



Apprenticeship:  
Earn while you learn



“I like that I can have a full-time job and pay my mortgage while going to school,” says chef’s apprentice Brian Schmitt of Davenport, Iowa. “And I like that my job is directly applicable to the work that I want to do.”

Many people work and learn at the same time. But in addition to getting a paycheck, apprentices like Schmitt are also getting a career boost: their on-the-job experience and technical instruction are part of a formal program to help them master an occupation.

Formal apprenticeship programs connect jobseekers who want to learn new skills with employers who want to train workers in jobs that use those skills. Most programs last about 4 years, although some take as little as 1 year and others as long as 6 years. At the end of a registered apprenticeship program, apprentices get a nationally recognized certificate of completion as proof of their skills.

But it’s not always easy to find apprenticeship programs. It helps to know where to look—and what to look for.

This article is an overview of registered apprenticeships. The first section explains what apprenticeship programs are, some of the occupations they prepare you for, and what advantages they offer. The second section describes how to find, choose, and apply for an apprenticeship. The third section helps you plan for success. The fourth section has sources for more information. Testimonials from apprentices appear throughout the article.

## About apprenticeships

Whether you’re new to the labor force, changing careers, or just looking to expand your skills, there might be an apprenticeship that appeals to you.

People start apprenticeships at almost any age, but many apprenticeship sponsors require participants to be at least 18. Although many apprentices have a high school diploma or equivalent, others have more or less education than that. And about 7 percent of active registered apprentices nationwide in 2012 were



veterans, according to the U.S. Department of Labor (DOL).

Most formal apprenticeship programs are registered with DOL. These programs prepare workers for occupations in industries such as construction, manufacturing, and healthcare. The opportunity to earn money, train for an occupation, and build a career foundation are just some of the benefits.

### Registered apprenticeship programs

Registered apprenticeships must meet certain guidelines set by DOL. People who complete these programs receive a nationally recognized certificate of completion, either from DOL or from an approved state agency.

According to DOL, there were more than 358,000 registered apprentices in more than 21,000 apprenticeship programs in 2012. The actual number of apprenticeships may be higher, however, because DOL and state apprenticeship agencies do not oversee all programs.

Apprenticeship programs are sponsored by individual employers, employer

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associations, and labor unions. Sponsors pay wages, which often start out at about half those of a fully qualified worker. Wages increase as registered apprentices advance in the occupation.

For most programs, apprentices must complete 2,000 hours of on-the-job training and at least 144 hours of related technical instruction each year. Apprentices usually work full-time, under the direction of experienced workers, to meet training requirements.

Many apprentices receive their technical instruction by attending classes at an apprenticeship training center, technical school, or community college. Apprentices may go to class 1 or 2 days a week, either before or after work, or go to school full-time for several weeks each year. Frequently, sponsors pay for this technical instruction.

### Apprenticeable occupations

In 2012, DOL counted more than 250 occupations with registered apprentices. Apprenticeship isn't the only way to prepare for many

of these occupations, but it's often a popular way. (A box on page 12 describes alternatives for preparing to work in an occupation if you can't find an apprenticeship in it.)

According to the U.S. Bureau of Labor Statistics (BLS), apprenticeship is a typical entry path for 15 occupations:

- Boilermakers
- Brickmasons and blockmasons
- Carpenters
- Electricians
- Elevator installers and repairers
- Funeral directors
- Glaziers
- Mechanical insulation workers
- Plumbers, pipefitters, and steamfitters
- Real estate appraisers and assessors
- Reinforcing iron and rebar workers
- Sheet metal workers
- Stonemasons
- Structural iron and steel workers
- Terrazzo workers and finishers

The table shows the 10 occupations with the largest number of registered apprentices in

### Most popular apprenticeship occupations and median hourly wage of all workers in the occupation, 2012

Occupation	Active apprentices, fiscal year 2012	Median hourly wage, May 2012
Electrician	36,742	\$23.96
Carpenter	15,479	19.20
Plumber	13,201	23.62 <sup>(1)</sup>
Pipe fitter	8,586	23.62 <sup>(1)</sup>
Construction craft laborer	7,947	14.42 <sup>(2)</sup>
Sheet metal worker	7,714	20.81
Roofer	5,479	16.97
Structural steel/ironworker	5,041	22.18
Painter	3,560	16.92 <sup>(3)</sup>
Pipe fitter (sprinkler fitter)	3,266	23.62 <sup>(1)</sup>

<sup>(1)</sup> Data are for plumbers, pipefitters, and steamfitters.

<sup>(2)</sup> Data are for construction laborers.

<sup>(3)</sup> Data are for construction and maintenance painters.

Note: Data for active apprentices are from the Registered Apprenticeship Partners Information Management Data System (RAPIDS). RAPIDS is used by 33 states: 25 Office of Apprenticeship states and 8 of the 25 State Apprenticeship Agency states.

Sources: U.S. Department of Labor Office of Apprenticeship (active apprentices data), U.S. Bureau of Labor Statistics Occupational Employment Statistics program (wage data).

2012, according to DOL. All of these occupations are in construction, but occupations in other career areas also have apprenticeships.

Descriptions of some apprenticeship career areas are listed below, along with examples of occupations categorized in each area and typical length of apprenticeship program for each. For apprenticeships that do not match a title in the Standard Occupational Classification (SOC) manual, a SOC title is given in parentheses. Career areas and occupations are arranged roughly in order of the number of registered apprentices in 2012.

**Construction.** Construction workers build and repair homes, office buildings, and other structures. Common construction apprenticeships include:

- Electricians, 4 years
- Carpenters, 4 years
- Plumbers, 3 or 4 years
- Construction craft laborers, 2 years
- Pipefitters, 4 or 5 years.

**Installation, maintenance, and repair.**

Workers in this group install and fix goods and equipment. Apprenticeable occupations in this group include:

- Millwrights, 3 or 4 years
- Line repairers and maintainers (Line installers and repairers), 3 or 4 years

- Heating, air conditioning, and refrigeration mechanics and installers, 3 years
- Telecommunications equipment installers and repairers, except line installers, 3 or 4 years
- Automobile mechanics (Automotive service technicians and mechanics), 4 years.

**Production.** These workers operate machines and equipment to manufacture goods. Occupations with apprentices include:

- Machinists, 3 or 4 years
- Machine operators (Multiple machine tool setters, operators, and tenders, metal and plastic), 1 year
- Tool and die makers, 4 years
- Welders, 3 years
- Cabinetmakers, 4 years.

**Food, personal care, or child care.**

Workers in this group make food or provide personal care or services to the public.

Apprenticeable occupations include:

- Cooks, 2 or 3 years
- Bakers, 3 years
- Childcare development specialists (Childcare workers), 2 years
- Barbers, 1 year
- Animal trainers, 2 years.





## Testimonial

- **Apprentice:** Tyrell Ellis (Mattapan, Massachusetts)
- **Occupation:** Sheet metal worker
- **Sponsor/program:** Union, joint training organization
- **Status:** First year of a 5-year program

I did a preapprenticeship program called Building Pathways. It was a brilliant program. If it weren't for that program, I wouldn't be where I am today. That program gave me an opportunity to get a taste for every trade that was out there, and at the end I got to pick which ones I liked best. It also gave me an idea of what to expect with the union and with an apprenticeship.

The people at the preapprenticeship also helped me get references and fill out applications. I wanted to be a sheet metal apprentice, and I was lucky because they were taking people in.

Building Pathways was a preapprenticeship program for low-income housing authority residents. I was out of work, saw the flyer in my building, and took a chance. It's the best thing that ever happened to me.

**Protective service.** By providing a range of services in their communities, these workers help to keep people safe. Occupations with apprentices include:

- Correctional officers, 1 year
- Wildland firefighter specialists (Forest firefighters), 2 years
- Firefighters, 3 years
- Police officers, 2 years
- Paramedics, 2 years.

**Healthcare.** Workers in this group help to administer care in hospitals, doctor's offices, nursing facilities, and other settings. Health-care occupations that offer apprenticeships include:

- Pharmacy support staff (Pharmacy technicians), 1 year
- Nursing assistants, 1 year
- Long-term care nurse managers (Medical and health services managers), 1 year
- Dental assistants, 1 year
- Home health aides, 1 year.

**Architecture, engineering, or computers.** These workers use specialized knowledge to design or work with concepts, systems, or structures. Occupations with apprentices include:

- Mine inspectors (Mining and geological engineers, including mining safety engineers), 4 years
- Electromechanical technicians, 3 years
- Computer programmers, 2 years
- Utilities instrument technicians (Electronics engineering technicians), 4 years
- Computer operators, 3 years.

**Other.** People apprentice in a wide range of other occupations. These include:

- Heavy truck drivers, 1 year
- Administrative services managers, 2 years
- Landscape technicians (Landscaping and groundskeeping workers), 2 years
- Decorators (Merchandise displayers and window trimmers), 4 years
- Tree trimmers, 2 years.

## Advantages of an apprenticeship

Apprenticeship programs have many advantages, including a paycheck, hands-on training, technical instruction—which is often free—and a solid start to a career.

**A paycheck.** Apprentices start earning money right away, which is a big draw for many who choose this type of career preparation. In addition to wages, some apprentices are eligible for health insurance or other employee benefits.

Apprentices usually make at least minimum wage. As apprentices' skills progress, their wages typically increase. "You're going to start off pretty low on the salary scale because you're preparing for a trade that takes a long time to learn," says Drew Haigh, a moldmaker apprentice in San Dimas, California. "You'll make your money over time."

According to DOL, the average wage for a journey-level, or fully qualified, worker who completed an apprenticeship in 2012 was \$24.77 an hour, or \$51,522 a year. And a 2012 DOL-sponsored report by Mathematica Policy Research found that people who completed

## Testimonial

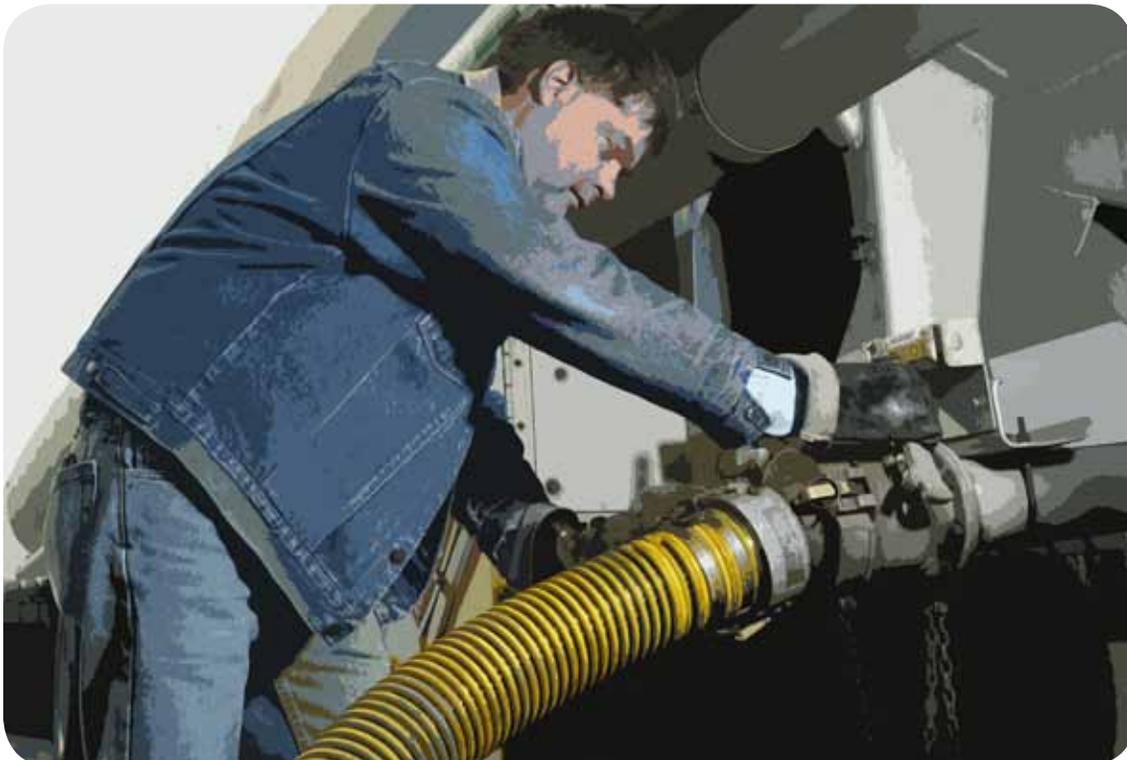
- **Apprentice:** Dan Glass (Delta Junction, Alaska)
- **Occupation:** Outside lineman
- **Sponsor/program:** Union, joint training organization
- **Status:** Final year of a 4-year program

It took years for me to get into my program. I first applied and waited for 4 years, and I missed the call. I then reapplied and waited for 2 years.

It's an open application timeframe. You pay \$25 and apply. During the interview, they sit you down and go through the work process. There were six journey-level line workers who asked questions.

The people in my class are all in our third year now. At first we worked on the ground. Then we did "hot work" (working with electricity) under supervision. Now we're "high-time apprentices," meaning we do aerial work without hand-holding [by our supervisors].

The pay is awesome. But you have to be open to traveling once you finish your apprenticeship. And you can't be scared of heights.



their apprenticeships have higher average lifetime earnings than those who did not.

But even before they earn journey-level wages, some apprentices say that their starting wage is an improvement over what they had been making. For example, Tyrell Ellis earns about \$17 an hour in his first year as a sheet metal worker apprentice in Mattapan, Massachusetts. “Before the apprenticeship I was making \$10 an hour, working all kinds of hours,” says Ellis. “I would have to work nonstop every day to make what I make now.”

### Testimonial

- **Apprentice:** Bob Solden (Petaluma, California)
- **Occupation:** CNC (computer numerical control) machinist
- **Sponsor/program:** Independent employer, California apprenticeship program
- **Status:** First year of a 4-year program

I’ve been a tradesworker since I got out of high school, doing work related to painting, roofing, and plumbing. I was cleaning pools for a living when I heard about an opening at a machine shop for a CNC operator. It was a lot of pushing buttons at first, but now I have more responsibility.

I found out about the apprenticeship program because one of my coworkers told me he was going to school and the company was paying for it. So I asked the owner of the company, and he said that the opportunity was definitely there. He wanted to see if I had the wherewithal to do it, and he decided it was something that I could benefit from and he could benefit from.

I have classes once a week, Thursday nights from 6 to 10 p.m. At work, we have lead machinists who’ve been in the field and take the time out to train us on job tasks.

My best advice would be, don’t wait. If you really want to become an apprentice, I would look into everything I possibly could. When applying at a machine shop, ask if they offer an apprenticeship program. If not, I’d recommend looking other places.

**Hands-on training.** While on the job, apprentices learn practical skills from experienced workers. Having worked under many mentors has helped Dan Glass to develop a wide range of skills. “You learn something different from everyone,” says Glass, a third-year outside lineman (power line installer and repairer) apprentice in Delta Junction, Alaska.

By the end of their apprenticeship, people usually have had experience with all of the major aspects of their occupation. “It’s an effective way to learn,” says Schmitt. He adds that because apprentices get their skills on the job, they don’t face the same learning curve that many inexperienced workers do when they begin a new job.

**Technical instruction.** Apprentices receive related technical instruction that they use on the job. “When you go to work the next day, you get to apply what you’ve learned,” says Monique Gerard, who recently finished a steamfitter apprenticeship in Peoria, Illinois. “You really get to hone your skills.”

Apprentices’ technical instruction is usually provided by people who work in the industry, and their sponsor frequently pays.

Completed classes may count toward certification or licensure requirements, which help boost apprentices’ credentials and are sometimes necessary to work in an occupation. Some apprentices earn college credits or an associate’s or bachelor’s degree during their program.

And apprentices often appreciate how much they gain from the instruction. “I’ve learned so much in my class this past year that it’s really amazing,” says Bob Solden, in his first year of a CNC (computer numerically controlled) machinist apprenticeship in Petaluma, California. “I feel like I’m gaining so much knowledge.”

**Build a career foundation.** At the end of their programs, apprentices earn a certificate of completion, issued by DOL or a state apprenticeship agency. This certificate is recognized by employers around the country.

Because apprentices’ credentials are widely accepted, people who have finished an apprenticeship program frequently have

increased occupational mobility. “It puts you in a position where you can go anywhere in the United States and get a job in a short amount of time at a decent wage, rather than having to start out at the entry level,” says Schmitt.

During the course of an apprenticeship program, apprentices are encouraged to make contacts in their industry. This networking may help them get a job when they reach journey-level status. Some apprentices finish the program and then start a career with the same employer who sponsored them.

## Getting an apprenticeship

Getting an apprenticeship is similar to getting a job: you need to find a program, apply for an opening, and qualify for selection.

### Finding apprenticeships

Apprenticeships involve commitment, so you’ll need to find and choose a program that’s right for you.

**Search for programs.** You can look for apprenticeship openings in a variety of ways. State apprenticeship agencies are often a good resource and usually keep lists of apprenticeships. Another way to identify apprenticeship programs is to visit an American Job Center.

You might also search for apprenticeships advertised in a newspaper or online. Or you can contact a local union or other apprenticeship sponsor directly to ask about opportunities. DOL’s Office of Apprenticeship website provides contact information for all of the sponsors in the registered apprenticeship database, searchable by state and county.

In addition, community colleges and other schools sometimes post openings for available apprenticeships, which may be offered as part of an educational program. Some workers approach their employer about creating an apprenticeship position in a job they already have.

To find apprenticeships by occupation, visit DOL’s My Next Move website. (Details are available in the “For more information” section, which begins on page 12.)

### Testimonial

- **Apprentice:** Monique Gerard (Peoria, Illinois)
- **Occupation:** Steamfitter
- **Sponsor/program:** Union, joint training organization
- **Status:** Completed a 5-year program in September 2012

Our union puts out apprenticeship testing every 2 years. Traditionally, it’s been published in the newspaper, but this year they updated our website to reflect when the application and testing dates are.

The union sponsors apprentices. They get calls from contractors, who might say, “I need 20 people for 40 hours a week.” The union hall calls you, you work for 40 hours, and then you’re laid off. Then, when there is more work, you’re sent off to do it.

Each job requires a certain skill set. On one job, you might be rigging big pieces of pipe. On the next job, you might be running drain lines. You get a lot of work experience and the opportunity to work with people who’ve been doing this for 30 or 35 years. At the end, you realize exactly how much you’ve learned, and it’s pretty surprising.



**Special programs.** Some programs are designed for specific groups. For example, school-to-apprenticeship programs allow high schoolers in some states to get started in an apprenticeship while they are students. Apprenticeships for active-duty service members provide training in some military occupations. And some correctional institutions offer programs for inmates.

Preapprenticeship programs are another option. These programs help people qualify and prepare for apprenticeships. Participants might learn about career options and what an apprenticeship involves, for example, while they develop occupational skills.

**Choosing a program.** Apprenticeships vary in their schedules, pay, costs, technical instruction, and other details. Costs, for example, might include application fees, union dues, school tuition, books, and tools or other equipment, such as safety boots or uniforms.

Before you choose a program, it is important to learn about the occupation you're interested in. Talk to people in the occupation or tour a jobsite to get a better sense of the work culture and tasks.

Gerard didn't really know what steamfitters did until she asked someone about the basics of the work. After learning more about it, she decided to apply—and is glad she did. "I've never been happier in any job in my life," Gerard says. "The skilled trades are fantastic to get into. I am doing something productive and important."

### Application and selection

To get an apprenticeship, you must first apply for one. Apprentices are typically chosen through a competitive process, which often involves interviews, rankings, and other factors.

**Applying.** Apprenticeship requirements vary by sponsor and program. For many programs, you must be at least 18 years old and have a high school diploma or equivalent.

You might also need to have completed certain classes in school or to pass an aptitude test in subjects such as math, physics, and reading comprehension. Related work experience is sometimes necessary. And some programs require drug tests or a physical exam to verify that you are able to do key tasks in the occupation.



When you apply for an apprenticeship program, you may need to pay a fee of about \$20 to \$45 and submit other material. This supplemental material might include written recommendations, school transcripts, and proof of identification, such as a birth certificate or driver's license.

**Interviews.** Applicants who meet the initial requirements usually have one or more interviews with their prospective sponsor. Interviewers want to know more about your qualifications, that you'll be reliable, and whether you are really interested in doing the work.

Prepare for an apprenticeship interview as you would for a job interview: dress nicely, think about how you will answer common interview questions, and be ready to discuss your work-related skills and interests.

In addition, sponsors usually want to know that you understand the work involved in the occupation you will train for. "Before they invested in me, they wanted to make sure I was completely devoted to it," says Haigh. "You have to be really committed to want to do a 4-year apprenticeship."

**Rankings.** Qualified apprenticeship applicants are often ranked on factors such as aptitude test results, interview performance, education, and work experience. As sponsors need apprentices, the most competitive applicants—those with the highest rankings—are chosen first. Applicants with lower rankings might need to wait until there's another opening.

The wait may last several weeks to several years. Gerard, for example, had to wait for 6 months before being contacted about an opening. Sometimes, people apply for an apprenticeship more than once.

**Networking.** For apprenticeship applicants, like for jobseekers, networking can be beneficial. It allows you to meet people in the occupations you might be apprenticing for and helps you to learn more about a program. Applicants might also gain a better sense of what to expect in an apprenticeship.

In addition, your networking contacts may recommend you to sponsors. "Definitely

## Testimonial

- **Apprentice:** Brian Schmitt (Davenport, Iowa)
- **Occupation:** Chef
- **Sponsor/program:** Individual employers, community college, regional apprenticeship program
- **Status:** Final year of a 3-year program

I retired from an outside sales career that I was in for about 20 years. It was good money, but I wanted to do something that I enjoyed.

In my program, you get a 2-year associate's degree from a college. Because it's an apprenticeship program, you receive your journey-level card from the U.S. Department of Labor. Part of the curriculum is a practicum class each semester, including summers. The practicums are like a full-time job. Most classes are on Monday, with a 3-hour class in the morning and a 3-hour class in the evening, and then you have the rest of the week off to work in the field.

It's up to the students to choose where they work. You get jobs on your own merit, through interviews and applications. You earn the same wage as anyone hired to do the job. There are about 90 to 100 local restaurants in our area, and they are categorized as entry-level, intermediate, or advanced, based on how much experience you'll get at them.

You learn classical training in school, but at the end of the day, there are shortcuts, things that you learn on the job that you won't learn in school.

make connections, because that's a big part of the application and selection process," says Shamir Turner, a sheet metal worker apprentice from Somerville, Massachusetts. "I'm not sure I would have gotten into my apprenticeship program if I hadn't known someone who could vouch for me."

## Plan for success

Those who are in or have completed apprenticeships have a few pointers to help prospective apprentices succeed.

For example, Schmitt says that apprentices should remember that they are entry-level workers. “Set your expectations realistically,” he says. “Be willing to pay your dues for a few years, and don’t get discouraged if you’re not running the show.”

Ellis agrees. “Expect to be the lowest one on the totem pole and to do whatever is asked of you, even if it’s just getting coffee,” he says.

Others who’ve succeeded encourage apprentices to take advantage of any additional training or certification programs offered to them. Apprentices should also try to learn as much as they can from their mentors about different aspects of the work.

“What you get out of it,” says Schmitt, “is what you put into it.”

## For more information

To research occupations you might be interested in, use the BLS *Occupational Outlook Handbook (OOH)*, available at [www.bls.gov/oooh](http://www.bls.gov/oooh). The *OOH* describes what workers do, ways to enter an occupation, pay, and more information for hundreds of occupations.

DOL’s registered apprenticeship site has a variety of resources, including more information on what apprenticeships are and how to

## Beyond apprenticeships: Other paths to occupational entry

If you know the occupation you want to enter but can’t find an apprenticeship in it, you still have options. Most occupations that have an apprenticeship also have other paths for beginning workers.

Alternative ways to prepare for an occupation might include gaining experience in a related occupation, earning an associate’s or bachelor’s degree, getting a certificate or diploma, or some combination of these. Entry requirements for occupations vary by state and individual employer, just as they do for apprenticeships.

**Get experience.** If you’re interested in a specific occupation, look for entry-level jobs in the field or related to that line of work. Jobs in certain apprenticeable occupations, such as home health aides, may be available to people without related experience.

You might also look for a job as a helper in the occupation, such as a construction laborer helper. Starting out in this way might give you a better sense of whether you like the work and which occupational specialties you might want to pursue.

**Earn a degree.** Community colleges offer associate’s degree programs that prepare

workers for a range of occupations, usually in about 2 years. Colleges and universities offer bachelor’s or higher degree programs, many of which provide occupation-specific education in 4 years or more. And students who have formal internships or co-op jobs during school get hands-on experience similar to that of apprentices.

Schools charge tuition, but you might qualify for financial aid. To learn more about how to finance a college education, see “Paying for college: Strategies to afford a higher education today,” in the spring 2013 issue of the *Quarterly* at [www.bls.gov/ooq/2013/spring/art01.htm](http://www.bls.gov/ooq/2013/spring/art01.htm).

**Get other credentials.** Career schools, such as vocational, technical, and trade schools, offer certificates and diplomas to help prepare workers for occupations such as dental assistant or heating, air conditioning, and refrigeration mechanic or installer. These programs usually last 2 years or less and teach job-specific skills. To learn more, see the article on certificate programs in the winter 2012–13 issue of the *Quarterly* at [www.bls.gov/opub/ooq/2012/winter/art01.htm](http://www.bls.gov/opub/ooq/2012/winter/art01.htm).

get them, at [www.doleta.gov/oa](http://www.doleta.gov/oa). For example, the DOL site provides:

- State apprenticeship agency and related information at [www.doleta.gov/OA/sainformation.cfm](http://www.doleta.gov/OA/sainformation.cfm)
- Detailed contact information for apprenticeship sponsors by state and county at <http://oa.doleta.gov/bat.cfm>
- Pathways to Success, an online tool that allows you to search for many apprenticeship opportunities, preapprenticeship programs, and community college partners by state or zip code at [www.doleta.gov/OA/pathways.cfm](http://www.doleta.gov/OA/pathways.cfm).

To search for apprenticeship openings by occupation, or to learn more about an occupation and its apprenticeship options, visit My Next Move at [www.mynextmove.org](http://www.mynextmove.org). On an occupation's profile page, click the "Find Jobs" link under the "Job Outlook" section. Then, select a state to get job listings from the mySkills myFuture website or to find state and national job banks, many of which include apprenticeship openings. You can also click the "Registered Apprenticeship" link in the "Education" section on a job page and select a state to learn more about its apprenticeship programs, sponsors, and agency contact information.

Learn more about the United Services Military Apprenticeship program at <http://usmap.cnet.navy.usmapss/static/usmap.jsp>.

For a full list of apprenticeable occupations, go to [www.iowaworkforce.org/apprenticeship/apprenticeableoccupations.pdf](http://www.iowaworkforce.org/apprenticeship/apprenticeableoccupations.pdf).

DOL's CareerOneStop website has links to resources, including to apprenticeship information, for jobseekers and others interested in careers. Visit [www.careeronestop.org/educationtraining/find/apprenticeshipoffices.aspx](http://www.careeronestop.org/educationtraining/find/apprenticeshipoffices.aspx).

American Job Centers also provide resources for jobseekers and might be a source of information about apprenticeships opportunities. To find a center near you, go to [www.servicelocator.org/onestopcenters.asp](http://www.servicelocator.org/onestopcenters.asp).



Unions and trade organizations are often a good source of information about apprenticeships. Among the many organizations that have apprenticeship information are local chapters of the following:

- International Brotherhood of Electrical Workers, [www.ibew.org](http://www.ibew.org)
- United Association of Journeymen and Apprentices of the plumbing and pipefitting industry (for plumbers, fitters, welders, and HVAC service technicians), <http://ua.org/careers.asp>
- United Brotherhood of Carpenters, [www.carpenters.org](http://www.carpenters.org)

OOQ