	473,000	81,900	17	Faster than average growth. Employment of these teachers is expected to rise as more students qualify for special education services. Excellent job prospects are expected.
<b>Teachers—vocational</b>	115,100	10,100	9	About average growth. Employment growth for these workers should arise from continued increases in school enrollments, but growth will be limited by the focus on traditional academic subjects. Prospects are expected to be favorable as workers leave the occupation permanently.

## Art and design occupations

<b>Artists and related workers</b>	221,900	25,800	12	About average growth. Demand for digital and multimedia artwork is expected to drive growth. Competition should be keen for certain kinds of jobs. Multimedia artists and animators should have better opportunities than other artists.
<b>Commercial and industrial designers</b>	44,300	4,000	9	About average growth. An increase in demand for new and upgraded products should lead to job growth for these workers, but this growth is expected to be tempered by the use of design firms abroad. Keen competition is expected.
<b>Fashion designers</b>	22,700	200	1	Little or no change. Some job growth is expected due to an increasing population; however, many jobs in apparel manufacturing will continue to move abroad. Competition should be keen.
<b>Floral designers</b>	76,100	-1,900	-3	Moderate decline. Employment of floral designers is expected to decline as people purchase fewer elaborate flower decorations. Job opportunities should be good.
<b>Graphic designers</b>	286,100	36,900	13	About average growth. Advertising firms that specialize in digital and interactive designs are expected to drive growth, but declines in print publishing will temper this growth. Competition is expected to be keen.
<b>Interior designers</b>	71,700	13,900	19	Faster than average growth. A growing interest in interior design by both homeowners and businesses is expected to lead to employment increases in this occupation. Competition is expected to be keen, and jobseekers with formal training should have the best opportunities.

## Professional and related



Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Entertainers and performers, sports and related occupations</b>				
<b>Actors, producers, and directors</b>	155,100	16,900	11	About average growth. Employment growth is expected to be driven by expanding film and television operations and an increase in production of online and mobile video content. Keen competition is expected.
<b>Athletes, coaches, umpires, and related workers</b>	258,100	59,600	23	 Much faster than average growth. Employment is expected to grow as more people participate in organized sports. Keen competition is expected for many jobs, such as professional athletes. Opportunities should be best for part-time umpires, referees, and other sports officials at the high school level.
<b>Dancers and choreographers</b>	29,200	1,700	6	Slower than average growth. The public's interest in dance is expected to sustain employment in large and mid-size dance companies, but limited funding is expected to curb growth in small companies. Competition should continue to be keen.
<b>Musicians, singers, and related workers</b>	240,000	19,600	8	About average growth. Most new wage-and-salary jobs are expected to be in religious organizations. Self-employed musicians should have slower than average employment growth. Keen competition is expected for full-time positions.
<b>Media and communications-related occupations</b>				
<b>Announcers</b>	67,400	-2,400	-4	Moderate decline. Technology is expected to continue increasing announcers' productivity in editing material and performing other off-air tasks. This factor, combined with broadcaster consolidation, should limit employment of announcers. Keen competition is expected.
<b>Authors, writers, and editors</b>	281,300	22,100	8	About average growth. Projected job growth for these workers stems from increased use of online media and growing demand for Web-based information. But print publishing is expected to continue weakening. Job competition should be keen.
<b>Broadcast and sound engineering technicians and radio operators</b>	114,600	9,000	8	About average growth. Employment growth is expected to vary. Demand for audio-visual equipment is growing, which should lead to employment increases for audio and video equipment technicians. But labor productivity increases and broadcast industry consolidation are expected to limit growth in broadcasting. Job prospects should be best in small cities and towns.



## Professional and related

Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Interpreters and translators</b>	50,900	11,300	22	Much faster than average growth. Globalization and large increases in the number of non-native English speakers in the United States are expected to lead to employment increases for these workers. Job prospects vary by specialty and language.
<b>News analysts, reporters, and correspondents</b>	69,300	-4,400	-6	Moderate decline. Consolidation in publishing and broadcasting is expected to result in job losses for these workers. Competition is expected to be keen at major newspapers and stations; smaller newspapers and stations should provide better opportunities.
<b>Photographers</b>	152,000	17,500	12	About average growth. Employment for some photographers is expected to increase as online publication of magazines expands, but other photographers are expected to be adversely affected by amateur photography and increased use of copyright-free photos. Competition should be keen.
<b>Public relations specialists</b>	275,200	66,200	24	Much faster than average growth. As the business environment becomes increasingly globalized, the need for good public relations and communications is growing rapidly. Opportunities should be best for workers with knowledge of more than one language.
<b>Technical writers</b>	48,900	8,900	18	Faster than average growth. Fast growth is expected because of the need for technical writers to explain an increasing number of scientific and technical products. Prospects should be good, especially for workers with strong technical and communication skills. Competition will be keen for some jobs.
<b>Television, video, and motion picture camera operators and editors</b>	51,900	5,400	11	About average growth. Projected employment growth will be driven by increases in the motion picture and video industry; however, that growth should be tempered by automation in broadcasting. Competition is expected to be keen.

## Health diagnosing and treating practitioners

<b>Audiologists</b>	12,800	3,200	25	Much faster than average growth. Employment of audiologists is expected to grow as the population ages and more care is needed for the elderly, who often have problems with hearing and balance. Job prospects should be favorable for jobseekers who have a doctorate in audiology.
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## Professional and related



Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Chiropractors</b>	49,100	9,600	20	Much faster than average growth. Projected growth stems from increasing consumer demand for alternative healthcare. Job prospects for new chiropractors are expected to be good, especially for those who enter a multidisciplinary practice.
<b>Dentists</b>	141,900	22,100	16	Faster than average growth. An increase in the elderly population—who often need complicated dental work—and expanded insurance coverage for dental procedures are expected to create job growth. Good prospects are expected from the need to replace the large number of dentists who are retiring.
<b>Dietitians and nutritionists</b>	60,300	5,600	9	About average growth. Employment growth is expected to result from an increasing emphasis on disease prevention through improved diet. Job opportunities should be best for dietitians and nutritionists with specialized training, an advanced degree, or certifications beyond minimum State requirements.
<b>Occupational therapists</b>	104,500	26,800	26	 Much faster than average growth. Employment growth for occupational therapists should continue as the population ages and better medical technology increases the survival rates of people who become injured or ill. Job opportunities are expected to be good.
<b>Optometrists</b>	34,800	8,500	24	 Much faster than average growth. An aging population and increasing insurance coverage for vision care are expected to lead to employment growth for optometrists. Excellent opportunities are expected.
<b>Pharmacists</b>	269,900	45,900	17	Faster than average growth. The increasing numbers of middle-aged and elderly people—who use more prescription drugs than younger people—should continue to spur employment growth for pharmacists. Job prospects are expected to be excellent.
<b>Physical therapists</b>	185,500	56,200	30	 Much faster than average growth. Employment of physical therapists is expected to increase as the population ages and as better medical technology increases survival rates of people who become injured or ill. Job opportunities should be good in settings that treat primarily the elderly.



## Professional and related

Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Physician assistants</b>	74,800	29,200	39	Much faster than average growth. Employment growth for these workers should be driven by an aging population and by healthcare providers' increasing use of physician assistants to contain costs. Opportunities should be good, particularly in underserved areas.
<b>Physicians and surgeons</b>	661,400	144,100	22	Much faster than average growth. Employment growth is expected to be tied to increases in the aging population and in new medical technologies that allow more maladies to be diagnosed and treated. Job prospects should be very good, particularly in underserved areas.
<b>Podiatrists</b>	12,200	1,100	9	About average growth. Projected employment growth reflects a more active, older population that is sustaining a rising number of foot injuries. Opportunities for entry-level jobseekers should be good for qualified applicants.
<b>Radiation therapists</b>	15,200	4,100	27	Much faster than average growth. The increasing number of elderly people, who are more likely than younger people to need radiation treatment, is expected to lead to employment growth for these workers. Prospects are expected to be good; jobseekers with a bachelor's degree should have the best opportunities.
<b>Recreational therapists</b>	23,300	3,400	15	Faster than average growth. Employment growth for recreational therapists is expected to continue as the population ages and better medical technology increases the survival rates of people who become injured or ill.
<b>Registered nurses</b>	2,618,700	581,500	22	Much faster than average growth. Employment growth for registered nurses will be driven by the medical needs of an aging population. In addition, registered nurses are expected to provide more primary care as a low-cost alternative to physician-provided care. Job opportunities should be excellent.
<b>Respiratory therapists</b>	105,900	22,100	21	Much faster than average growth. Growth of the elderly population is expected to increase employment for these workers, especially as they take on additional duties related to case management, disease prevention, and emergency care. Opportunities are expected to be very good.

## Professional and related



Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Speech-language pathologists</b>	119,300	22,100	19	Faster than average growth. The aging population, better medical technology that increases the survival rates of people who become injured or ill, and growing enrollments in elementary and secondary schools are expected to increase employment of these workers. Job prospects are expected to be favorable.
<b>Veterinarians</b>	59,700	19,700	33	 Much faster than average growth. Growth in the pet population and pet owners' increased willingness to pay for intensive veterinary care and treatment are projected to create significantly more jobs for veterinarians. Excellent job opportunities are expected.
<b>Health technologists and technicians</b>				
<b>Athletic trainers</b>	16,300	6,000	37	 Much faster than average growth. Employment growth is expected to be concentrated in the healthcare industry, as athletic training is increasingly used to prevent illness and injury. Job prospects for athletic trainers should also be good in high schools. Keen competition is expected for positions with professional and college sports teams.
<b>Cardiovascular technologists and technicians</b>	49,500	11,900	24	 Much faster than average growth. An aging population and the continued prevalence of heart disease will drive employment growth for cardiovascular technologists and technicians. Prospects should be the best for jobseekers who have multiple credentials.
<b>Clinical laboratory technologists and technicians</b>	328,100	45,600	14	Faster than average growth. Employment of these workers is expected to rise as the volume of laboratory tests continues to increase with population growth and the development of new tests. Excellent opportunities are expected.
<b>Dental hygienists</b>	174,100	62,900	36	 Much faster than average growth. An increase in the number of older people and a growing emphasis on preventative dental care are expected to create jobs. To meet increased demand, dental hygienists will perform some services previously done by dentists. Job prospects should be favorable but will vary by geographic location.
<b>Diagnostic medical sonographers</b>	50,300	9,200	18	Faster than average growth. The aging population's need for safe and cost-effective diagnostic imaging treatment is expected to spur employment growth. Prospects should be good for jobseekers who have multiple professional credentials.



## Professional and related

Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Emergency medical technicians and paramedics</b>	210,700	19,000	9	About average growth. An aging population is expected to drive employment growth in these occupations. Opportunities should be favorable, especially for jobseekers with advanced certification.
<b>Licensed practical and licensed vocational nurses</b>	753,600	155,600	21 	Much faster than average growth. An aging population is expected to boost demand for nursing services. Job prospects are expected to be very good, especially in employment settings that serve older populations.
<b>Medical records and health information technicians</b>	172,500	35,100	20 	Much faster than average growth. Employment of these workers is expected to grow as the number of elderly—a demographic group with a higher incidence of injury and illness—increases. Job prospects should be best for technicians who have strong skills in technology and computer software.
<b>Nuclear medicine technologists</b>	21,800	3,600	16	Faster than average growth. Job growth is expected to result from advancements in nuclear medicine and an increase in the number of older people requiring diagnostic procedures. Competition is expected to be keen.
<b>Occupational health and safety specialists</b>	55,800	6,200	11	About average growth. These workers will be needed to ensure workplace safety in response to changing hazards, regulations, public expectations, and technology.
<b>Occupational health and safety technicians</b>	10,900	1,600	14	Faster than average growth. Fast growth is expected as some employers contain costs by hiring more technicians and fewer specialists to ensure workplace safety in response to changing hazards, regulations, public expectations, and technology.
<b>Opticians, dispensing</b>	59,800	8,000	13	About average growth. Demand for vision correction will increase as the population ages. But projected employment growth for these workers should be moderated by the increasing prevalence of laser vision-correcting surgery. Very good job prospects are expected.
<b>Pharmacy technicians and aides</b>	381,200	96,300	25 	Much faster than average growth. Growth in the population of middle-aged and elderly people—who use more prescription drugs than younger people—should spur employment increases for these workers. Job prospects are expected to be good.
<b>Radiologic technologists and technicians</b>	214,700	37,000	17	Faster than average growth. As the population grows and ages, demand for diagnostic imaging is expected to increase. Jobseekers who have knowledge of multiple technologies should have the best prospects.

## Service



Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Surgical technologists</b>	91,500	23,200	25	Much faster than average growth. Employment growth for these workers is expected as a growing and aging population has more surgeries and as advances allow technologists to assist surgeons more often. Job opportunities should be best for technologists who are certified.
<b>Veterinary technologists and technicians</b>	79,600	28,500	36	Much faster than average growth. Increases in the pet population and in advanced veterinary care are expected to create employment growth for these workers. Excellent job opportunities are expected.

### Other professional and related occupations

<b>Epidemiologists</b>	4,800	700	15	Faster than average growth. Heightened awareness of bioterrorism and rare but infectious diseases are expected to spur employment growth for these workers. Excellent opportunities are expected.
<b>Respiratory therapy technicians</b>	16,500	-200	-1	Little or no change. Employment growth for these technicians is expected to be limited because most respiratory-care work is done by respiratory therapists. Keen competition is expected.

## Service occupations

### Healthcare support occupations

<b>Dental assistants</b>	295,300	105,600	36	Much faster than average growth. An aging population and increased emphasis on preventative dental care will create more demand for dental services, and dentists are expected to hire more assistants to perform routine tasks. Job prospects should be excellent.
<b>Home health aides and personal and home care aides</b>	1,738,800	836,700	48	Much faster than average growth. Growth is expected to stem from a rise in the number of elderly people, an age group that relies increasingly on home care for assistance with daily activities. This growth, together with the need to replace workers who leave the occupation permanently, should result in excellent job prospects.
<b>Massage therapists</b>	122,400	23,200	19	Faster than average growth. Growing demand for massage services to help improve health and wellness is expected to create jobs for massage therapists. Opportunities for entry-level workers should be good. Jobseekers with experience and licensure or certification should have the best prospects.



## Service

Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Medical assistants</b>	483,600	163,900	34 ★	Much faster than average growth. Technological advances in medicine and the aging of the population will create demand for healthcare, and doctors are expected to hire more assistants in response. Prospects should be excellent, especially for job-seekers with certification.
<b>Medical transcriptionists</b>	105,200	11,700	11	About average growth. An aging population is expected to need more medical care, leading to more medical records and creating employment growth in this occupation. Opportunities should be good, especially for jobseekers who are certified.
<b>Nursing and psychiatric aides</b>	1,532,300	279,600 ★	18	Faster than average growth. Employment of nursing aides, orderlies, and attendants is expected to grow in response to the long-term care needs of an increasing elderly population. Employment of psychiatric aides is projected to grow more slowly than average due, in part, to an ongoing trend toward outpatient psychiatric treatment. Overall, job opportunities for nursing and psychiatric aides are expected to be excellent.
<b>Occupational therapist assistants and aides</b>	34,400	10,300	30 ★	Much faster than average growth. Employment growth for occupational therapist assistants and aides should continue as the population ages and better medical technology increases the survival rates of people who become injured or ill. Job prospects should be very good for assistants who have credentials.
<b>Physical therapist assistants and aides</b>	109,900	37,900	35 ★	Much faster than average growth. Projected growth stems from an expected increase in the elderly population and better medical technology that increases the survival rates of people who become injured or ill. Job opportunities should be good in settings that treat the elderly.

### Protective service occupations

<b>Correctional officers</b>	518,200	48,300	9	About average growth. Employment growth is expected to stem from population increases and a corresponding rise in the prison population. Favorable job opportunities are expected.
<b>Fire fighters</b>	365,600	62,100	17	Faster than average growth. Most job growth will stem from the conversion of volunteer fire fighting positions into paid positions. Jobseekers are expected to face keen competition. Those who have completed some fire fighter education at a community college and have EMT or paramedic certification should have the best prospects.

## Service



Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Police and detectives</b>	883,600	84,700	10	About average growth. Population growth is the main source of demand for police services. Overall, opportunities in local police departments should be favorable for qualified applicants.
<b>Private detectives and investigators</b>	45,500	10,000	22	Much faster than average growth. Growth in employment of private detectives and investigators should result from heightened confidentiality and security concerns and from increased litigation. Keen competition is expected for most jobs.
<b>Security guards and gaming surveillance officers</b>	1,086,000	153,600	14	Faster than average growth. Concern about crime, vandalism, and terrorism are expected to result in increased demand for security services. This increased demand, along with the need to replace workers leaving the occupation permanently, should result in favorable job opportunities.

## Food preparation and serving related occupations

<b>Chefs, head cooks, and food preparation and serving supervisors</b>	941,600	55,400	6	Slower than average growth. Consumer demand for convenience and a growing variety of dining venues are expected to create some jobs, but most openings are expected to arise from the need to replace workers who leave the occupation. Competition should be keen for jobs at upscale restaurants.
<b>Cooks and food preparation workers</b>	2,958,100	191,500	6	Slower than average growth. New jobs are expected to arise as people continue to eat out and purchase ready-made food, but growth will be tempered as restaurants and quick-service eating places find more efficient ways to prepare meals. Opportunities should be good.
<b>Food and beverage serving and related workers</b>	7,652,400	760,700	10	About average growth. Job growth is projected due to an expanding population and the continued popularity of dining out. Opportunities should be excellent.

## Building and grounds cleaning and maintenance occupations

<b>Building cleaning workers</b>	4,139,000	204,300	5	Slower than average growth. Employment of building cleaning workers should grow, although slowly, as the number of buildings in operation increases. The need to replace workers who leave the occupation should create good job prospects.
<b>Grounds maintenance workers</b>	1,520,600	269,200	18	Faster than average growth. Demand for lawn care and landscaping services is expected to grow, resulting in employment growth for these workers. Job prospects are expected to be good. Opportunities for year-round work should be best in regions with temperate climates.



## Service

Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Pest control workers</b>	67,500	10,300	15	Faster than average growth. Demand for pest control services should grow as consumers desire improved living conditions and as the population increases in warmer States, where pests are more prevalent. Prospects should be good.

### Personal care and service occupations

<b>Animal care and service workers</b>	220,400	45,500	21	★ Much faster than average growth. Pet owners purchasing more services—including grooming, boarding, and training—is expected to lead to employment growth for animal care and service workers. Emphasis on reducing animal abuse should also increase their employment in animal shelters. Excellent opportunities are expected.
<b>Barbers, cosmetologists, and other personal appearance workers</b>	821,900	165,500	20	★ Much faster than average growth. A larger population and increasing demand for personal appearance services, especially skin care, are expected to create jobs for these workers. Prospects should be good, especially for jobseekers who have formal training.
<b>Child care workers</b>	1,301,900	142,100	11	About average growth. Increased emphasis on early childhood education should lead to employment growth for these workers. But growth is expected to be moderated by relatively slow growth in the population of children under age 5. The need to replace workers who leave the occupation permanently should create good job opportunities.
<b>Fitness workers</b>	261,100	76,800	29	★ Much faster than average growth. Employment growth for these workers is expected due to increased concern about health and physical fitness. People who have degrees in fitness-related subjects should have better opportunities, and trainers who incorporate new technology and wellness issues as part of their services may be more sought after.
<b>Flight attendants</b>	98,700	8,000	8	About average growth. As the population grows and the economy expands, expected increases in the volume of air passenger traffic will lead to employment growth for flight attendants. Competition is expected to be keen. Jobseekers who have a bachelor's degree and relevant experience should have the best prospects.
<b>Gaming services occupations</b>	178,700	25,700	14	Faster than average growth. Expansion of existing facilities and easing of State government restrictions on gaming facilities are expected to drive employment growth in gaming occupations. Keen competition is expected. Prospects should be best for jobseekers who have experience, postsecondary training, and customer service skills.

## Sales and related



Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Recreation workers</b>	327,500	48,200	15	Faster than average growth. Growth will stem from people spending more time and money on recreation, but budget constraints may limit the number of new jobs. Applicants for part-time, seasonal, and temporary recreation jobs should have good opportunities, but competition will remain keen for full-time career positions.

### Other service occupations

<b>Fire inspectors and investigators</b>	16,600	1,500	9	About average growth. Employment of fire inspectors and investigators is projected to grow along with growth of the population. Job competition is expected to be keen. Those who have some post-secondary education or relevant experience should have an advantage.
<b>Makeup artists, theatrical and performance</b>	2,800	500	17	Faster than average growth. Steady growth in the entertainment industry should result in increased employment for these workers. Competition should be keen. Job openings will be concentrated in areas that have many media production companies, such as Los Angeles and New York.

### Sales and related occupations

<b>Advertising sales agents</b>	166,800	12,100	7	About average growth. Continued growth of media outlets is expected to generate demand for advertising sales. Opportunities for entry-level workers should be good, especially for jobseekers who have sales experience and a college degree.
<b>Cashiers</b>	3,550,000	125,500	4	Slower than average growth. The increased use of self-service checkout systems and the rising popularity of online shopping are expected to limit employment growth for cashiers. But opportunities should continue to be good because of the need to replace workers who leave the occupation.
<b>Demonstrators and product promoters</b>	102,800	7,300	7	About average growth. Employment growth should be driven by increases in the number and size of trade shows and by greater use of these workers in retail establishments for in-store promotions. Job openings should be plentiful.
<b>Insurance sales agents</b>	434,800	51,600	12	About average growth. Projected employment increases stem from the growth and aging of the population. But these increases will be tempered by insurance carriers attempting to contain costs by relying on independent agents rather than employees. Job opportunities should be best for college graduates with good interpersonal skills.



## Sales and related

Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Models</b>	2,200	400	16	Faster than average growth. Expected growth in employment will be driven by continued use of models to advertise products. Keen competition for jobs is expected because of the perceived glamour of the occupation.
<b>Real estate brokers and sales agents</b>	517,800	74,300	14	Faster than average growth. A growing population is expected to require the services of real estate agents and brokers, creating more jobs for these workers. People who are well-trained, ambitious, and socially and professionally active in their communities should have the best prospects.
<b>Retail salespersons</b>	4,489,200	374,700 	8	About average growth. As the population grows and retail sales increase, employment of these workers is expected to grow. Opportunities are expected to be good.
<b>Sales engineers</b>	78,000	6,900	9	About average growth. Projected job growth will stem from the increasing variety and technical nature of goods and services to be sold. Competition is expected. Prospects should be best for jobseekers with excellent interpersonal skills and communication, math, and science aptitude.
<b>Sales representatives, wholesale and manufacturing</b>	1,973,200	143,200	7	About average growth. Continued expansion in the variety and number of goods sold is expected to lead to additional jobs for these workers. Prospects should be best for jobseekers with a college degree, technical expertise, and interpersonal skills.
<b>Sales worker supervisors</b>	2,192,300	112,800	5	Slower than average growth. Limited job growth is expected as retailers increase the responsibilities of existing sales worker supervisors and as the retail industry grows slowly overall. Competition is expected. Jobseekers with college degrees and retail experience should have the best prospects.
<b>Securities, commodities, and financial services sales agents</b>	317,200	29,600	9	About average growth. Consolidation of the financial industry is expected to inhibit employment growth. Individuals' ability to manage their own investments online is likely to reduce the need for brokers. Job competition should be keen.
<b>Travel agents</b>	105,300	-1,200	-1	Little or no change. Demand for the services of travel agents is expected to decline with the increasing ability of travelers to arrange their own trips online. But demand for some specialized services is expected to grow. Jobseekers with formal training should have the best opportunities.

# Office and administrative support



Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	

## Other sales and related occupations

<b>Counter and rental clerks</b>	448,200	13,700	3	Slower than average growth. Trends such as online shopping may impede employment growth for these workers. But because these occupations usually require personal contact, they are difficult to automate. Opportunities are expected to be favorable.
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## Office and administrative support occupations

### Financial clerks

<b>Bill and account collectors</b>	411,000	79,500	19	Faster than average growth. New jobs are projected to be created in industries in which delinquent accounts are common, such as healthcare and financial services. Opportunities also should be favorable. Jobseekers who have related experience should have the best prospects.
<b>Bookkeeping, accounting, and auditing clerks</b>	2,063,800	212,400	10	About average growth. Overall economic expansion will result in more financial transactions and other activities requiring recordkeeping, leading to expected employment growth for these workers. Job openings will be plentiful, including many opportunities for temporary and part-time work.
<b>Gaming cage workers</b>	39,200	-4,100	-10	Rapid decline. Employment declines are expected as casinos increasingly automate transactions, reducing the need for these workers. Keen competition is expected. Jobseekers with good math and customer service skills, casino experience, and some background in accounting or bookkeeping should have the best opportunities.

### Information and record clerks

<b>Customer service representatives</b>	2,252,400	399,500	18	Faster than average growth. Businesses are expected to place increasing emphasis on customer relations, resulting in increased employment for these workers. Prospects are expected to be good, particularly for jobseekers who are fluent in more than one language.
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## Office and administrative support



Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Receptionists and information clerks</b>	1,139,200	172,900	15	Faster than average growth. Although technology makes these workers more productive, many new jobs are expected as clerical work is consolidated and involves more tasks. Employment growth is expected in offices of physicians and other health practitioners and in the legal services, personal care services, construction, and management and technical consulting industries. Plentiful opportunities are expected.

### Material recording, scheduling, dispatching, and distributing occupations

<b>Cargo and freight agents</b>	85,900	20,600	24	 Much faster than average growth. More agents should be needed to handle the growing number of shipments resulting from expected increases in cargo traffic. Job prospects should be good.
<b>Couriers and messengers</b>	122,400	-400	0	Little or no change. The need for document delivery services is expected to continue lessening due to widespread use of computers and the Internet. But some demand should arise, especially for items that cannot be sent electronically. Most openings are expected to be in large urban areas.
<b>Postal Service mail carriers</b>	343,300	-3,900	-1	Little or no change. Declining mail volume, along with automation, is expected to offset employment growth driven by the need to provide mail-delivery services to a growing population. Keen competition is expected. Opportunities are expected to be best in areas experiencing population growth.
<b>Shipping, receiving, and traffic clerks</b>	750,500	-49,300	-7	Moderate decline. The use of more advanced logistics and inventory software is expected to enhance productivity and lower employment for these workers. Most job openings are expected to arise from the need to replace existing workers who leave the occupation permanently.

### Miscellaneous office and administrative support occupations

<b>Desktop publishers</b>	26,400	-5,900	-23	Rapid decline. Availability of user-friendly software is expected to make desktop publishing by nonprofessionals more common, reducing employment in this occupation. Job prospects should be best for those with experience.
<b>Office clerks, general</b>	3,024,400	358,700	12	 About average growth. Employment growth is expected to be spurred by new technology that allows these clerks to perform tasks previously done by specialists. Numerous opportunities are expected.

## Office and administrative support



Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Secretaries and administrative assistants</b>	4,348,100	471,600	11	About average growth. Projected employment growth varies by occupational specialty. Faster than average growth is expected for medical secretaries and legal secretaries; average growth for executive secretaries and administrative assistants; and slower than average growth for secretaries other than legal, medical, or executive, who account for most of the workers in these specialties. Many opportunities are expected.



### Other office and administrative support occupations

<b>Billing and posting clerks and machine operators</b>	528,800	80,800	15	Faster than average growth. Employment growth is projected to stem from an increasing number of transactions, especially in the rapidly growing healthcare industry. Prospects should be good.
<b>Brokerage clerks</b>	67,600	-1,800	-3	Moderate decline. Industry consolidation and automation are expected to reduce employment growth for these workers. Keen competition is expected.
<b>Communications equipment operators</b>	181,600	-18,200	-10	Rapid decline. Automation, the movement of jobs abroad, and the proliferation of cell phones are expected to reduce employment for these workers. But job prospects should be favorable because of the need to replace existing workers who leave the occupation permanently.
<b>Computer operators</b>	110,000	-20,500	-19	Rapid decline. Advances in technology will make many of the duties performed by these workers obsolete. Opportunities should be best for those who have formal computer education, familiarity with a variety of operating systems, and current knowledge of technology.
<b>Credit authorizers, checkers, and clerks</b>	63,800	1,800	3	Slower than average growth. Employment growth is expected to be limited because technology continues to improve efficiency in processing credit applications. Some growth should result, however, from increased risk aversion and closer attention to credit policies by lenders. Prospects should be good.
<b>Data entry and information processing workers</b>	426,200	-25,500	-6	Moderate decline. Improved technologies and an increased expectation that most people perform their own data entry and information processing tasks are projected to reduce employment of these workers. Job prospects should be best for those who have strong technical skills.
<b>Dispatchers, except police, fire, and ambulance</b>	195,700	-5,000	-3	Moderate decline. Increasing worker productivity is expected to cause a decline in employment, but this decline may be offset, somewhat, by population growth. Opportunities should be favorable.

## Office and administrative support



Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Eligibility interviewers, government programs</b>	119,500	11,000	9	About average growth. As the population ages, retires, and becomes eligible for benefits and programs, employment in this occupation is expected to increase. But employment growth may be tempered by a trend toward automated services, such as online application. Job opportunities are expected to be favorable.
<b>File clerks</b>	212,200	-49,600	-23	Rapid decline. Employment is expected to decline due to productivity gains from office automation and the consolidation of clerical jobs. But favorable opportunities are expected, due to the need to replace existing workers who leave the occupation. Prospects should be best for jobseekers who have good typing or secretarial skills and are familiar with office machinery.
<b>Hotel, motel, and resort desk clerks</b>	230,200	31,500	14	Faster than average growth. As the economy improves, travel is expected to increase and developers are expected to open more hotels. Job prospects for these clerks should be favorable.
<b>Human resources assistants, except payroll and timekeeping</b>	169,700	-9,700	-6	Moderate decline. Productivity gains from office automation are expected to lead to declines in the employment of human resources assistants. Jobseekers may face competition. Opportunities should be best for those who have excellent communication and computer skills.
<b>Interviewers, except eligibility and loan</b>	233,400	36,400	16	Faster than average growth. Growth in market research and healthcare industries is expected to generate jobs for interviewers. Prospects should be good.
<b>Loan interviewers and clerks</b>	210,400	9,100	4	Slower than average growth. The prevalence of online loan applications is expected to limit employment for loan interviewers, but some growth should result from a rise in the volume of loans due to population increases. Opportunities should be best for jobseekers who have good customer service and math skills.
<b>Meter readers, utilities</b>	45,300	-9,100	-20	Rapid decline. Automated meter reading systems that are operated remotely are expected to reduce employment of meter readers. But opportunities are expected to be good because of the need to replace workers who leave the occupation.
<b>Office and administrative support worker supervisors and managers</b>	1,457,200	160,300	11	About average growth. Employment growth is expected to be tempered by technological advances that increase the productivity of—and thus decrease the need for—these workers and the workers they supervise. Keen competition is expected.

## Office and administrative support



Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Order clerks</b>	245,700	-64,200	-26	Rapid decline. Improvements in technology continue to increase worker productivity and decrease the need for order clerks. But opportunities are expected to be favorable, especially for seasonal work, because of the need to replace existing workers who leave the occupation.
<b>Payroll and timekeeping clerks</b>	208,700	-10,900	-5	Moderate decline. Projected employment declines will result from increased automation of the payroll and timekeeping process. But opportunities are expected due to the need to replace workers leaving the occupation. Jobseekers with certification should have the best prospects.
<b>Police, fire, and ambulance dispatchers</b>	99,900	17,800	18	Faster than average growth. The growing and aging population will increase demand for emergency services, leading to employment increases for these dispatchers. Job opportunities should be favorable.
<b>Postal Service clerks</b>	75,800	-13,700	-18	Rapid decline. Postal Service clerks will be adversely affected by continued declines in the volume of first-class mail. Keen competition is expected because this occupation has relatively few entry requirements and attractive wages and benefits.
<b>Postal Service mail sorters, processors, and processing machine operators</b>	179,900	-54,500	-30	Rapid decline. Increased automation is expected to decrease employment of these workers. Keen competition is expected to continue because this occupation has relatively few entry requirements and attractive wages and benefits.
<b>Procurement clerks</b>	81,500	4,800	6	Slower than average growth. Employment of procurement clerks should diminish as computers are increasingly used by suppliers to place direct orders and by consumers to place Internet orders. Job prospects are expected to be favorable.
<b>Production, planning, and expediting clerks</b>	283,500	4,300	2	Little or no change. Job openings are expected to arise from the need to replace workers who leave the occupation. Opportunities should be limited in manufacturing but better in industries with faster growth, such as wholesale trade and warehousing.
<b>Reservation and transportation ticket agents and travel clerks</b>	168,300	13,600	8	About average growth. Increased use of online reservations systems and self-service ticketing machines are expected to reduce the number of workers needed for most routine services, but these agents and clerks will still provide in-person requests. Competition is expected.



## Farming, fishing, and forestry

Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Stock clerks and order fillers</b>	1,858,800	134,400	7	About average growth. Steady growth is expected, especially in retail trade where workers handling individual items and small quantities make job tasks difficult to automate. Job prospects should be good because of the need to replace workers who leave the occupation.
<b>Tellers</b>	600,500	37,500	6	Slower than average growth. Banks opening branches in a variety of locations, such as grocery stores, should result in some employment growth. Favorable job prospects are expected.
<b>Weighers, measurers, checkers, and samplers, recordkeeping</b>	71,900	-9,400	-13	Rapid decline. Increased automation of the tasks performed by these workers is expected to lead to employment declines. Favorable opportunities are expected, however, because of the need to replace existing workers who leave the occupations.

## Farming, fishing, and forestry occupations

<b>Fishers and fishing vessel operators</b>	35,600	-2,700	-8	Moderate decline. Seafood imports and the prevalence of farm-raised fish have reduced employment of these workers. Most job openings are expected to come from the need to replace workers who leave the occupation. Large fishing operations should provide the best prospects.
<b>Forest and conservation workers</b>	12,900	1,100	9	About average growth. Employment of forest and conservation workers is projected to increase along with interest in protecting natural resources and wildlife habitats. The best employment opportunities should continue to be in the Southeast and the Pacific Northwest.
<b>Logging workers</b>	66,100	3,900	6	Slower than average growth. Demand for new wood products should spur some employment growth. But job growth is likely to be modest because of mechanization and competition from other countries with well developed logging industries.
<b>Agricultural workers, other</b>	821,700	-17,400	-2	Little or no change. Continued consolidation of farms and productivity gains from increased use of agricultural machinery are expected to curb the need for additional workers. But job openings should be plentiful.

## Construction trades and related



Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Other farming, fishing, and forestry occupations</b>				
<b>Agricultural inspectors</b>	16,600	2,100	13	About average growth. Federal and State governments, the largest employers of these workers, are not expected to hire a significant number of new inspectors. Job prospects should be good to replace the many agricultural inspectors expected to leave the occupation permanently.
<b>Graders and sorters, agricultural products</b>	33,400	100	0	Little or no change. Increases in automation and in agricultural imports should limit employment growth in this occupation. Most openings are expected to result from workers leaving the occupation.
<b>Construction trades and related workers</b>				
<b>Boilermakers</b>	20,200	3,800	19	Faster than average growth. Projected employment growth will be driven by the need to maintain and upgrade existing boilers and install equipment that is less harmful to the environment. Job prospects should be favorable.
<b>Brickmasons, blockmasons, and stonemasons</b>	160,200	18,500	12	About average growth. Employment growth is expected to be driven by a growing population's need for many types of new structures. These workers will also be needed to renovate older buildings and increase their energy efficiency.
<b>Carpenters</b>	1,284,900	165,400	13	About average growth. New construction projects are expected to increase employment for carpenters. Opportunities should be best for jobseekers who prepare through an apprenticeship or other formal training.
<b>Carpet, floor, and tile installers and finishers</b>	160,500	11,400	7	About average growth. Expected employment gains for these workers will arise from growing population and resulting increases in building and renovating structures. Job openings are also expected from the need to replace workers who leave the occupations permanently.
<b>Cement masons, concrete finishers, segmental pavers, and terrazzo workers</b>	207,800	26,700	13	About average growth. Expected employment growth should result from new construction projects and from the need to repair and renovate existing highways, bridges, and other structures. Entry-level opportunities should be good.
<b>Construction and building inspectors</b>	106,400	17,900	17	Faster than average growth. Employment growth is expected to be driven by desires for safety and improved quality of construction. Prospects should be best for workers who have some college education, certification, and construction experience.



## Construction trades and related

Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Construction equipment operators</b>	469,300	56,200	12	About average growth. Increased government spending on infrastructure is expected to generate employment growth for these workers. Operators who have varied expertise are expected to have the best prospects.
<b>Construction laborers</b>	1,248,700	255,900 ★	20 ★	Much faster than average growth. Employment of these workers is projected to increase because of additional government spending on infrastructure repair and reconstruction. Opportunities will vary based on jobseekers' experience, training, and willingness to relocate.
<b>Drywall and ceiling tile installers, tapers, plasterers, and stucco masons</b>	237,700	28,500	12	About average growth. Projected employment growth is likely to stem from increases in new construction and remodeling. Overall job prospects are expected to be good, especially for experienced workers.
<b>Electricians</b>	694,900	83,000	12	About average growth. Population growth is expected to spur increases in construction, which in turn will increase employment of electricians. The need to update the electrical systems of existing buildings should also drive employment growth. Opportunities should be good.
<b>Elevator installers and repairers</b>	24,900	2,300	9	About average growth. The need to install new equipment and to maintain, update, and repair old equipment should lead to employment growth for these workers. Entry-level workers should have excellent opportunities.
<b>Glaziers</b>	54,100	4,200	8	About average growth. Projected employment growth will stem from increasing demand for new construction of commercial structures as well as the need to modernize and repair existing structures. Job prospects should be best for glaziers who have a broad range of skills.
<b>Hazardous materials removal workers</b>	42,500	6,300	15	Faster than average growth. Employment growth is expected due to increased calls for eco-friendly electric generation facilities and production of nuclear power. Job opportunities are expected to be good.
<b>Insulation workers</b>	57,300	9,900	17	Faster than average growth. Expected employment increases for insulation workers are spurred by the need to make existing buildings more energy efficient. Anticipated construction of new power plants should also lead to employment gains. Opportunities are expected to be excellent, particularly for jobseekers with knowledge of weatherization.

## Installation, maintenance, and repair



Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Painters and paperhangers</b>	450,100	29,800	7	About average growth. Construction, remodeling, and maintenance of existing buildings and infrastructure will drive employment growth for these workers. Job prospects should be good because of the need to replace workers who leave these occupations permanently.
<b>Plumbers, pipelayers, pipefitters, and steamfitters</b>	555,900	86,300	16	Faster than average growth. Employment of these workers is projected to increase due to new construction and renovation projects, as well as maintenance of existing pipe systems. Increasing emphasis on water conservation should require retrofitting to conserve water, leading to employment growth for plumbers. Workers with welding experience should have especially good opportunities.
<b>Roofers</b>	148,900	5,700	4	Slower than average growth. The need to install and repair new and existing roofs should generate some job growth. But this growth is expected to be limited as a greater proportion of roofing tasks are completed by other construction workers.
<b>Sheet metal workers</b>	170,700	11,100	6	Slower than average growth. Employment of sheet metal workers in the construction industry is expected to increase along with building activity. But employment is likely to decline somewhat in manufacturing, due to increased automation and the movement of some work abroad. Opportunities should be particularly good for jobseekers who have apprenticeship training or who are certified welders.
<b>Structural and reinforcing iron and metal workers</b>	97,800	12,200	12	About average growth. Opportunities are expected to arise from the need to build new structures and from the need to maintain, repair, and replace existing ones. Job prospects should be best in the South and the West due to their growing populations.

## Installation, maintenance, and repair occupations

### Electrical and electronic equipment mechanics, installers, and repairers

<b>Computer, automated teller, and office machine repairers</b>	152,900	-6,700	-4	Moderate decline. Projected employment growth will be constrained by the use of laborsaving technology. Job prospects are expected to be limited. Jobseekers with certification, formal training, knowledge of electronics, and repair experience should have the best prospects.
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## *Installation, maintenance, and repair*

Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Electrical and electronics installers and repairers</b>	160,900	7,500	5	Slower than average growth. Employment growth for these workers is expected to be limited as improvements in the quality of electrical and electronic equipment result in less need for repairs. The best prospects are expected for jobseekers who have certification, an associate degree, and relevant experience.
<b>Electronic home entertainment equipment installers and repairers</b>	51,200	5,500	11	About average growth. Employment of these workers should rise along with sales of home entertainment equipment. But as the cost of this equipment falls, a preference for replacement over repair may limit employment growth. Opportunities should be best for jobseekers who have certification, knowledge of electronics, relevant experience, and customer service skills.
<b>Radio and telecommunications equipment installers and repairers</b>	208,800	-700	0	Little or no change. Telecommunications companies providing many new services, such as faster Internet connections and video on demand, are expected to result in employment growth for these workers. But better equipment will require less maintenance work, slowing employment growth. Prospects should be best for jobseekers with computer skills and training in electronics.

### Vehicle and mobile equipment mechanics, installers, and repairers

<b>Aircraft and avionics equipment mechanics and service technicians</b>	140,300	9,800	7	About average growth. Air traffic is expected to increase due to an expanding economy and a growing population, leading to employment growth for aircraft mechanics and service technicians. Prospects should be best for jobseekers who have experience and professional certification.
<b>Automotive body and related repairers</b>	185,900	1,100	1	Little or no change. As vehicle components become more technologically advanced and expensive, the trend for vehicles to be declared a total loss following a collision is expected to result in fewer repairs and, thus, minimal employment growth for these workers. But many job openings are expected to occur as existing workers leave the occupation permanently. Jobseekers with formal training should have the best prospects.
<b>Automotive service technicians and mechanics</b>	763,700	35,900	5	Slower than average growth. Consolidation in the automobile dealer industry, a significant employer of technicians, is expected to limit growth in this occupation. But some opportunities are expected because of the need to service the growing number of vehicles in the United States. Jobseekers who complete formal training should have good prospects.

## Installation, maintenance, and repair



Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Diesel service technicians and mechanics</b>	263,100	14,900	6	Slower than average growth. The increasing durability of new diesel engines is expected to hamper growth for the workers who repair them. This factor will be partially offset by the need for these workers due to increased freight shipments and the need to retrofit vehicles to meet environmental regulations. Opportunities should be very good for jobseekers with technical skills and formal training.
<b>Heavy vehicle and mobile equipment service technicians and mechanics</b>	190,700	15,500	8	About average growth. Continued expansion of the industries that use heavy mobile equipment, such as agriculture and energy exploration and mining, should lead to additional jobs for these workers. Opportunities should be good for jobseekers who have experience or formal training.
<b>Small engine mechanics</b>	70,400	4,800	7	About average growth. Employment growth is projected to be greatest for workers who repair motorcycles as the number of registered motorcycles continues to increase. Excellent job prospects are expected for jobseekers with formal training.

### Miscellaneous installation, maintenance, and repair occupations

<b>Heating, air-conditioning, and refrigeration mechanics and installers</b>	308,200	86,600	28	 Much faster than average growth. Demand for better energy management is expected to create jobs for workers who replace older systems in existing homes and buildings with newer, more efficient units. Prospects should be excellent, particularly for jobseekers who have completed accredited training programs or formal apprenticeships.
<b>Home appliance repairers</b>	49,600	1,100	2	Little or no change. Smaller, inexpensive appliances are increasingly replaced rather than repaired, resulting in minimal projected job growth for repairers to service major appliances. Excellent job prospects are expected, however. Opportunities should be best in metropolitan areas and for jobseekers who have formal training.
<b>Industrial machinery mechanics and millwrights</b>	408,300	25,000	6	Slower than average growth. The increasing reliance on machinery in manufacturing is expected to lead to employment growth for these maintenance and installation workers. Favorable job prospects are expected.



## Installation, maintenance, and repair

Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Line installers and repairers</b>	284,900	6,600	2	Little or no change. Despite declines in some of the industries that employ these workers, some growth is expected as cities and the overall population expand and create a need for power and communications lines. Very good opportunities are expected as more workers in the electrical power industry near retirement age than workers in other industries.
<b>Maintenance and repair workers, general</b>	1,361,300	147,900	11	About average growth. Employment is related to the extent of building stock and the amount of equipment needing maintenance and repair. Opportunities should be excellent, especially for jobseekers with experience or certification.
<b>Medical equipment repairers</b>	41,400	11,300	27	 Much faster than average growth. An increased demand for healthcare services and the growing complexity of medical equipment are projected to result in greater need for these repairers. Excellent job prospects are expected. Jobseekers who have an associate degree should have the best prospects.

### Other installation, maintenance, and repair occupations

<b>Camera and photographic equipment repairers</b>	4,600	-700	-15	Rapid decline. Because of technological improvements, most consumers opt to replace a broken camera with a newer model rather than have the broken one repaired. Competition for jobs is expected as employment declines limit opportunities.
<b>Coin, vending, and amusement machine servicers and repairers</b>	43,800	3,100	7	About average growth. Although the number of vending and slot machines is expected to rise, these machines are becoming easier to maintain and repair. There will be fewer video arcade machines as people play more of these games at home. Job opportunities should be excellent for repairers with training in electronics who are willing to travel and to work irregular hours.
<b>Musical instrument repairers and tuners</b>	6,100	0	0	Little or no change. Band and orchestra programs in high schools—the primary source of business for repairers—are not as prevalent as they once were. But job opportunities should arise from the need to replace workers who are leaving the occupation permanently.
<b>Watch repairers</b>	3,200	-400	-14	Rapid decline. The high cost of repairs will compel many consumers to replace their watches rather than have them fixed. But good prospects are expected from the need to replace workers leaving the occupation.

# Production



Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Production occupations</b>				
<b>Assemblers and fabricators</b>				
	1,950,900	-37,800	-2	Little or no change. Increased production and efficiency in manufacturing, where most of these workers are employed, should stabilize employment. Good job prospects are expected.
<b>Food processing occupations</b>				
	706,700	27,400	4	Slower than average growth. Increased demand for processed food is expected to increase the need for these workers, but efficient processing and distribution practices will offset growing output. Opportunities should be good because of the need to replace workers who leave these occupations.
<b>Metal workers and plastic workers</b>				
<b>Computer control programmers and operators</b>	157,800	6,700	4	Slower than average growth. Employment growth is expected to be driven by the increased use of computer controlled machinery. Job competition will exist; jobseekers who can operate many types of machines should have the best opportunities.
<b>Machine setters, operators, and tenders—metal and plastic</b>	1,028,400	-129,400	-13	Rapid decline. The use of more efficient production equipment should cause declines. Most openings are expected to arise from the need to replace existing workers who leave the occupation permanently.
<b>Machinists</b>	421,500	-19,300	-5	Moderate decline. Employment growth should be affected by increased productivity requiring fewer machinists. But technology is not expected to affect their employment as significantly as that of other production workers. Opportunities should be good because of the many openings expected to arise from the need to replace workers who leave the occupation permanently.
<b>Tool and die makers</b>	84,300	-6,700	-8	Moderate decline. More advanced machinery will improve the productivity of these workers. However, the need to replace the many workers who are expected to leave the occupation should create excellent opportunities.



## Production

Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Welding, soldering, and brazing workers</b>	466,400	-10,500	-2	Little or no change. An expected decline in the demand for welders due to automation should be offset somewhat by the need to visually inspect welds and operate welding machinery. Few people are training to enter this field, so good job prospects are expected.

### Printing occupations

<b>Bookbinders and bindery workers</b>	66,500	-12,900	-19	Rapid decline. Employment is expected to slow as print productivity increases and as distribution of advertising supplements shifts from print to electronic media. Experienced workers should continue to have the best opportunities for skilled jobs.
<b>Prepress technicians and workers</b>	106,900	-14,300	-13	Rapid decline. Improvements in printing technology and the growing use of publishing software are expected to increase productivity and reduce the need for these workers. Opportunities should be favorable for workers with strong computer and customer service skills.
<b>Printing machine operators</b>	195,600	-10,700	-5	Moderate decline. Increasing printer speed and automation are expected to lower employment for press operators. The need to replace those who leave the occupation should create favorable opportunities for workers trained in using computerized equipment.

### Textile, apparel, and furnishings occupations

	787,500	-119,900	-15	Rapid decline. Continued job loss is expected due to increasing imports, the growing use of assembly abroad, and automation. But some openings should arise from the need to replace workers who leave the occupation.
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### Woodworkers

	323,300	20,600	6	Slower than average growth. Automation has reduced the number of people required to produce a finished product, but improved efficiency has also made domestic wood products more competitive with imports. Job prospects should be excellent for highly qualified workers.
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# Production



Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Plant and system operators</b>				
<b>Power plant operators, distributors, and dispatchers</b>	50,400	200	0	Little or no change. Although annual energy use continues to grow in the United States, greater power plant efficiency is expected to temper employment gains resulting from that growth. Job opportunities should be excellent, however, because of the need to replace a large number of retiring workers.
<b>Stationary engineers and boiler operators</b>	41,600	2,200	5	Slower than average growth. Commercial and industrial development is expected to increase the amount of equipment to be operated and maintained. Jobseekers face competition; those who have completed an apprenticeship or other formal training should have the best prospects.
<b>Water and liquid waste treatment plant and system operators</b>	113,400	22,500	20	 Much faster than average growth. Growth in the population, especially in suburban areas, is expected to boost demand for water and wastewater-treatment services. Job opportunities should be excellent.
<b>Miscellaneous production occupations</b>				
<b>Inspectors, testers, sorters, samplers, and weighers</b>	464,700	-16,900	-4	Moderate decline. Automated inspection equipment and a redistribution of some quality control duties from inspectors to production workers are expected to contribute to employment declines in these occupations. Job opportunities should be better for workers who have experience.
<b>Jewelers and precious stone and metal workers</b>	52,100	2,800	5	Slower than average growth. Continued increases in jewelry imports, as well as consolidation and growth in online jewelers, are expected to constrain employment growth of this occupation. Employment opportunities should be favorable for skilled jewelers.
<b>Medical, dental, and ophthalmic laboratory technicians</b>	95,200	13,100	14	Faster than average growth. The ongoing prevalence of chronic diseases—which often necessitate the use of medical devices—is expected to increase employment of medical appliance technicians. And an aging population and increased demand for cosmetic dental procedures should create more jobs for dental and ophthalmic laboratory technicians. Favorable job prospects are expected.
<b>Painting and coating workers, except construction and maintenance</b>	192,700	7,300	4	Slower than average growth. Projected employment growth will be driven by the increased number of goods that need painting and coating. Good job prospects are expected, due to the need to replace workers who leave the occupation.



## Transportation and material moving

Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Semiconductor processors</b>	31,600	-10,000	-32	Rapid decline. Despite strong demand for micro-processors, automation is expected to result in continued employment declines in this occupation. Competition for jobs is expected.

### Other production occupations

<b>Photographic process workers and processing machine operators</b>	73,000	-11,800	-16	Rapid decline. Projected employment declines for these workers are tied to the proliferation of self-service machines, home printers, and online ordering that meet most of the demand for digital prints. Also, photo editing software makes it easier for consumers to edit their own photographs.
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## Transportation and material moving occupations

### Air transportation occupations

<b>Air traffic controllers</b>	26,200	3,400	13	About average growth. More controllers are expected to be needed to handle increasing air traffic. Competition for admission to the FAA Academy—the usual first step in employment as an air traffic controller—is expected to remain keen.
<b>Aircraft pilots and flight engineers</b>	116,000	13,700	12	About average growth. Population growth and economic expansion are expected to boost demand for air travel. Regional airlines and low-cost carriers should have the best opportunities; pilots vying for jobs with major airlines face strong competition.

### Motor vehicle operators

<b>Bus drivers</b>	647,500	43,900	7	About average growth. Population growth is expected to create jobs for school bus drivers, and the increased popularity of public transportation as an alternative to driving should create employment growth for transit and intercity bus drivers. Good job prospects are expected.
<b>Taxi drivers and chauffeurs</b>	232,300	36,100	16	Faster than average growth. Growth in tourism and business travel is expected to lead to employment increases for these workers. Job opportunities are expected to be plentiful.
<b>Truck drivers and driver/sales workers</b>	3,189,300	291,900	9	About average growth. Employment growth for these workers is expected to correspond to overall economic growth. Job opportunities should be favorable, especially for long-haul drivers.



# Opportunities in the U.S. Armed Forces



Occupation	Employment, 2008	Employment change, projected 2008-18 <sup>1</sup>		Employment prospects
		Numeric	Percent	
<b>Rail transportation occupations</b>				
	130,500	12,000	9	About average growth. Freight transportation and the occupations associated with it are expected to expand as global trade increases and as more goods are shipped by rail. Opportunities should be good for qualified jobseekers because many workers, particularly at freight railroads, are expected to retire.
<b>Water transportation occupations</b>				
	81,100	12,000	15	Faster than average growth. Job growth is expected to stem from increasing tourism and from growth in offshore oil and gas production. Employment is also projected to increase in and around major port cities due to growing international trade. Opportunities should be excellent as the need to replace workers, particularly officers, generates many job openings.
<b>Material moving occupations</b>				
	4,583,700	-46,500	-1	Little or no change. Improvements in technology are expected to increase productivity, holding employment stable. Good job prospects are expected from the need to replace the many workers leaving these occupations.
<b>Opportunities in the U.S. Armed Forces</b>				
	1,375,100 <sup>2</sup>	( <sup>3</sup> )	( <sup>3</sup> )	Opportunities should be excellent in all branches of the military for applicants who meet designated standards.

<sup>1</sup> Numeric and percent changes are rounded, but they are calculated from unrounded figures for current and projected employment.

<sup>2</sup> Source: U.S. Department of Defense, Defense Manpower Data Center. Data are for May 31, 2008, and exclude U.S. Coast Guard. For U.S. military personnel statistics, see <http://siadapp.dmdc.osd.mil/personnel/MILITARY/miltop.htm>.

<sup>3</sup> A projection is not available from the U.S. Bureau of Labor Statistics.



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# Beyond the “Brief”

In addition to this issue of the *OOQ*, other BLS publications have information about the 2008–18 projections and about careers.

The 2010–11 edition of *Occupational Outlook Handbook* contains detailed information about occupations’ job tasks, training and skill requirements, earnings, and job outlook. It also lists sources of additional information for each occupation.

The winter 2009–10 issue of the *OOQ* includes charts that show detailed projections of occupations, industries, the labor force, and the economy. Charts include those that project the fastest growing occupations, occupations adding the most new jobs, occupations with the most job openings for workers new to the occupation, and occupational job growth and job openings by education or training category.

The November 2009 issue of the *Monthly Labor Review* contains articles that provide more analytical and technical details of the projections.

The 2010–11 *Career Guide to Industries* provides career information from an industry perspective. It describes the occupations, employment levels, training requirements, earnings, and job prospects in 45 industries.

## Ordering information

These publications are available at no charge on the BLS Employment Projections Web site, [www.bls.gov/emp](http://www.bls.gov/emp).

Also, the *Handbook* and *OOQ* are often available in print at libraries and career centers. And they are available for sale by the U.S. Government Printing Office.

For price and ordering information, contact:

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## Projections by State

The projections in BLS publications are national in scope. But job prospects vary from one geographic area to another. For State-specific employment information, including projections and other resources, visit America’s Career InfoNet at [www.acinet.org](http://www.acinet.org). Click on the “State Information” link; for projections, choose “State Profile,” and select the State for which you seek information.



# BLS Employment Projections Online

<http://www.bls.gov/emp>

## Federal Government's Premier Career Guidance Publications

- Occupational Outlook Handbook
- Career Guide to Industries
- Occupational Outlook Quarterly

## People Are Asking

- Which occupations and industries will grow the fastest?
- Which occupations and industries will add the most new jobs?
- How does BLS develop employment projections?

## Projections-Related Articles

- Occupational employment projections to 2018
- Charting the projections
- The job outlook in brief

## Searchable Databases

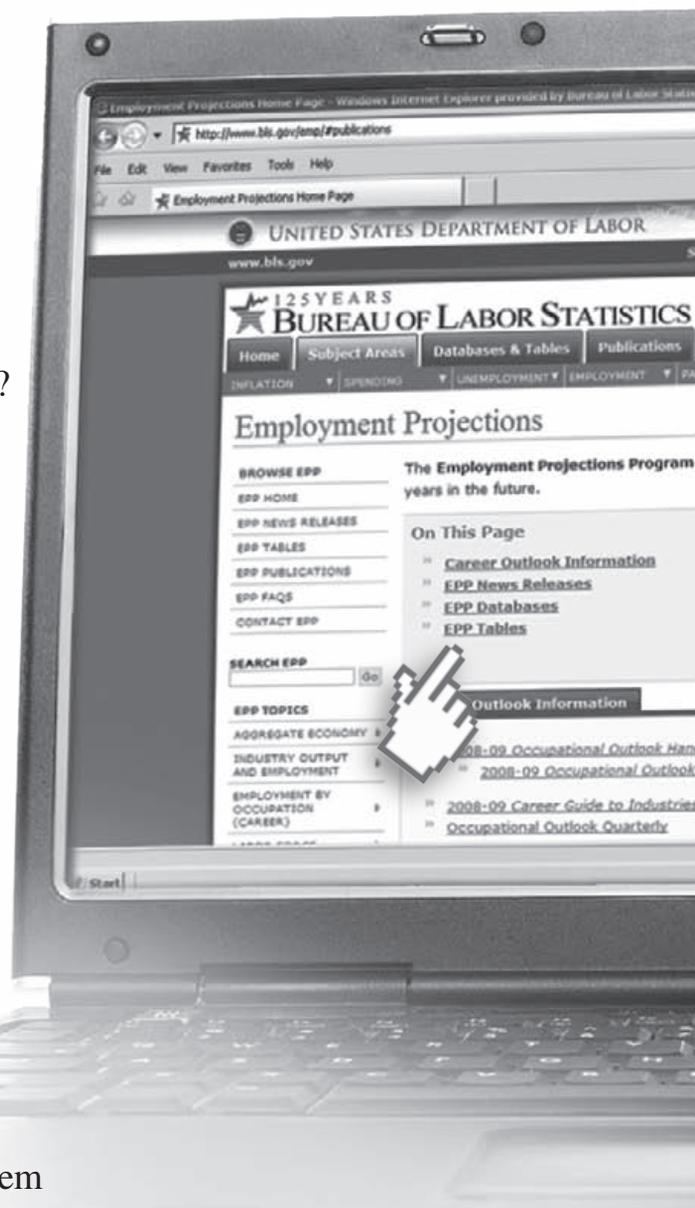
- Occupational Employment, Training, and Earnings
- National Employment Matrix
- Tables created by BLS

## Related Links

- BLS career information for young people
- State employment projections
- Standard Occupational Classification (SOC) system

## Contacts

Telephone listings for industry and occupational experts in the Office of Occupational Statistics and Employment Projections





## O\*NET goes “green”

The “green” landscape is still growing in the world of work. To keep up with this growth, the U.S. Department of Labor’s Occupational Information Network (O\*NET) Resource Center now highlights the green economy.

The O\*NET Resource Center ([www.onetcenter.org](http://www.onetcenter.org)) provides online access to the O\*NET database, career exploration tools, and more. In a downloadable report, green occupations are grouped into three categories: green increased demand occupations, green enhanced skills occupations, and green new and emerging occupations.

This new green focus has also been incorporated into O\*NET OnLine, which gives jobseekers and career counselors a method for exploring detailed descriptions of work in green jobs. For example, in a new green occupations box on the O\*NET OnLine home page, the Search button provides links for browsing occupations by sector, and the Learn More button links to information about green economy sectors, green occupations, ongoing activities, and online searches.

For details, see the O\*NET Resource Center’s green economy information at [www.onetcenter.org/green.html](http://www.onetcenter.org/green.html) or O\*NET OnLine at <http://online.onetcenter.org>.

## 2010 SOC available

Attention, occupational title enthusiasts: The 2010 Standard Occupational Classification (SOC) is here! The SOC is used by Federal statistical agencies and covers all jobs in the economy.

The 2010 SOC reflects updates and revisions to the 2000 SOC, which in turn reflect changes in the economy. Adding and combining occupational titles increased the number of detailed occupations from 821 to 840. Examples of new titles are Web developers, community health workers, hearing aid specialists, genetic counselors, and solar photovoltaic installers. (To learn more about the latter occupation, see “You’re a *what?* Solar photovoltaic installer,” in the Fall 2009 *OOQ* and online at [www.bls.gov/ooq/2009/fall/yawhat.pdf](http://www.bls.gov/ooq/2009/fall/yawhat.pdf).) More than 450 definitions were revised, and 9 occupations shifted from one major group to another.

And as the economy evolves, further SOC updates will be necessary. Work on the 2018 SOC is expected to begin in 2013. Detailed information about the 2010 SOC system—including explanations of its structure, principles, coding guidelines, and the revision process—is available online at [www.bls.gov/soc](http://www.bls.gov/soc). You may also contact the SOC Policy Committee, 2 Massachusetts Avenue NE., Suite 2135, Washington, D.C. 20212; call the SOC information line at (202) 691-6500; or email [SOC@bls.gov](mailto:SOC@bls.gov).





## Job market looking up for college grads?

The college class of 2010 can be a little more hopeful about the job market. Recent results from a National Association of Colleges and Employers poll show improving expectations for recruiting and hiring college graduates over the next few months.

The poll measures fluctuations in employers' short-term expectations for recruiting and hiring college grads. Each of the two activities receives its own score. Poll results are reported as a score between 0 and 200; scores below 100 indicate an expected drop in recruitment or hiring, a score of 100 indicates no expected change, and a score above 100 indicates an expected increase. The hiring score for December 2009 rose to about 98 from about 87 in October and November 2009. In addition, the recruiting activity score increased to about 95 in December—from about 90 in November and 93 in October.

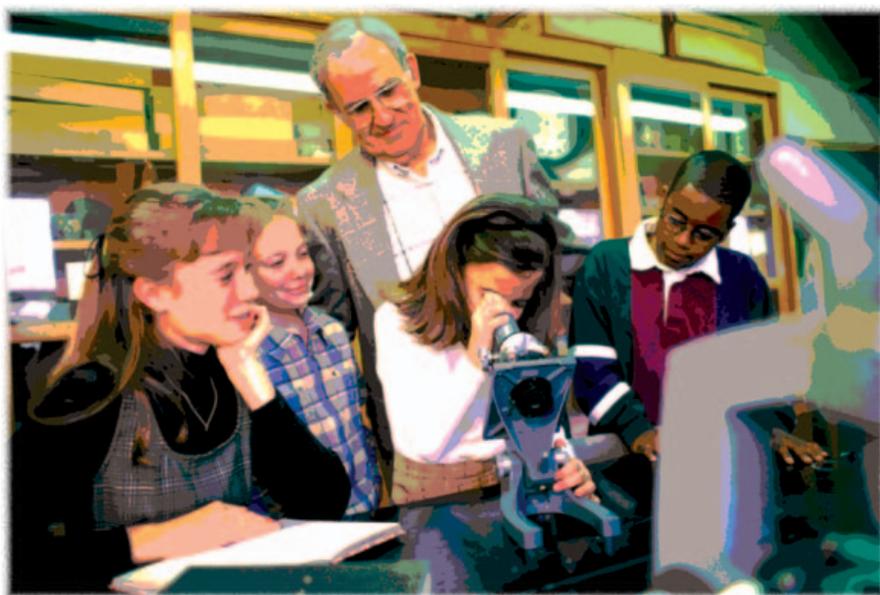
For more information about this or other studies by the association, write to the National Association of Colleges and Employers, 62 Highland Avenue, Bethlehem, Pennsylvania 18017; call toll free, 1 (800) 544-5272; or visit its Web site, [www.naceweb.org](http://www.naceweb.org).

## STEM opportunities through the Energy Department

If you want a career in science, technology, engineering, or math, take a look at what the U.S. Department of Energy has to offer. Its Office of Science Workforce Development for Teachers and Scientists provides opportunities to teachers and students of science, technology, engineering, and mathematics (STEM).

This development office offers several internships, fellowships, and programs. Each targets a different group of students and teachers. For example, paid internships for undergraduates place students in research laboratories; graduate and faculty fellowships provide financial support and professional development opportunities for STEM teachers and faculty; and activities for middle and high school students and teachers, such as the National Science Bowl, encourage scientific and technical study.

For information about these programs, including application procedures, write to the Office of Workforce Development for Teachers and Scientists, U.S. Department of Energy, 1000 Independence Avenue SW., Washington, D.C. 20585; call (202) 586-5000; email [The.Secretary@hq.doe.gov](mailto:The.Secretary@hq.doe.gov); or visit the office's Web site online at [www.scied.science.doe.gov/scied/sci\\_ed.htm](http://www.scied.science.doe.gov/scied/sci_ed.htm).



## You're a what?

# Automation Technician

Many people think of automation as laborsaving technology. But it sure keeps Jim Duffell busy.

Jim is an automation technician. For the past 9 years, he has spent his workdays monitoring production equipment for a food manufacturing company in San Antonio, Texas. The company's products—mixes for biscuits, enchiladas, and gravy—are manufactured using fairly typical automation processes.

Defined simply, automation is a technique for making a device run or a process occur with minimal direct human intervention. But the functions and technologies involved in automated manufacturing are complex. Nearly all functions, from orders coming in to products going out, are subject to automation. The technologies include mechanical, electrical, and computer, among others.

And it is the job of automation technicians like Jim to monitor, troubleshoot, and repair these complex systems. "I go from one piece of equipment to another," says Jim. "I'm on my feet most of the day."

In the company where Jim works, ingredients for the mixes are blended, stored, and packaged by machines that are controlled by computerized devices. These devices, known as programmable logic controllers, regulate the weight and quantity of ingredients, transmission of mixes to storage areas, and packaging and shipment of final products. Additionally, customer order information is automated to reduce excess inventory.

When production runs smoothly, Jim concentrates on preventative maintenance and upkeep. He uses a variety of instruments to ensure that all equipment is operating within a given tolerance, or range. For example, he may use standardized weights to make certain that the appropriate amount of each ingredient in the biscuit mix is being dispensed.

If part of the process isn't working correctly it can be an alarming experience—literally. When a piece of equipment begins functioning outside its assigned tolerance, an alarm sounds. A first alarm makes Jim aware of a problem but allows production to continue while Jim goes through a logical sequence to isolate, and fix, the problem. He must complete this process before a second alarm sounds, which indicates a more severe problem and shuts down production. Many manufacturing companies operate 24 hours a day. Shutdowns are costly, so automation technicians must be able to identify and solve problems quickly.

Automation technicians may have a variety of job titles, depending on their specific duties and the industry in which they work. Jim's title is "lead production support technician." Other common titles include "control technician" and "instrumentation technician." But whatever they are called, automation technicians need certain skills to perform their jobs.

Critical thinking and problem-solving skills are a must, as is the ability to work well under pressure. Automation technicians are sometimes asked to prepare reports for managers or other nontechnical audiences, so they should be able to write well. And because their job may involve training junior staff, automation technicians need good interpersonal and communication skills. "Nine times out of ten, the work I'm doing is more complicated than the trainees have been prepared for," says Jim. "It's my job to explain the information in a way that's clear enough for those new to this work to understand."

Above-average proficiency in computers is also critical for these technicians, because much of their job involves minor programming. And nearly all automation technology

John Mullins

*John Mullins is an economist in the Office of Occupational Statistics and Employment Projections, BLS. He can be reached at (202) 691-6547 or mullins.john@bls.gov.*

involves measurement, so aptitude in mathematics is important.

Many automation technicians have a background in either mechanics or electronics. Jim, for example, started out as a maintenance electrician for another food manufacturer. There, he learned programmable logic controller electronics—and when that company downsized, Jim’s knowledge gave him an edge in applying for his current position.

Like Jim, many automation technicians build their skills through years of on-the-job training. But that training is usually supplemented with additional preparation, such as completing certification programs that are conducted by producers of automation equipment. Jim has completed four such courses related to equipment he oversees at work.

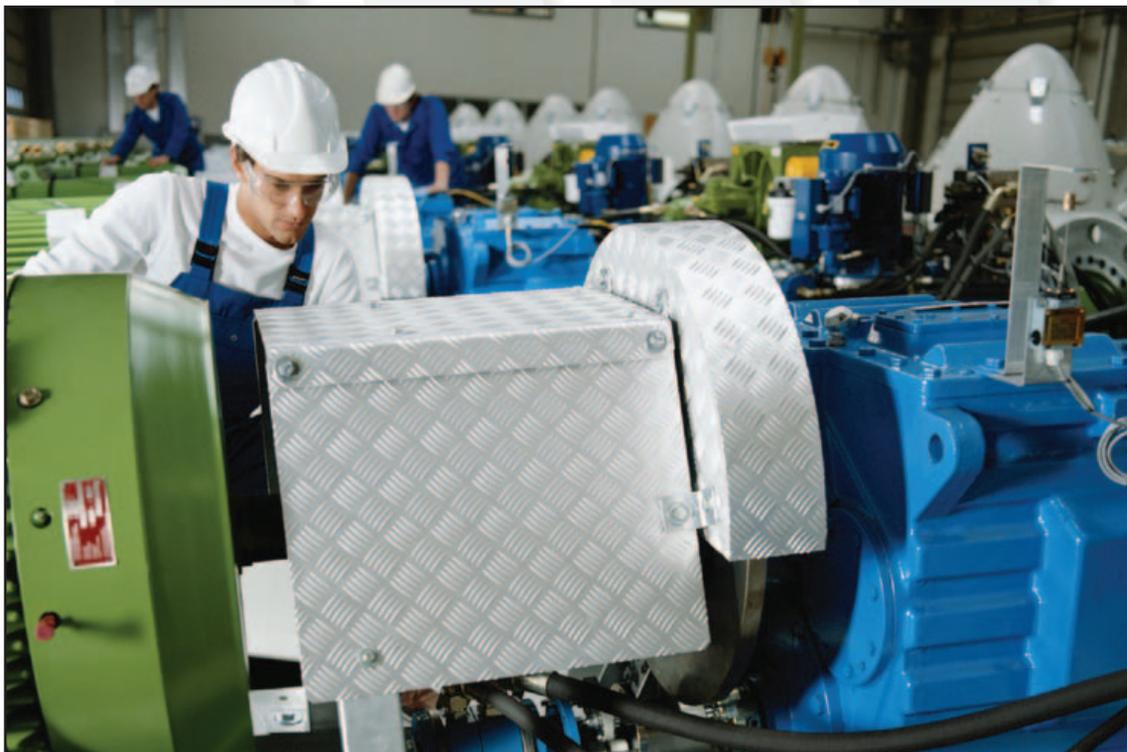
Jim advises prospective technicians today to get a postsecondary degree. “It’s possible to get a job if you have a lot of experience,” he says, “but these days, most companies are looking for people with an associate degree.” That advice is echoed by industry sources, who stress the importance of education. Some institutions offer training specifically in

automation technology, and many others offer coursework that can be tailored to duplicate such programs. Two-year programs are available at some community colleges. Vocational-technical schools, unions, and industry trade associations also offer training.

Formal training should cover four basic areas: mechanics, electronics, computer science, and process control. These disciplines—known together as mechatronics—are the core of automation technology.

The U.S. Bureau of Labor Statistics (BLS) does not collect employment or wage data on automation technicians. Industry sources suggest, however, that the annual wage is about \$50,000, an amount similar to the May 2008 wage for closely related engineering technician occupations for which BLS does collect data. The annual median wage for U.S. workers across all occupations in May 2008 was \$32,390.

Jim’s job can be demanding; he’s often required to put in overtime and to be on call. But he finds his work gratifying. “Every day, there’s a different challenge,” he says, “and every day I learn something.”



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Automation technicians monitor, troubleshoot, and repair complex manufacturing systems.

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# Workers and wages in selected healthcare occupations

When it comes to employment, one of the healthiest occupational groups is...well, healthcare. More than 7 million workers were employed in these occupations in May 2008, second only to education-related occupations. But, as data from the U.S. Bureau of Labor Statistics (BLS) show, there is diversity—in both employment levels and in wages—among healthcare occupations.

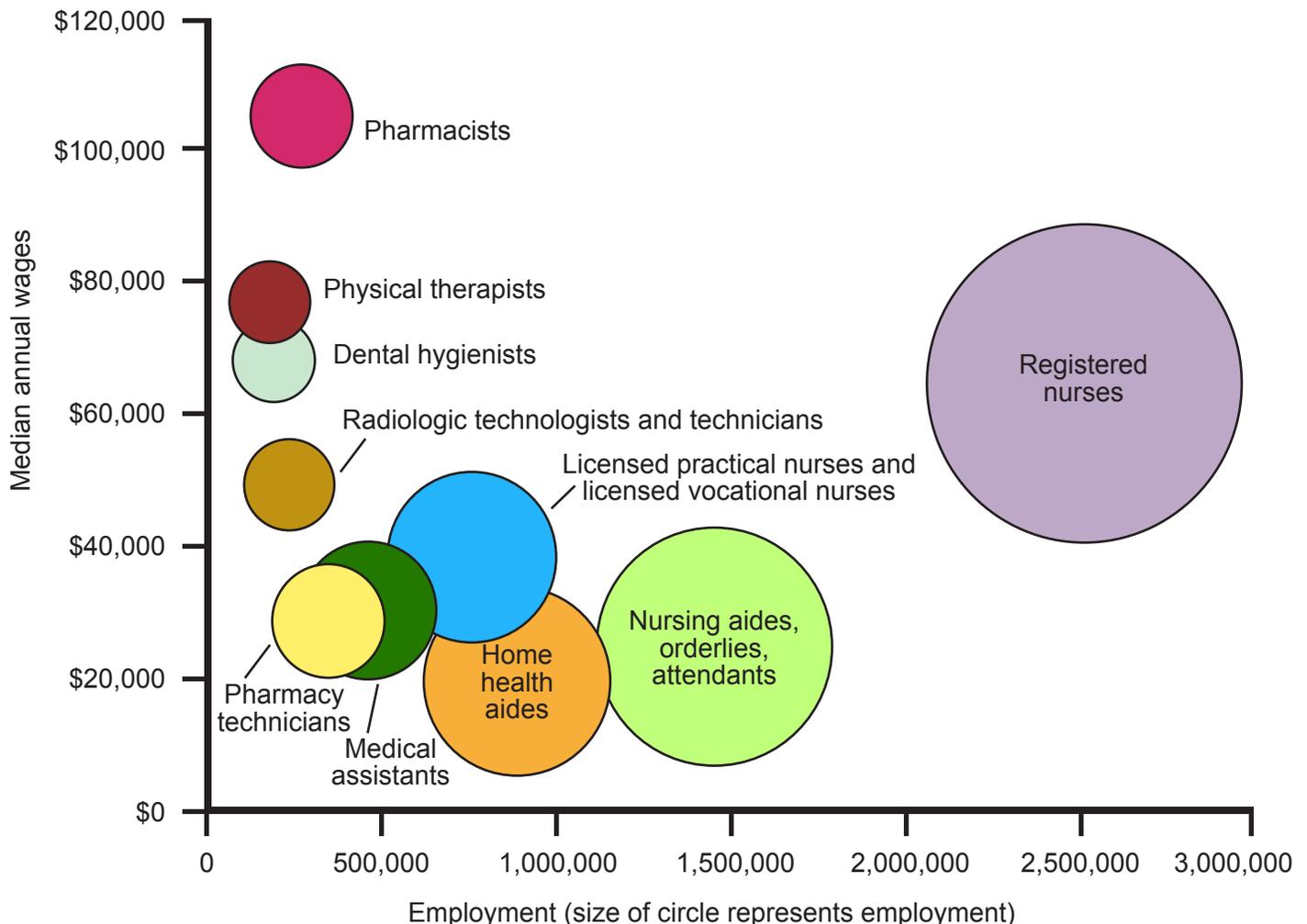
The chart highlights May 2008 employment and wages for selected healthcare occupations. (For example, doctors and dentists, many of whom are self-employed, are excluded.) Registered nurse was the occupation with the most jobs—more than 2.5 million. And registered nurses' median annual wage of \$62,450 was among the highest of occupations with more than a million workers. More than half the occupations shown had median annual wages above \$32,390, the national median for all occupations

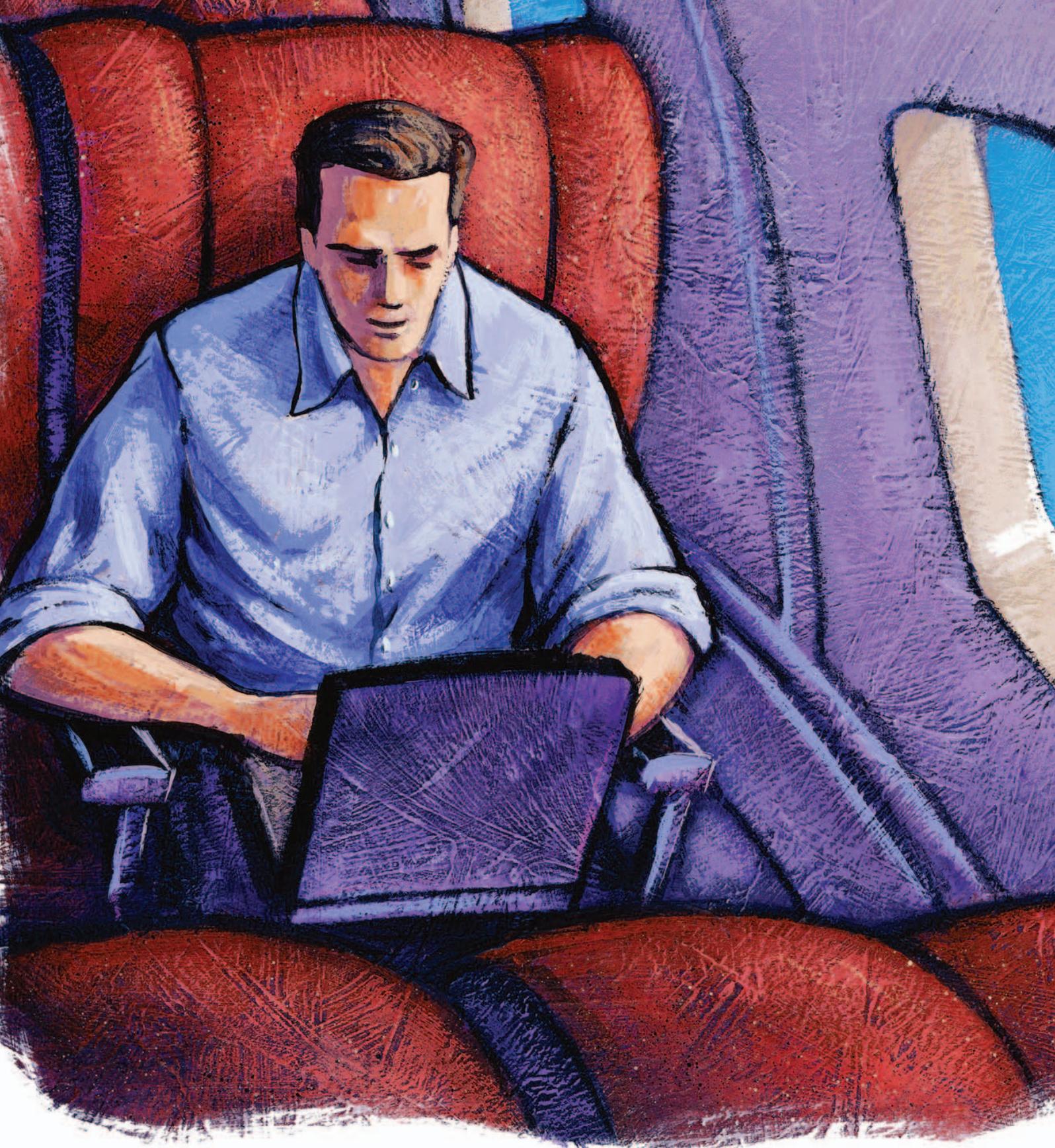
in May 2008. Pharmacists topped the list with a median annual wage of \$106,410.

As they have in the recent past, healthcare occupations will continue to grow; all of the occupations shown are projected to experience faster than average growth over the 2008–18 decade. Registered nurses are expected to add the most new jobs between 2008 and 2018, followed by home health aides.

Data in the chart come from the Occupational Employment Statistics survey. For more information, write to the Division of Occupational Employment Statistics, Suite 2135, 2 Massachusetts Avenue NE., Washington, D.C. 20212; call (202) 691-6569; or visit its Web site at [www.bls.gov/oes](http://www.bls.gov/oes). To learn more about the 2008–18 projections, visit [www.bls.gov/emp](http://www.bls.gov/emp).

Employment and wages in selected healthcare practitioner and technical occupations and healthcare support occupations, May 2008





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