

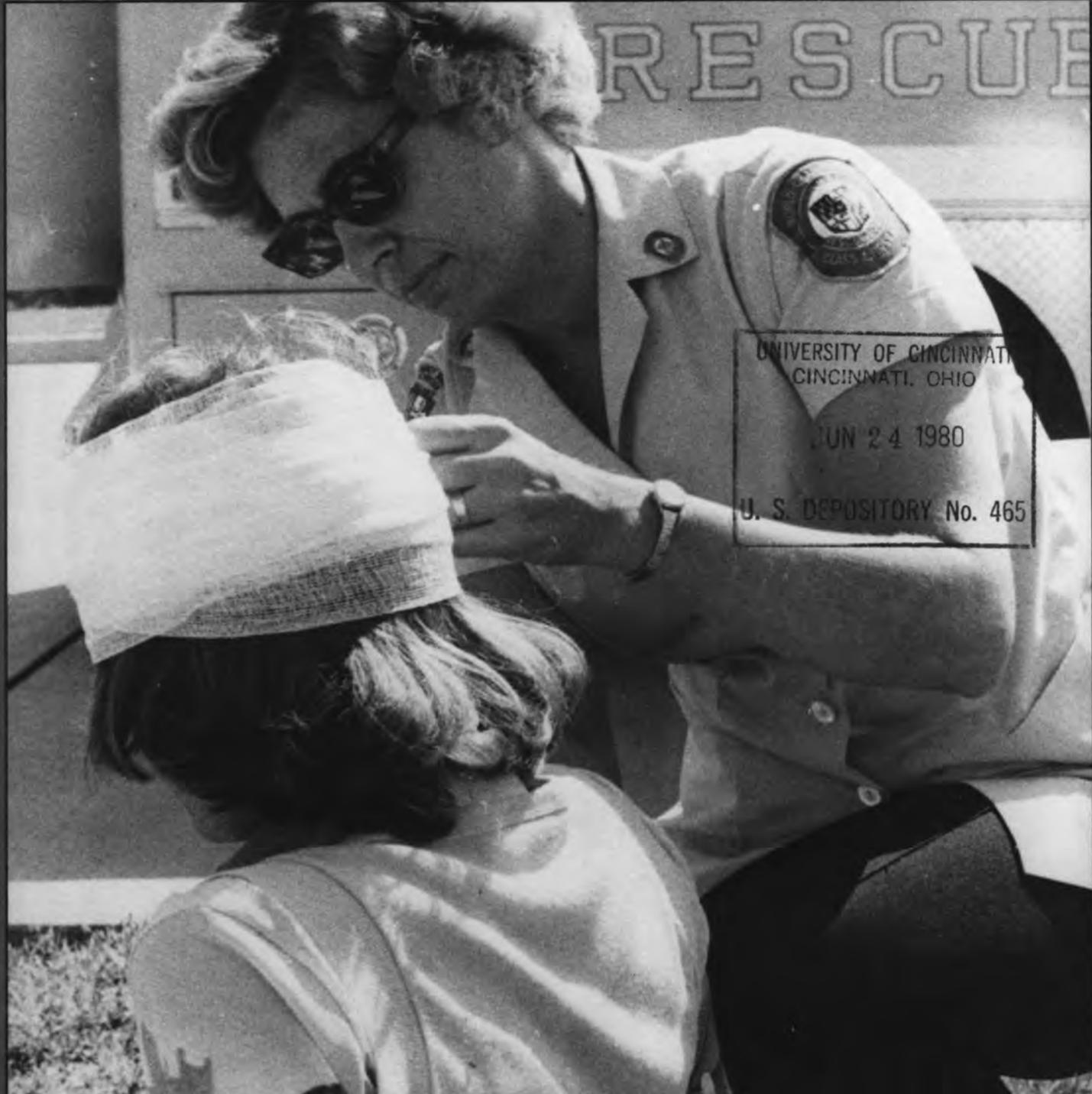
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Jobs for Which You Probably Will Need Some College or Specialized Training



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Jobs for Which You Probably Will Need Some College or Specialized Training

Would you like to broaden your career possibilities without spending 4 years in college? If so, you may be interested in a 1- or 2-year program in a junior or community college, technical institute, or trade or vocational school. Or maybe you would like to take lessons to learn a particular skill, perhaps flying to become a pilot. These programs can provide training specifically designed to prepare you for employment.

This pamphlet presents a list of occupations—selected from the 1980-81 *Occupational Outlook Handbook* of the Bureau of Labor Statistics—for which some college, technical, or specialized training is required or recommended. It highlights the training requirements for each. Included are occupations such as secretaries and stenographers, funeral directors and embalmers, library technicians, airplane mechanics, dental hygienists, and actors and actresses.

These summaries cannot provide all the information you need, however. Details on the content of a particular program are omitted. So too is information on special talents, aptitudes, or interests a job may require. For more information about an occupation, look in the *Occupational Outlook Handbook*. It describes the nature of the work, working conditions, places of employment, job qualifications and advancement prospects, employment outlook, and earnings for hundreds of occupations. It also lists related occupations and other helpful sources of career information.

The *Handbook* is available in offices of school guidance counselors and employment counselors and in school and public libraries. Or it may be purchased for \$8 by check or money order from the nearest regional office of the Bureau of Labor Statistics. A list of offices and their addresses appears at the back of this pamphlet.

Reprints from the *Handbook* also are available, each containing information about several related occupations. At the end of this pamphlet is a list of reprints along with an order form that includes information on prices.

This pamphlet is one in a series of five prepared by the Bureau of Labor Statistics. Each pamphlet dis-

cusses a group of occupations for which a particular educational or training background is applicable. The other titles in the series are: *Jobs for Which You Can Train Through Apprenticeship*; *Jobs for Which You Can Qualify If You're Not a High School Graduate*; *Jobs for Which You Can Qualify If You're a High School Graduate*; and *Jobs for Which You Probably Will Need a College Education*.

Industrial Production and Related Occupations

Blacksmiths. Many blacksmiths are trained by working as helpers in blacksmith shops or industrial firms that employ blacksmiths. Some enter through 3- or 4-year apprenticeship programs. Blacksmiths who shoe horses are called farriers. Most farriers learn their craft by assisting experienced workers. Others take a 3- or 4-week course in horseshoeing before gaining experience on their own or as a farrier's assistant. These courses are taught in several colleges, as well as at private horseshoeing schools. At least 3 to 5 years of special training or experience are needed to learn to shoe racehorses. Farriers who wish to work at racetracks must pass a licensing examination.

Blue-collar worker supervisors. Most workers who are promoted to blue-collar supervisor jobs are high school graduates who have risen through the ranks and learned their skills on the job. Supervisors sometimes are former union representatives who are familiar with grievance procedures and union contracts. To supplement work experience, most employers have training programs to help develop supervisory skills. Although few supervisors are college graduates, a growing number of employers are hiring supervisor trainees who have college backgrounds. This practice is most prevalent in industries with highly technical production processes, such as the chemical, oil, and electronics industries.



Wastewater treatment plant operators (sewage plant operators). Trainees usually start as helpers and learn their skills on the job. Some States require applicants to have at least a high school diploma or its equivalent. Some larger cities and towns which are covered by civil service regulations require applicants to pass examinations on elementary mathematics, mechanical aptitude, and general intelligence. In 42 States, operators who are supervisors or responsible for a plant's operation must pass an examination certifying that they are capable of overseeing treatment operations.

Office Occupations

Clerical Occupations

Secretaries and stenographers. High school graduation is the minimum requirement for practically all secretarial and stenographic positions. Many employers prefer to hire applicants who have had additional training at a public or private vocational school or in college. These courses range in length from several months' instruction in shorthand and typing to 1 or 2 years for specialized skills, such as legal or medical secretarial work. Employers generally test applicants to see that they meet minimum standards of typing and stenographic speed. Persons seeking a job as a shorthand reporter should transcribe 225 words per minute.

Computer and Related Occupations

Computer operating personnel. High school graduation is the minimum requirement for computer operating jobs such as keypunch operator, auxiliary equipment operator, and console operator. Many employers prefer console operators to have some community or junior college education. Beginners usually are trained on the job. Auxiliary equipment operators can learn their jobs in a few weeks, but console operators require several months of training before they are sufficiently familiar with the equipment to be able to trace the causes of breakdowns.

Programmers. There are no universal training requirements for programmers because employers' needs vary. Most programmers are college graduates; others have taken courses in programming to supplement their experience. Firms that use computers for scientific or engineering applications usually require programmers to have a bachelor's degree with a major in the physical sciences, mathematics, engineering, or computer science. Some of these jobs require a graduate degree. Although some employers who use computers for business applications do not require a college degree, they prefer applicants who have had courses in data processing, accounting, and business administration.

Insurance Occupations

Claim representatives. A growing number of insurance companies prefer to hire college graduates for positions as claim representatives (examiners and adjusters). College training is not always necessary, however. Persons experienced in automobile repair work might be hired as auto adjusters, and those who have had clerical experience might get jobs as inside adjusters. About three-fourths of the States require adjusters to be licensed. State licensing requirements vary, but applicants usually must complete an approved course in insurance or loss adjusting, and pass a written examination. They should be bonded which requires good character references and should be at least 20 years old.

Administrative and Related Occupations

Buyers. Many buyers have worked their way up from stockroom and sales positions. Nevertheless, a college degree is increasingly important for buyers, and may be required in the future. Generally, employers train graduates from any field. Many stores have formal 6- to 8-month programs for all management trainees, including buyers. These programs combine classroom instruction in merchandising and purchasing with short rotations to various jobs and departments in the store.

Credit managers. A bachelor's degree usually is required for beginning jobs in credit management.

Employers generally prefer applicants who have majored in business administration, economics, or accounting, although some employers hire liberal arts graduates as well. Experience may substitute for the college degree; some employers accept high school graduates who have had experience in credit collection or in processing credit information.

Hotel managers and assistants. Although experience and management ability are most important in selecting hotel managers, employers increasingly prefer applicants who have completed a 4-year college curriculum in hotel and restaurant administration. Formal training in hotel or restaurant management also provides opportunities for part-time or summer job experience and contacts with prospective employers. Employers may hire graduates of the hotel training programs offered by some junior colleges, technical institutes, and the Educational Institute of the American Hotel and Motel Association. Some large hotels have special management trainee programs in which newly hired workers or persons promoted from within rotate among various departments to acquire a thorough knowledge of the hotel's operation.

Service Occupations

Food Service Occupations

Cooks and chefs. Most cooks acquire their skills on the job as kitchen helpers, although cooks increasingly have high school or post-high school vocational training in food preparation. Cooks and chefs may also be trained as apprentices under trade union contracts, by professional associations, or as part of employee training programs conducted by large hotels and restaurants. Employers usually prefer high school graduates, and applicants for apprenticeships generally must be graduates. The Armed Forces also are a good source of training and experience in food service. Most States require cooks and chefs to have health certificates showing that they are free of contagious diseases.

Personal Service Occupations

Barbers. All States require barbers to be licensed. To obtain a license, applicants must graduate from a State-approved barber school and be at least 16 years old (in some States 18). Educational requirements in States vary—some require graduation from high school, while others have no requirement at all. Many States require an examination for an apprentice license and a second examination, after 1 or 2 years of work, for a license as a registered barber. Many public and private schools and a few vocational schools offer a 9- to 12-month training course. Because some States do not recognize out-of-State training, apprenticeship work, or licenses, persons who wish to become barbers should review the

laws of the State in which they wish to work before entering barber school.

Cosmetologists. All States require cosmetologists to be licensed. Most States require applicants for a license to be at least 16 years old and pass a physical examination. Educational requirements for licensing vary among States—some have no requirement, while others require graduation from high school. Successful completion of a State-approved cosmetology course is appropriate preparation to take an examination. In some States, completion of a 1- or 2-year apprenticeship program can substitute for graduation from cosmetology school, but few cosmetologists learn their skills this way. Both public and private vocational schools offer training in cosmetology. A daytime course usually takes 6 months to 1 year; an evening course takes longer.

Funeral directors and embalmers. All States require embalmers to be licensed. Although licensing standards vary by State, an embalmer generally must be 21, have a high school diploma or its equivalent, graduate from a mortuary science school, serve a 1- to 2-year internship, and pass a State board examination. About half of the States require a year or more of college in addition to training in mortuary science. About half of all mortuary science programs are offered by private vocational schools and last 1 year. The others are offered by colleges and junior colleges and usually are 2 years in length, although a few last 4 years. All but six States require funeral directors to be licensed. Most people obtain licenses for both embalmers and directors since requirements are similar. Directors also must have a special internship and take board examinations.

Protective and Related Service Occupations

Firefighters. In most communities, qualifying examinations are open to high school graduates who are at least 18. Those who score the highest on these examinations have the best chances for appointment. Experience as a volunteer firefighter or in the Armed Forces may help chances for appointment, too. Beginners in large fire departments generally are trained for several weeks at the city's fire school before being assigned to local fire companies. Small communities either train firefighters on the job or hire experienced workers. A small number of fire departments have 3- to 4-year apprenticeship programs.

Police officers. Most large cities and many smaller communities fill police jobs by competitive examination. Candidates usually must be at least 21 years old, high school graduates, in good health, and meet height, weight, hearing, and vision requirements. Police departments in some large cities generally require 1 or more years of college, and a growing number of police

departments hire students in college-level law enforcement programs as police interns. Police departments in some small cities consider applicants who have not finished high school but who have experience in law enforcement. Small communities often train police officers on the job; large cities have formal training ranging from a few weeks to several months at a police academy.

State police officers. State civil service regulations govern the appointment of State police officers; a competitive examination generally is required. In most States, the examination is open to high school graduates, or to persons who have an equivalent combination of education and experience. State police officers must be at least 21, in good health, and meet height, weight, hearing, and vision standards. Tests of strength and agility often are required. The character and background of candidates usually are investigated. In some States, high school graduates who are under 21 may enter State police work as cadets. They attend classes, are assigned nonenforcement duties, and if they qualify, may be appointed officers at age 21. States require that recruits enter a formal training program of several months for classroom instruction.

Construction inspectors (government). These workers receive most of their training on the job. Generally, applicants must have several years of experience as a construction contractor, supervisor, or craft worker. Previous experience as an electrician, plumber, pipefitter, or carpenter is particularly helpful. A high school diploma is required by Federal, State, and most local governments. Many employers prefer inspectors who have graduated from an apprenticeship program or have had college courses in architecture, engineering, mathematics, or construction technology.

Occupational safety and health workers. Entry level occupational safety and health professionals generally need at least a bachelor's degree in engineering or science. Many employers prefer applicants who have a graduate degree in industrial hygiene, safety engineering, or occupational safety and health, or prior industrial experience. Some employers will hire graduates of 2-year colleges for jobs as technicians, particularly if they have work experience related to the job.

Education and Related Occupations

Library Occupations

Library technicians and assistants. These workers may receive training either on the job or in a formal postsecondary training program. Some libraries require only



graduation from high school for library clerks, who, after a few years of training on the job, may advance to technician positions. Other libraries hire only technicians who have formal training.

Sales Occupations

Insurance agents and brokers. Many employers prefer college graduates when hiring new insurance sales workers. Degrees in almost any field are acceptable, but applicants who have studied accounting, economics, finance, business law, or insurance are preferred. Because success in selling greatly depends on personal qualities such as aggressiveness and self-confidence, employers look for these traits. Some employers hire individuals who have experience and these characteristics, whether or not they have attended college. Newly hired workers usually receive some formal training. Trainees may attend company-sponsored classes or courses at local colleges and universities. Home study (correspondence) courses also are available. All agents and most brokers must be licensed in the State where they sell insurance. Most States require candidates for a license to pass a written examination.

Manufacturers' sales workers. Employers generally prefer to hire college graduates for these positions. A bachelor's degree in liberal arts or in business ad-

ministration is good preparation for selling non-technical products. Industrial manufacturers look for applicants who have degrees in science or engineering, and pharmaceutical companies usually prefer persons who have studied pharmacy. Newly hired sales workers may receive specialized training before they start on the job. Some companies, especially those that manufacture complex technical products, have formal training programs that last 2 years or longer. Other firms offer classroom instruction followed by additional training under the supervision of field managers.

Models. The most important asset for a model is a distinctive and attractive physical appearance. Size requirements for certain assignments are rigid. There are no educational requirements for models; some have limited formal education, others have completed high school and modeling school, and others have had college training. Many sales jobs in department stores provide useful experience in selecting and coordinating fashions, experimenting with makeup and, occasionally, modeling. Developing a portfolio is very important. The overwhelming majority of models work through modeling agencies.

Real estate agents and brokers. All States require real estate agents and brokers to be licensed. To obtain a license as an agent, an individual must be a high school graduate, at least 18 years old, and pass a written test. Many large firms prefer to hire college graduates. However, most employers consider personality traits as important as academic training and seek applicants who have maturity, tact, and sales ability. Most States require candidates for the general sales license to have completed 30 hours of classroom instruction in the fundamentals and legal aspects of real estate transactions. High schools, vocational schools, and colleges and universities offer courses to prepare candidates for the real estate sales examination. Many real estate firms also offer these preparatory courses. Basic training requirements for brokers are similar to those for agents. However, in addition to the requirements listed, most States require that candidates for the real estate broker's license complete 90 hours of classroom instruction in real estate and have 1-3 years of experience selling real estate.

Wholesale trade sales workers. Employers generally require applicants to be high school graduates, although college training is increasingly important. The background a sales worker needs depends mainly upon the product line and the market. Selling certain products, such as pharmaceuticals, may require a background in chemistry, biology, or pharmacy, for example. High school graduates may begin in a nonselling job and work their way up or may be hired as a sales

trainee. Usually it takes 2 years or longer to prepare trainees for sales positions. College graduates enter the sales force directly out of school.

Occupations in Transportation Activities

Air Transportation Occupations

Air traffic controllers. Trainees are selected through the competitive Federal Civil Service System. Applicants must be not more than 30 years old, pass a written test, and have either a college degree or 3 years of work experience that demonstrates their potential. Newly hired controllers receive 16 weeks of formal training as well as on-the-job training.

Airplane mechanics. Most mechanics learn their job through 2-year programs offered by trade schools certified by the Federal Aviation Administration (FAA). A few learn on the job. The majority of mechanics who work on civilian aircraft are licensed by the FAA as "airframe mechanics," "powerplant mechanics," or "aircraft inspectors." Airframe mechanics work on the structural parts of the plane; powerplant mechanics work on the engine. Some mechanics and all aircraft inspectors must have both licenses. At least 18 months of work experience are required for an airframe or powerplant license; at least 30 months of experience working with both engines and airframes are required for a combined license. To obtain an inspector's license, a mechanic must have held an airframe-and-powerplant license for at least 3 years. Applicants for all licenses must pass written and oral tests and demonstrate their ability to do the work. Employers prefer high school graduates.

Airplane pilots. Pilots who are paid to transport passengers or cargo must have at least a commercial pilot's license from the Federal Aviation Administration (FAA). To obtain a license, applicants must be at least 18, have at least 250 hours of flight experience, and pass a strict physical examination. Applicants also must pass a written test and demonstrate their flying ability to FAA examiners. For bad weather, pilots also must be licensed to fly by instruments which requires 40 hours of experience using instruments, passing a written test, and demonstrating their ability to FAA examiners. New pilots, usually hired as flight engineers, already have fulfilled the added requirements. Airline captains must have a transport pilot's license requiring even more flight experience. Flying can be learned in military or civilian flying schools, but the airlines and many businesses prefer pilots trained in the Armed Forces. Airline pilots must be high school graduates; however, most airlines require 2 years of college and prefer college graduates.

Merchant Marine Occupations

Merchant marine officers. Candidates must either acquire at least 3 years of appropriate sea experience or graduate from the U.S. Merchant Marine Academy, from one of six State merchant marine academies, or from a trade union training program. Candidates also must pass a Coast Guard examination to obtain a license. Usually, applicants who have sea experience but are not graduates of academies must obtain training to pass the examination.

Merchant marine sailors. Most sailors learn on the job, although previous sea experience in the Coast Guard or Navy is helpful. Applicants must obtain a doctor's certificate stating that they are in excellent health, and, if they do not have previous sea experience, a letter from an employer stating that they will be hired if a job becomes available. In addition, they must acquire special identification papers, "merchant mariner's documents," from the Coast Guard. Several training programs help experienced sailors upgrade their skills, but only the school operated by the Seafarer's International Union of North America trains inexperienced sailors.

Scientific and Technical Occupations

Conservation Occupations

Forestry technicians. Most persons qualify for beginning jobs by completing a specialized 1- or 2-year postsecondary program, or by working on firefighting crews, in tree nurseries, or in other forest work.

Other Scientific and Technical Occupations

Broadcast technicians. Persons who have earned the first-class radiotelephone operator license from the Federal Communications Commission have the best chance of getting a job in this very competitive field. To obtain the first-class license, applicants must pass a series of written tests covering subjects such as the construction and operation of transmission and receiving equipment. Courses in mathematics, science, and electronics, and special courses that are designed to prepare students for the FCC's license test are good preparation. Most persons begin their careers in small stations; larger stations often seek experienced personnel.

Drafters. Specialized training in technical institutes, junior and community colleges, extension divisions of universities, and vocational and technical high schools generally provides the best preparation for beginning drafters. The necessary skills also may be acquired by combining on-the-job training programs with part-time schooling, through 3- or 4-year apprenticeship

programs, or in the Armed Forces. A high school diploma usually is required.

Engineering and science technicians. Many combinations of education and work experience qualify individuals for these occupations, but most employers prefer applicants who have had some specialized technical training. This specialized training consists of 1 to 4 years of full-time study at a technical institute, junior or community college, extension division of a college or university, or vocational-technical high school. Training also can be acquired on the job, through part-time courses in postsecondary schools or through correspondence school courses. Experience in technical jobs in the Armed Forces also can be good preparation. A high school diploma usually is required.

Surveyors and surveying technicians. A combination of postsecondary school courses in surveying and extensive on-the-job training is the most common way to enter this occupation. Junior colleges, technical institutes, and vocational schools offer 1-, 2-, and 3-year programs in surveying. Some colleges and universities offer degrees in surveying or a closely related field such as geodesy, photogrammetry, or civil engineering. Land surveyors must be licensed by the State in which they work. Requirements for licenses vary, but applicants generally must meet education and experience requirements and pass a written test.

Mechanics and Repairers

Air-conditioning, refrigeration, and heating mechanics. Most workers start as helpers and learn their skills on the job in about 4 years. A few learn the trade through a 4-year apprenticeship program. In addition, many high schools, vocational schools, and junior colleges offer courses in air-conditioning, refrigeration, and other subjects that prepare students for entry jobs. Many employers prefer graduates of these programs because they require less on-the-job training. When hiring helpers, employers generally prefer high school graduates. A diploma is required for entry into apprenticeship programs.

Appliance repairers. Formal training in appliance repair is available in some vocational and technical schools and community colleges. Graduates of these programs still need about 3 years of on-the-job experience to learn the trade. A high school diploma usually is required.

Computer service technicians. Employers usually require applicants to have had 1 to 2 years of postsecondary school training in basic electronics or electrical engineering from a computer school, a technical in-



stitute, a junior college, or college. Electronics training in the Armed Forces also is excellent preparation. Generally, 6 months to 2 years of on-the-job experience are required before newly hired technicians are considered competent to work independently on more complex systems.

Jewelers. These workers generally learn the jewelry trade on the job or in technical schools. In precious jewelry factories, 3- to 4-year apprenticeships are available for many skilled occupations. Some manufacturers sponsor training courses for their employees at local vocational schools. Vocational school courses in jewelry making and jewelry repair are a good source of training for someone outside the industry. Employers prefer high school graduates.

Locksmiths. On-the-job training lasting up to 4 years is the recommended way to learn this trade. Additional training is necessary to service electronic security systems. Completion of a 1- or 2-year vocational or correspondence school course is an advantage. When hiring trainees, employers prefer high school graduates. Some cities require locksmiths to be licensed.

Piano and organ tuners and repairers. Most learn their trade on the job. Generally, 4 to 5 years of on-the-job training are needed to qualify as a piano or pipeorgan

technician. Applicants for jobs as electronic organ technicians usually need formal training in electronics which is available in technical schools, junior colleges, and the Armed Forces. A small number of technical schools and colleges offer courses in piano technology. Home study (correspondence school) courses in piano technology also are available. Employers prefer high school graduates.

Shoe repairers. These workers generally start as helpers and are trained on the job in shoe repair shops. It takes up to 2 years to learn all aspects of the job. Some repairers learn the trade in vocational school but additional training under an experienced shoe repairer generally is helpful.

Television and radio service technicians. Employers usually hire persons who have had formal training in electronics while in high school, vocational school, or junior college. Armed Forces electronics training is useful, although employers may require additional training in television electronics. Up to 4 years of on-the-job training are necessary to become skilled in most types of repair work. A high school diploma generally is required. Some states have licensing requirements.

Watch repairers. Most learn their trade through 1- to 3-year courses offered by watch repair schools. Others learn on the job in about 3 years. A high school diploma is preferred. A few States require watch repairers to be licensed; applicants must pass a written test and a bench examination.

Health Occupations

Dental Occupations

Dental assistants. Most learn their skills on the job, but an increasing number are trained through 1- or 2-year programs offered in junior and community colleges, and in vocational and technical schools. A high school diploma is required. Training also is available in the Armed Forces. Individuals who have had formal training generally have an advantage when seeking a job.

Dental hygienists. Completion of an associate degree program usually is sufficient training to practice in a dentist's office. To do research, teach, and work in public or school health programs, at least a bachelor's degree is required. Dental hygienists must be licensed and only graduates of the associate or bachelor's degree programs of accredited dental hygiene schools are eligible for licensing. To obtain a license, applicants usually must pass both a written and a clinical examination. Dental hygiene training given in the Armed Forces does not fully prepare one for the licensing ex-

amination, but credit may be granted toward admission to accredited schools.

Dental laboratory technicians. Many technicians learn their skills on the job, usually in 3 to 4 years. High school graduates are preferred. Persons who receive dental laboratory training in the Armed Forces usually qualify for civilian jobs as technicians. After completing a 2-year training program in a junior college, college, or vocational or technical school, the trainee may need about 3 years of experience to become fully qualified. Some technicians complete apprenticeship programs.

Medical Technologist, Technician, and Assistant Occupations

Electrocardiograph (EKG) technicians. Generally, EKG technicians are trained on the job for 1 month to 1 year by an EKG supervisor or a cardiologist. Vocational schools and junior and community colleges offer formal 1- to 2-year training programs. Training also is available in the Armed Forces. Generally, a high school diploma is required.

Electroencephalographic (EEG) technologists and technicians. Although experienced EEG personnel train most EEG technologists and technicians on the job, training authorities recommend completion of a formal



1- to 2-year training program at a college, junior college, medical school, hospital, or vocational or technical school. High school graduation is required for this work.

Emergency medical technicians (EMT's). Applicants must complete the 81-hour program designed by the U.S. Department of Transportation or its equivalent offered in all States by police, fire, and health departments; in hospitals; and in medical schools, colleges, and universities. A high school diploma and a valid driver's license are required to enter such a program. "Medic" training in the Armed Forces also is good preparation.

Medical laboratory workers. Medical laboratory assistants usually are trained on the job. In recent years, however, an increasing number have completed 1-year training programs at a hospital, junior college, or vocational school. Many of these schools also offer a 2-year training program for technicians. Some workers are trained in the Armed Forces. Most technologists have completed 4 years of college, including 12 months in medical technology.

Medical record technicians and clerks. High school graduates who have basic secretarial skills can enter the medical record field as clerks. About 1 month of on-the-job training is needed to learn routine tasks. The American Medical Record Association (AMRA) offers a correspondence course in medical transcription; the certificate awarded upon successful completion of the course is helpful in applying for a job as a clerk. Most employers prefer to fill technician positions with graduates of 2-year associate degree programs in medical record technology.

Operating room technicians. Most operating room technicians are trained in vocational and technical schools, hospitals, and community and junior colleges. Generally these programs last from 9 months to 1 year, but some junior college programs last 2 years and lead to an associate degree. Some technicians are trained on the job. Depending on the individual's qualifications and the extent and difficulty of the work assigned, training ranges from 6 weeks to 1 year. Applicants who have worked as nursing aides or practical nurses may be preferred. Some operating room technicians are trained in the Armed Forces. A high school diploma generally is required.

Optometric assistants. Most optometric assistants are trained on the job, but training also can be acquired through 1- or 2-year courses in junior colleges. A high school diploma or its equivalent is preferred.

Radiologic (X-ray) technologists. Completion of a 2-year training program in radiography is required for entry to the field. These programs are offered in hospitals, medical schools, colleges, junior colleges, vocational schools, and the military services. A few schools conduct 3- or 4-year programs and some schools award bachelor's and master's degrees in radiologic technology. Generally, there is more potential for advancement for persons who hold bachelor's or master's degrees. High school graduation is required for entry to all training programs.

Respiratory therapy workers. There are three levels of workers—therapists, technicians, and assistants. Formal training beyond high school which is required for therapists and technicians may be obtained in colleges and universities, junior colleges, and hospitals. Generally, training programs for technicians last 12 months while programs for therapists last 18 to 24 months or longer. Assistants are trained on the job. Some employers prefer applicants who have a high school diploma.

Nursing Occupations

Registered nurses. All States require professional nurses to be licensed. Applicants for a license must graduate from a school approved by the State board of nursing and pass the State board examination. All nursing schools require a high school diploma for entry. Programs vary in length from 2 to 5 years. Nurses who complete 2-year courses earn associate degrees; those who complete 3-year courses earn diplomas; and those who graduate from 4- or 5-year courses receive bachelor's degrees. A master's degree is preferred for research, consultation, teaching, administration, and clinical specialization.

Licensed practical nurses. All States require applicants for licenses as practical nurses to complete a State-approved course in practical nursing and to pass an examination. Educational requirements for enrollment in these courses vary by State and range from completion of eighth or ninth grade to high school graduation. Generally, junior colleges, local hospitals, health agencies, and vocational schools offer the 1-year course.

Therapy and Rehabilitation Occupations

Occupational therapy assistants and aides. Most occupational therapy assistants graduate from 1- or 2-year junior college programs or complete a program in the Armed Forces. Some learn their skills in vocational and technical programs. Applicants for training programs must have a high school diploma or its equivalent. Hospitals and other health care facilities train occupational therapy aides on the job.

Physical therapist assistants and aides. Physical therapist assistants must graduate from an approved 2-year associate degree program and pass a written examination. Physical therapist aides train on the job and generally must be high school graduates or the equivalent.

Other Health Occupations

Dispensing opticians. Most learn their skills on the job. Employers prefer high school graduates, and graduation is required for formal training programs. Some dispensing opticians learn their skills through 2- to 4-year apprenticeship programs. In 1978, dispensing opticians in 20 States had to pass an examination to obtain the required license.

Performing Arts, Design, and Communications Occupations

Performing Artists

Actors and actresses. Formal training in acting is increasingly necessary to enter the field. Training can be obtained at dramatic arts schools, located chiefly in New York, and in hundreds of colleges and universities throughout the country. Experience is important; participating in school or community productions is excellent preparation.

Dancers. Serious training at a dance school or through private lessons should begin by age 12, especially for ballet dancers. Training and practice continue throughout a dancer's career. Many colleges and universities offer dance instruction.

Musicians. Studying an instrument, either through school or private lessons, should begin at an early age. More advanced training can be acquired through further study under an accomplished musician, in a college or university which has a strong music program, or in a music conservatory.

Singers. As a rule, intensive voice training should not begin until after the individual has matured physically. Voice training can be obtained through private lessons or in a music conservatory or department of music in a college or university. A background in music theory and history is helpful for persons interested in singing professionally, although formal voice training is not essential for a successful career in popular music.

Design Occupations

Interior designers. A 3-year course in a professional school of interior design or a 4-year college or university program in interior design and decoration is increasingly necessary to enter the field. In most cases, 1

to 5 years of on-the-job training are necessary for advancement to designer.

Photographers. There are several ways to prepare for work as a professional photographer. For commercial photography, people often start as trainees in a commercial studio, and learn the necessary skills through 2 or 3 years of on-the-job training. For work in industrial or scientific photography, postsecondary education and training are needed. Requirements for news photographers vary with the size of the newspaper or magazine.

Communications Occupations

Newspaper reporters. Most newspapers consider only applicants who have a bachelor's degree. They prefer a journalism major or another major combined with journalism. Graduate work is increasingly important. Rural, small-town, and suburban papers may have jobs for talented writers without a college degree, but college graduates seeking experience fill even these jobs. Intern experience or part-time work on a newspaper while in school helps immeasurably in job placement after graduation.

Radio and television announcers. This highly competitive profession is difficult to enter. Formal training in broadcasting in a college or technical school and ex-

perience working for a campus or local station are valuable. However, station officials pay particular attention to taped auditions. A Federal Communications Commission radiotelephone operator license often is helpful, since the added skill enables announcers to handle many broadcasting duties. Such versatility is particularly important in small stations, where announcers generally get their first jobs. Larger stations often require several years' experience

Ordering Occupational Outlook Handbook Reprints

There are 42 reprints from the *Occupational Outlook Handbook*, 1980-81 Edition, available for order. Each reprint contains a group of related occupational and industrial statements. For example, reprint 2075-35, Communications Occupations, includes statements on broadcast technicians, newspaper reporters, photographers, public relations workers, radio and television announcers, the radio and television broadcasting industry, and technical writers. A list of all reprints follows. A flyer that cross-references all *Occupational Outlook Handbook* occupations and industries to the reprints in which they appear may be obtained by using the reprint order form on the back page of this leaflet.

Occupational Outlook Reprints, 1980-81 Edition

Bulletin No.	Title
2075-1	Tomorrow's Jobs
2075-2	Metalworking Occupations
2075-3	Printing and Publishing Occupations
2075-4	Factory Production Occupations
2075-5	Clerical Occupations
2075-6	Office Machine and Computer Occupations
2075-7	Banking and Insurance Occupations
2075-8	Business Occupations
2075-9	Service Occupations
2075-10	Food Merchandising Occupations
2075-11	Protective and Related Service Occupations
2075-12	Education and Related Occupations
2075-13	Sales Occupations
2075-14	Construction Occupations — Structural
2075-15	Construction Occupations — Finishing
2075-16	Air and Water Transportation Occupations
2075-17	Railroad Occupations
2075-18	Driving Occupations



- 2075-19 Environmental Scientists and Conservation Occupations
- 2075-20 Engineering and Related Occupations
- 2075-21 Physical and Life Scientists
- 2075-22 Mathematics and Related Occupations
- 2075-23 Public Utilities Occupations
- 2075-24 Motor Vehicle and Machinery Repairers
- 2075-25 Machine Repairers and Operators
- 2075-26 Small Business Occupations
- 2075-27 Health Practitioners
- 2075-28 Health Occupations
 - Dental auxiliaries, nursing, therapy and rehabilitation, health services administration
- 2075-29 Health Occupations
 - Medical technologists, technicians, and assistants, dispensing opticians, ophthalmic laboratory technicians, medical record personnel
- 2075-30 Lawyers, City Managers, and Social Science Occupations
- 2075-31 Counseling and Related Occupations
- 2075-32 Social Service Occupations
- 2075-33 Performing Arts and Entertainment-Related Occupations
- 2075-34 Design Occupations
- 2075-35 Communications Occupations
- 2075-36 Agriculture and Logging and Lumber Mill Products Industries
- 2075-37 Energy-Producing Industries
- 2075-38 Petroleum Refining, Industrial Chemical, Drug, and Paper and Allied Products Industries
- 2075-39 Aluminum, Iron and Steel, and Foundry Industries
- 2075-40 Aircraft, Missile, and Spacecraft, Office Machine and Computer, Electronics, and Motor Vehicle and Equipment Manufacturing Industries
- 2075-41 Apparel, Baking, Laundry and Dry Cleaning, and Textile Mill Products Industries
- 2075-42 Government Occupations

The following is an alphabetical listing of the occupations included in this leaflet. Occupations are cross-referenced to the *Handbook* reprint in which they appear.

Actors and actresses	33
Air-conditioning, refrigeration, and heating mechanics	15
Air traffic controllers	16



Airplane mechanics	16
Airplane pilots	16
Appliance repairers	25
Barbers	26
Blacksmiths	2
Blue-collar worker supervisors	4
Broadcast technicians	20 or 35
Buyers	13
Claim representatives	7
Computer operating personnel	6
Computer service technicians	6 or 25
Construction inspectors (government)	11
Cooks and chefs	10
Cosmetologists	26
Credit managers	8
Dancers	33
Dental assistants	28
Dental hygienists	28
Dental laboratory technicians	28
Dispensing opticians	29
Drafters	20
EEG technologists and technicians	29
EKG technicians	29
Emergency medical technicians	29
Engineering and science technicians	20
Firefighters	11
Forestry technicians	19 or 36
Funeral directors and embalmers	26

Hotel managers and assistants	9	Photographers.....	3 or 35
Insurance agents and brokers	7 or 13	Physical therapist assistants and aides	28
Interior designers	34	Piano and organ tuners and repairers	26
Jewelers	26	Police officers	11
Library technicians and assistants.....	12	Programmers.....	6 or 22
Licensed practical nurses	28	Radio and television announcers	33 or 35
Locksmiths.....	26	Radiologic (X-ray) technologists.....	29
Manufacturers' sales workers.....	13	Real estate agents and brokers	13
Medical laboratory workers.....	29	Registered nurses	28
Medical record technicians and clerks.....	29	Respiratory therapy workers	29
Merchant marine officers	16	Secretaries and stenographers	5
Merchant marine sailors	16	Shoe repairers.....	26
Models	33	Singers	33
Musicians.....	33	State police officers	11
Newspaper reporters	3 or 35	Surveyors and surveying technicians	20
Occupational safety and health workers	11	Television and radio service technicians	26
Occupational therapy assistants and aides.....	28	Wastewater treatment plant operators	4
Operating room technicians	29	Watch repairers.....	26
Optometric assistants.....	29	Wholesale trade sales workers.....	13

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