

## Occupation Definitions

### 11-0000 Management Occupations

**11-1011 Chief Executives:** Determine and formulate policies and provide the overall direction of companies or private and public sector organizations within the guidelines set up by a board of directors or similar governing body. Plan, direct, or coordinate operational activities at the highest level of management with the help of subordinate executives and staff managers.

**11-1021 General and Operations Managers:** Plan, direct, or coordinate the operations of companies or public and private sector organizations. Duties and responsibilities include formulating policies, managing daily operations, and planning the use of materials and human resources, but are too diverse and general in nature to be classified in any one functional area of management or administration, such as personnel, purchasing, or administrative services. Include owners and managers who head small business establishments whose duties are primarily managerial. Exclude "First-Line Supervisors/Managers of Retail Sales Workers" (41-1011) and workers in other small establishments.

**11-1031 Legislators:** Develop laws and statutes at the Federal, State, or local level. Include only elected officials.

**11-2011 Advertising and Promotions Managers:** Plan and direct advertising policies and programs or produce collateral materials, such as posters, contests, coupons, or giveaways, to create extra interest in the purchase of a product or service for a department, an entire organization, or on an account basis.

**11-2020 Marketing Managers:** Determine the demand for products and services offered by a firm and its competitors and identify potential customers. Develop pricing strategies with the goal of maximizing the firm's profits or share of the market while ensuring the firm's customers are satisfied. Oversee product development or monitor trends that indicate the need for new products and services. **Sales Managers:** Direct the actual distribution or movement of a product or service to the customer. Coordinate sales distribution by establishing sales territories, quotas, and goals and establish training programs for sales representatives. Analyze sales statistics gathered by staff to determine sales potential and inventory requirements and monitor the preferences of customers.

**11-2031 Public Relations Managers:** Plan and direct public relations programs designed to create and maintain a favorable public image for employer or client; or if engaged in fundraising, plan and direct activities to solicit and maintain funds for special projects and nonprofit organizations.

**11-3011 Administrative Services Managers:** Plan, direct, or coordinate supportive services of an organization, such as recordkeeping, mail distribution, telephone operator/receptionist, and other office support services. May oversee facilities planning and maintenance and custodial operations. Exclude "Purchasing Managers" (11-3061).

**11-3021 Computer and Information Systems Managers:** Plan, direct, or coordinate activities in such fields as electronic data processing, information systems, systems analysis, and computer programming. Exclude "Computer Specialists" (15-1011 through 15-1099).

**11-3031 Financial Managers:** Plan, direct, and coordinate accounting, investing, banking, insurance, securities, and other financial activities of a branch, office, or department of an establishment.

**11-3040 Human Resources Managers:** *Compensation and Benefits:* Plan, direct, or coordinate compensation and benefits activities and staff of an organization. Include job analysis and position description managers. *Training and Development:* Plan, direct, or coordinate the training and development activities and staff of an organization. *Other:* All Human Resources Managers not listed separately.

**11-3051 Industrial Production Managers:** Plan, direct, or coordinate the work activities and resources necessary for manufacturing products in accordance with cost, quality, and quantity specifications.

**11-3061 Purchasing Managers:** Plan, direct, or coordinate the activities of buyers, purchasing officers, and related workers involved in purchasing materials, products, and services. Include wholesale or retail trade merchandising managers and procurement managers.

**11-3071 Transportation, Storage, and Distribution Managers:** Plan, direct, or coordinate transportation, storage, or distribution activities in accordance with governmental policies and regulations. Include logistics managers.

**11-9011 Farm, Ranch, and Other Agricultural Managers:** On a paid basis, manage farms, ranches, aquacultural operations, greenhouses, nurseries, timber tracts, cotton gins, packing houses, or other agricultural establishments for employers. Carry out production, financial, and marketing decisions relating to the managed operations following guidelines from the owner. May contract tenant farmers or producers to carry out the day-to-day activities of the managed operation. May supervise planting, cultivating, harvesting, and marketing activities. May prepare cost, production, and other records. May perform physical work and operate machinery.

**11-9012 Farmers and Ranchers:** On an ownership or rental basis, operate farms, ranches, greenhouses, nurseries, timber tracts, or other agricultural production establishments which produce crops, horticultural specialties, livestock, poultry, finfish, shellfish, or animal specialties. Include operators of cotton gins, packing houses, and other post-harvest operations. May plant, cultivate, harvest, perform post-harvest activities, and market crops and livestock; may hire, train, and supervise farm workers or supervise a farm labor contractor; may prepare cost, production, and other records. May maintain and operate machinery and perform physical work.

**11-9021 Construction Managers:** Plan, direct, coordinate, or budget, usually through subordinate supervisory personnel, activities concerned with the construction and maintenance of structures, facilities, and systems. Participate in the conceptual development of a construction project and oversee its organization, scheduling, and implementation. Include specialized construction fields, such as carpentry or plumbing. Include general superintendents, project managers, and constructors who manage, coordinate, and supervise the construction process.

**11-9030 Education Administrators:** Plan, direct, or coordinate: (1) the academic and nonacademic activities of preschool and child care centers or programs; (2) the academic, clerical, or auxiliary activities of public or private elementary or secondary level schools; (3) research, instructional, student administration and services, and other educational activities at postsecondary institutions, including universities, colleges, and junior and community colleges.

**11-9041 Engineering Managers:** Plan, direct, or coordinate activities in such fields as architecture and engineering or research and development in these fields. Exclude "Natural Sciences Managers" (11-9121).

**11-9051 Food Service Managers:** Plan, direct, or coordinate activities of an organization or department that serves food and beverages.

**11-9061 Funeral Directors:** Perform various tasks to arrange and direct funeral services, such as coordinating transportation of body to mortuary for embalming, interviewing family or other authorized person to arrange details, selecting pallbearers, procuring official for religious rites, and providing transportation for mourners.

**11-9071 Gaming Managers:** Plan, organize, direct, control, or coordinate gaming operations in a casino. Formulate gaming policies for their area of responsibility.

**11-9081 Lodging Managers:** Plan, direct, or coordinate activities of an organization or department that provides lodging and other accommodations. Exclude "Food Service Managers" (11-9051) in lodging establishments.

**11-9111 Medical and Health Services Managers:** Plan, direct, or coordinate medicine and health services in hospitals, clinics, managed care organizations, public health agencies, or similar organizations.

**11-9121 Natural Sciences Managers:** Plan, direct, or coordinate activities in such fields as life sciences, physical sciences, mathematics, statistics, and research and development in these fields. Exclude "Engineering Managers" (11-9041) and "Computer and Information Systems Managers" (11-3021).

**11-9131 Postmasters and Mail Superintendents:** Direct and coordinate operational, administrative, management, and supportive services of a U.S. post office; or coordinate activities of workers engaged in postal and related work in assigned post office.

**11-9141 Property, Real Estate, and Community Association Managers:** Plan, direct, or coordinate selling, buying, leasing, or governance activities of commercial, industrial, or residential real estate properties. Include managers of homeowner and condominium associations, rented or leased housing units, buildings, or land (including rights-of-way).

**11-9151 Social and Community Service Managers:** Plan, organize, or coordinate the activities of a social service program or community outreach organization. Oversee the program or organization's budget and policies regarding participant involvement, program requirements, and benefits. Work may involve directing social workers, counselors, or probation officers.

**11-9199 Managers, All Other:** All managers not listed separately.

### **13-0000: Business and Financial Operations Occupations**

**13-1011 Agents and Business Managers of Artists, Performers, and Athletes:** Represent and promote artists, performers, and athletes to prospective employers. May handle contract negotiation and other business matters for clients.

**13-1021 Purchasing Agents and Buyers, Farm Products:** Purchase farm products either for further processing or resale. Include Christmas tree contractors, grain brokers and market operators, grain buyers, and tobacco buyers.

**13-1022 Wholesale and Retail Buyers, Except Farm Products:** Buy merchandise or commodities, other than farm products, for resale to consumers at the wholesale or retail level, including both durable and nondurable goods. Analyze past buying trends, sales records, price, and quality of merchandise to determine value and yield. Select, order, and authorize payment for merchandise according to contractual agreements. May conduct meetings with sales personnel and introduce new products. Include assistant buyers.

**13-1023 Purchasing Agents, Except Wholesale, Retail, and Farm Products:** Purchase machinery, equipment, tools, parts, supplies, or services necessary for the operation of an establishment. Purchase raw or semi-finished materials for manufacturing. Include contract specialists, field contractors, purchasers, price analysts, tooling coordinators, and media buyers. Exclude "Purchasing Agents and Buyers, Farm Products" (13-1021) and "Wholesale and Retail Buyers, Except Farm Products" (13-1022).

**13-1030 Claims Adjusters, Appraisers, Examiners, and Investigators:** Review settled claims to determine that payments and settlements have been made in accordance with company practices and procedures, ensuring that proper methods have been followed. Report overpayments, underpayments, and other irregularities. Confer with legal counsel on claims requiring litigation. Appraise automobile or other vehicle damage to determine cost of repair for insurance claim settlement and seek agreement with automotive repair shop on cost of repair. Prepare insurance forms to indicate repair cost or cost estimates and recommendations.

**13-1041 Compliance Officers, Except Agriculture, Construction, Health and Safety, and Transportation:** Examine, evaluate, and investigate eligibility for or conformity with laws and regulations governing contract compliance of licenses and permits, and other compliance and enforcement inspection activities not classified elsewhere. Exclude "Tax Examiners, Collectors, and Revenue Agents" (13-2081) and "Financial Examiners" (13-2061).

**13-1051 Cost Estimators:** Prepare cost estimates for product manufacturing, construction projects, or services to aid management in bidding on or determining price of product or service. May specialize according to particular service performed or type of product manufactured.

**13-1070 Human Resources, Training, and Labor Relations Specialists:** Recruit and place workers. Conduct programs of compensation and benefits and job analysis for employer (may specialize in specific areas, such as position classification and pension programs). Conduct training and development programs for employees.

**13-1081 Logisticians:** Analyze and coordinate the logistical functions of a firm or organization. Responsible for the entire life cycle of a product, including acquisition, distribution, internal allocation, delivery, and final disposal of resources.

**13-1111 Management Analysts:** Conduct organizational studies and evaluations, design systems and procedures, conduct work simplifications and measurement studies, and prepare operations and procedures manuals to assist management in operating more efficiently and effectively. Include program analysts and management consultants. Exclude "Computer Systems Analysts" (15-1051) and "Operations Research Analysts" (15-2031).

**13-1121 Meeting and Convention Planners:** Coordinate activities of staff and convention personnel to make arrangements for group meetings and conventions.

**13-11XX Other Business Operations Specialists:** All business operations specialists not listed separately.

**13-2011 Accountants and Auditors:** Examine, analyze, and interpret accounting records for the purpose of giving advice or preparing statements. Install or advise on systems of recording costs or other financial and budgetary data.

**13-2021 Appraisers and Assessors of Real Estate:** Appraise real property to determine its fair value. May assess taxes in accordance with prescribed schedules.

**13-2031 Budget Analysts:** Examine budget estimates for completeness, accuracy, and conformance with procedures and regulations. Analyze budgeting and accounting reports for the purpose of maintaining expenditure controls.

**13-2041 Credit Analysts:** Analyze current credit data and financial statements of individuals or firms to determine the degree of risk involved in extending credit or lending money. Prepare reports with this credit information for use in decision-making.

**13-2051 Financial Analysts:** Conduct quantitative analyses of information affecting investment programs of public or private institutions.

**13-2052 Personal Financial Advisors:** Advise clients on financial plans utilizing knowledge of tax and investment strategies, securities, insurance, pension plans, and real estate. Duties include assessing clients' assets, liabilities, cash flow, insurance coverage, tax status, and financial objectives to establish investment strategies.

**13-2053 Insurance Underwriters:** Review individual applications for insurance to evaluate degree of risk involved and determine acceptance of applications.

**13-2061 Financial Examiners:** Enforce or ensure compliance with laws and regulations governing financial and securities institutions and financial and real estate transactions. May examine, verify correctness of, or establish authenticity of records.

**13-2070 Loan Counselors:** Provide guidance to prospective loan applicants who have problems qualifying for traditional loans. Guidance may include determining the best type of loan and explaining loan requirements or restrictions. **Loan Officers:** Evaluate, authorize, or recommend approval of commercial, real estate, or credit loans. Advise borrowers on financial status and methods of payments. Include mortgage loan officers and agents, collection analysts, loan servicing officers, and loan underwriters.

**13-2081 Tax Examiners, Collectors, and Revenue Agents:** Determine tax liability or collect taxes from individuals or business firms according to prescribed laws and regulations.

**13-2082 Tax Preparers:** Prepare tax returns for individuals or small businesses but do not have the background or responsibilities of an accredited or certified public accountant.

**13-2099 Financial Specialists, All Other:** All financial specialists not listed separately.

#### **15-0000: Computer and Mathematical Occupations**

**15-10XX Computer Scientists and Systems Analysts:** Conduct research into fundamental computer and information science as theorists, designers, or inventors. Solve or develop solutions to problems in the field of computer hardware and software. Analyze science, engineering, business, and all other data processing problems for application to electronic data processing systems. Analyze user requirements, procedures, and problems to automate or improve existing systems and review computer system capabilities, workflow, and scheduling limitations. May analyze or recommend commercially available software. Exclude persons working primarily as "Engineers" (17-2011 through 17-2199), "Mathematicians" (15-2021), or "Scientists" (19-1011 through 19-3099). May supervise computer programmers. All computer specialists not listed separately.

**15-1021 Computer Programmers:** Convert project specifications and statements of problems and procedures to detailed logical flow charts for coding into computer language. Develop and write computer programs to store, locate, and retrieve specific documents, data, and information. May program web sites.

**15-1030 Computer Software Engineers:** *Applications:* Develop, create, and modify general computer applications software or specialized utility programs. Analyze user needs and develop software solutions. Design software or customize software for client use with the aim of optimizing operational efficiency. May analyze and design databases within an application area, working individually or coordinating database development as part of a team. Exclude "Computer Hardware Engineers" (17-2061). *Systems Software:* Research, design, develop, and test operating systems-level software, compilers, and network distribution software for medical, industrial, military, communications, aerospace, business, scientific, and general computing applications. Set operational specifications and formulate and analyze software requirements. Apply principles and techniques of computer science, engineering, and mathematical analysis.

**15-1041 Computer Support Specialists:** Provide technical assistance to computer system users. Answer questions or resolve computer problems for clients in person, via telephone or from remote location. May provide assistance concerning the use of computer hardware and software, including printing, installation, word processing, electronic mail, and operating systems. Exclude "Network and Computer Systems Administrators" (15-1071).

**15-1061 Database Administrators:** Coordinate changes to computer databases, test and implement the database applying knowledge of database management systems. May plan, coordinate, and implement security measures to safeguard computer databases.

**15-1071 Network and Computer Systems Administrators:** Install, configure, and support an organization's local area network (LAN), wide area network (WAN), and Internet system or a segment of a network system. Maintain network hardware and software. Monitor network to ensure network availability to all system users and perform necessary maintenance to support network availability. May supervise other network support and client server specialists and plan, coordinate, and implement network security measures. Exclude "Computer Support Specialists" (15-1041).

**15-1081 Network Systems and Data Communications Analysts:** Analyze, design, test, and evaluate network systems, such as local area networks (LAN), wide area networks (WAN), Internet, intranet, and other data communications systems. Perform network modeling, analysis, and planning. Research and recommend network and data communications hardware and software. Include telecommunications specialists who deal with the interfacing of computer and communications equipment. May supervise computer programmers.

**15-2011 Actuaries:** Analyze statistical data, such as mortality, accident, sickness, disability, and retirement rates and construct probability tables to forecast risk and liability for payment of future benefits. May ascertain premium rates required and cash reserves necessary to ensure payment of future benefits.

**15-2031 Operations Research Analysts:** Formulate and apply mathematical modeling and other optimizing methods using a computer to develop and interpret information that assists management with decision making, policy formulation, or other managerial functions. May develop related software, service, or products. Frequently concentrates on collecting and analyzing data and developing decision support software. May develop and supply optimal time, cost, or logistics networks for program evaluation, review, or implementation.

**15-20XX Miscellaneous Mathematical Science Occupations, Including Mathematicians and Statisticians:**

*Mathematicians:* Conduct research in fundamental mathematics or in application of mathematical techniques to science, management, and other fields. Solve or direct solutions to problems in various fields by mathematical methods.

*Statisticians:* Engage in the development of mathematical theory or apply statistical theory and methods to collect, organize, interpret, and summarize numerical data to provide usable information. May specialize in fields, such as biostatistics, agricultural statistics, business statistics, economic statistics, or other fields. Include mathematical statisticians.

*Miscellaneous:* All mathematical scientists not listed separately.

**17-0000: Architecture and Engineering Occupations**

**17-1010 Architects, Except Naval:** Plan and design structures (such as private residences, office buildings, theaters, factories, and other structural property) and/or land areas (for such projects as parks and other recreational facilities, airports, highways, hospitals, schools, land subdivisions, and commercial, industrial, and residential sites).

**17-1020 Surveyors:** Make exact measurements and determine property boundaries. Provide data relevant to the shape, contour, gravitation, location, elevation, or dimension of land or land features on or near the earth's surface for engineering, mapmaking, mining, land evaluation, construction, and other purposes. **Cartographers and**

**Photogrammetrists:** Collect, analyze, and interpret geographic information provided by geodetic surveys, aerial photographs, and satellite data. Research, study, and prepare maps and other spatial data in digital or graphic form for legal, social, political, educational, and design purposes. May work with Geographic Information Systems (GIS). May design and evaluate algorithms, data structures, and user interfaces for GIS and mapping systems.

**17-2011 Aerospace Engineers:** Perform a variety of engineering work in designing, constructing, and testing aircraft, missiles, and spacecraft. May conduct basic and applied research to evaluate adaptability of materials and equipment to aircraft design and manufacture. May recommend improvements in testing equipment and techniques.

**17-2041 Chemical Engineers:** Design chemical plant equipment and devise processes for manufacturing chemicals and products, such as gasoline, synthetic rubber, plastics, detergents, cement, paper, and pulp, by applying principles and technology of chemistry, physics, and engineering.

**17-2051 Civil Engineers:** Perform engineering duties in planning, designing, and overseeing construction and maintenance of building structures, and facilities, such as roads, railroads, airports, bridges, harbors, channels, dams, irrigation projects, pipelines, power plants, water and sewage systems, and waste disposal units. Include architectural, structural, traffic, ocean, and geo-technical engineers. Exclude "Hydrologists" (19-2043).

**17-2061 Computer Hardware Engineers:** Research, design, develop, and test computer or computer-related equipment for commercial, industrial, military, or scientific use. May supervise the manufacturing and installation of computer or computer-related equipment and components. Exclude "Computer Software Engineers, Applications" (15-1031) and "Computer Software Engineers, Systems Software" (15-1032).

**17-2070 Electrical and Electronics Engineers:** Design, develop, test, or supervise the manufacturing and installation of electrical equipment, components, or systems for commercial, industrial, military, or scientific use. Research, design, develop, and test electronic components and systems for commercial, industrial, military, or scientific use utilizing knowledge of electronic theory and materials properties. Design electronic circuits and components for use in fields such as telecommunications, aerospace guidance and propulsion control, acoustics, or instruments and controls. Exclude "Computer Hardware Engineers" (17-2061).

**17-2081 Environmental Engineers:** Design, plan, or perform engineering duties in the prevention, control, and remediation of environmental health hazards utilizing various engineering disciplines. Work may include waste treatment, site remediation, or pollution control technology.

**17-2110 Industrial Engineers, Including Health and Safety:** Design, develop, test, and evaluate integrated systems for managing industrial production processes including human work factors, quality control, inventory control, logistics and material flow, cost analysis, and production coordination. Promote worksite or product safety by applying knowledge of industrial processes, mechanics, chemistry, psychology, and industrial health and safety laws. Include industrial product safety engineers.

**17-2121 Marine Engineers and Naval Architects:** Design, develop, and evaluate the operation of marine vessels, ship machinery, and related equipment, such as power supply and propulsion systems.

**17-2131 Materials Engineers:** Evaluate materials and develop machinery and processes to manufacture materials for use in products that must meet specialized design and performance specifications. Develop new uses for known materials. Include those working with composite materials or specializing in one type of material, such as graphite, metal and metal alloys, ceramics and glass, plastics and polymers, and naturally occurring materials. Include metallurgists and metallurgical engineers, ceramic engineers, and welding engineers.

**17-2141 Mechanical Engineers:** Perform engineering duties in planning and designing tools, engines, machines, and other mechanically functioning equipment. Oversee installation, operation, maintenance, and repair of such equipment as centralized heat, gas, water, and steam systems.

**17-2161 Nuclear Engineers:** Conduct research on nuclear engineering problems or apply principles and theory of nuclear science to problems concerned with release, control, and utilization of nuclear energy and nuclear waste disposal.

**17-21XX Petroleum, Mining and Geological Engineers, Including Mining Safety Engineers:**

*Petroleum Engineers:* Devise methods to improve oil and gas well production and determine the need for new or modified tool designs. Oversee drilling and offer technical advice to achieve economical and satisfactory progress.

*Others:* Determine the location and plan the extraction of coal, metallic ores, nonmetallic minerals, and building materials, such as stone and gravel. Work involves conducting preliminary surveys of deposits or undeveloped mines and planning their development; examining deposits or mines to determine whether they can be worked at a profit; making geological and topographical surveys; evolving methods of mining best suited to character, type, and size of deposits; and supervising mining operations.

**17-2XXX Miscellaneous Engineers, Including Agricultural and Biomedical:** *Agricultural:* Apply knowledge of engineering technology and biological science to agricultural problems concerned with power and machinery, electrification, structures, soil and water conservation, and processing of agricultural products. *Biomedical:* Apply knowledge of engineering, biology, and biomechanical principles to the design, development, and evaluation of biological and health systems and products, such as artificial organs, prostheses, instrumentation, medical information systems, and health management and care delivery systems. *Miscellaneous:* All engineers not listed separately.

**17-3010 Drafters:** *Architectural and Civil:* Prepare detailed drawings of architectural and structural features of buildings or drawings and topographical relief maps used in civil engineering projects, such as highways, bridges, and public works. Utilize knowledge of building materials, engineering practices, and mathematics to complete drawings.

*Electrical and Electronics:* Prepare wiring diagrams, circuit board assembly diagrams, and layout drawings used for manufacture, installation, and repair of electrical equipment in factories, power plants, and buildings.

*Mechanical:* Prepare detailed working diagrams of machinery and mechanical devices, including dimensions, fastening methods, and other engineering information.

**17-3020 Engineering Technicians:** *Aerospace:* Operate, install, calibrate, and maintain integrated computer/communications systems consoles, simulators, and other data acquisition, test, and measurement instruments and equipment to launch, track, position, and evaluate air and space vehicles. May record and interpret test data.

*Civil:* Apply theory and principles of civil engineering in planning, designing, and overseeing construction and maintenance of structures and facilities under the direction of engineering staff or physical scientists.

*Electrical and Electronic:* Apply electrical and electronic theory and related knowledge, usually under the direction of engineering staff, to design, build, repair, calibrate, and modify electrical components, circuitry, controls, and machinery for subsequent evaluation and use by engineering staff in making engineering design decisions. Exclude "Broadcast Technicians" (27-4012).

*Electro-Mechanical:* Operate, test, and maintain unmanned, automated, servo-mechanical, or electromechanical equipment. May operate unmanned submarines, aircraft, or other equipment at worksites, such as oil rigs, deep ocean exploration, or hazardous waste removal. May assist engineers in testing and designing robotics equipment.

*Environmental:* Apply theory and principles of environmental engineering to modify, test, and operate equipment and devices used in the prevention, control, and remediation of environmental pollution, including waste treatment and site remediation. May assist in the development of environmental pollution remediation devices under direction of engineer.

*Industrial:* Apply engineering theory and principles to problems of industrial layout or manufacturing production, usually under the direction of engineering staff. May study and record time, motion, method, and speed involved in performance of production, maintenance, clerical, and other worker operations for such purposes as establishing standard production rates or improving efficiency.

*Mechanical:* Apply theory and principles of mechanical engineering to modify, develop, and test machinery and equipment under direction of engineering staff or physical scientists.

**17-3031 Surveying and Mapping Technicians:** Perform surveying and mapping duties, usually under the direction of a surveyor, cartographer, or photogrammetrist to obtain data used for construction, mapmaking, boundary location, mining, or other purposes. May calculate mapmaking information and create maps from source data, such as surveying notes, aerial photography, satellite data, or other maps to show topographical features, political boundaries, and other features. May verify accuracy and completeness of topographical maps. Exclude "Surveyors" (17-1022), "Cartographers and Photogrammetrists" (17-1021), and "Geoscientists, Except Hydrologists and Geographers" (19-2042).

## **19-0000: Life, Physical, and Social Science Occupations**

**19-1010 Agricultural and Food Scientists:** *Animal Scientists:* Conduct research in the genetics, nutrition, reproduction, growth, and development of domestic farm animals. *Food Scientists and Technologists:* Use chemistry, microbiology, engineering, and other sciences to study the principles underlying the processing and deterioration of foods; analyze food content to determine levels of vitamins, fat, sugar, and protein; discover new food sources; research ways to make processed foods safe, palatable, and healthful; and apply food science knowledge to determine best ways to process, package, preserve, store, and distribute food. *Soil and Plant Scientists:* Conduct research in breeding, physiology, production, yield, and management of crops and agricultural plants, their growth in soils, and control of pests; or study the chemical, physical, biological, and mineralogical composition of soils as they relate to plant or crop growth. May classify and map soils and investigate effects of alternative practices on soil and crop productivity.

**19-1020 Biological Scientists:** *Biochemists and Biophysicists:* Study the chemical composition and physical principles of living cells and organisms, their electrical and mechanical energy, and related phenomena. May conduct research to further understanding of the complex chemical combinations and reactions involved in metabolism, reproduction, growth, and heredity. May determine the effects of foods, drugs, serums, hormones, and other substances on tissues and vital processes of living organisms. *Microbiologists:* Investigate the growth, structure, development, and other characteristics of microscopic organisms, such as bacteria, algae, or fungi. Include medical microbiologists who study the relationship between organisms and disease or the effects of antibiotics on microorganisms. *Zoologists and Wildlife Biologists:* Study the origins, behavior, diseases, genetics, and life processes of animals and wildlife. May specialize in wildlife research and management, including the collection and analysis of biological data to determine the environmental effects of present and potential use of land and water areas.

**19-1030 Conservation Scientists:** Manage, improve, and protect natural resources to maximize their use without damaging the environment. May conduct soil surveys and develop plans to eliminate soil erosion or to protect rangelands from fire and rodent damage. May instruct farmers, agricultural production managers, or ranchers in best ways to use crop rotation, contour plowing, or terracing to conserve soil and water; in the number and kind of livestock and forage plants best suited to particular ranges; and in range and farm improvements, such as fencing and reservoirs for stock watering. Exclude "Zoologists and Wildlife Biologists" (19-1023). **Foresters:** Manage forested lands for economic, recreational, and conservation purposes. May inventory the type, amount, and location of standing timber, appraise the timber's worth, negotiate the purchase, and draw up contracts for procurement. May determine how to conserve wildlife habitats, creek beds, water quality, and soil stability, and how best to comply with environmental regulations. May devise plans for planting and growing new trees, monitor trees for healthy growth, and determine the best time for harvesting. Develop forest management plans for public and privately-owned forested lands.

**19-1040 Medical Scientists:** Conduct research dealing with the understanding of human diseases and the improvement of human health. Engage in clinical investigation or other research, production, technical writing, or related activities. Include medical scientists such as physicians, dentists, public health specialists, pharmacologists, and medical pathologists. Exclude practitioners who provide medical or dental care or dispense drugs. **Epidemiologists:** Investigate and describe the determinants and distribution of disease, disability, and other health outcomes and develop the means for prevention and control.

**19-2010 Astronomers:** Observe, research, and interpret celestial and astronomical phenomena to increase basic knowledge and apply such information to practical problems. **Physicists:** Conduct research into the phases of physical phenomena, develop theories and laws on the basis of observation and experiments, and devise methods to apply laws and theories to industry and other fields.

**19-2021 Atmospheric and Space Scientists:** Investigate atmospheric phenomena and interpret meteorological data gathered by surface and air stations, satellites, and radar to prepare reports and forecasts for public and other uses. Include weather analysts and forecasters whose functions require the detailed knowledge of a meteorologist.

**19-2030 Chemists:** Conduct qualitative and quantitative chemical analyses or chemical experiments in laboratories for quality or process control or to develop new products or knowledge. Exclude "Geoscientists, Except Hydrologists and Geographers" (19-2042) and "Biochemists and Biophysicists" (19-1021). **Materials Scientists:** Research and study the structures and chemical properties of various natural and manmade materials, including metals, alloys, rubber, ceramics, semiconductors, polymers, and glass. Determine ways to strengthen or combine materials or develop new materials with new or specific properties for use in a variety of products and applications. Include glass scientists, ceramic scientists, metallurgical scientists, and polymer scientists.

**19-2040 Environmental Scientists and Specialists, Including Health:** Conduct research or perform investigation for the purpose of identifying, abating, or eliminating sources of pollutants or hazards that affect either the environment or the health of the population. Utilizing knowledge of various scientific disciplines may collect, synthesize, study, report, and take action based on data derived from measurements or observations of air, food, soil, water, and other sources. Exclude "Zoologists and Wildlife Biologists" (19-1023), "Conservation Scientists" (19-1031), "Forest and Conservation Technicians" (19-4093), "Fish and Game Wardens" (33-3031), and "Forest and Conservation Workers" (45-4011).

**Geoscientists, Except Hydrologists and Geographers:** Study the composition, structure, and other physical aspects of the earth. May use geological, physics, and mathematics knowledge in exploration for oil, gas, minerals, or underground water; or in waste disposal, land reclamation, or other environmental problems. May study the earth's internal composition, atmospheres, oceans, and its magnetic, electrical, and gravitational forces. Include mineralogists, crystallographers, paleontologists, stratigraphers, geodesists, and seismologists. **Hydrologists:** Research the distribution, circulation, and physical properties of underground and surface waters; study the form and intensity of precipitation, its rate of infiltration into the soil, movement through the earth, and its return to the ocean and atmosphere.

**19-2099 Physical Scientists, All Other:** All physical scientists not listed separately.

**19-3011 Economists:** Conduct research, prepare reports, or formulate plans to aid in solution of economic problems arising from production and distribution of goods and services. May collect and process economic and statistical data using econometric and sampling techniques. Exclude "Market Research Analysts" (19-3021).

**19-3020 Market Research Analysts:** Research market conditions in local, regional, or national areas to determine potential sales of a product or service. May gather information on competitors, prices, sales, and methods of marketing and distribution. May use survey results to create a marketing campaign based on regional preferences and buying habits. **Survey Researchers:** Design or conduct surveys. May supervise interviewers who conduct the survey in person or over the telephone. May present survey results to client. Exclude "Statisticians" (15-2041), "Economists" (19-3011), and "Market Research Analysts" (19-3021).

**19-3030 Psychologists:** *Clinical, Counseling, and School:* Diagnose and treat mental disorders; learning disabilities; and cognitive, behavioral, and emotional problems using individual, child, family, and group therapies. May design and implement behavior modification programs. *Industrial-Organizational:* Apply principles of psychology to personnel, administration, management, sales, and marketing problems. Activities may include policy planning; employee screening, training and development; and organizational development and analysis. May work with management to reorganize the work setting to improve worker productivity.

**19-3051 Urban and Regional Planners:** Develop comprehensive plans and programs for use of land and physical facilities of local jurisdictions, such as towns, cities, counties, and metropolitan areas.

**19-30XX Miscellaneous Social Scientists, Including Sociologists:** *Sociologists:* Study human society and social behavior by examining the groups and social institutions that people form, as well as various social, religious, political, and business organizations. May study the behavior and interaction of groups, trace their origin and growth, and analyze the influence of group activities on individual members.

*Anthropologists and Archeologists:* Study the origin, development, and behavior of humans. May study the way of life, language, or physical characteristics of existing people in various parts of the world. May engage in systematic recovery and examination of material evidence, such as tools or pottery remaining from past human cultures, in order to determine the history, customs, and living habits of earlier civilizations.

*Geographers:* Study nature and use of areas of earth's surface, relating and interpreting interactions of physical and cultural phenomena. Conduct research on physical aspects of a region, including land forms, climates, soils, plants and animals, and conduct research on the spatial implications of human activities within a given area, including social characteristics, economic activities, and political organization, as well as researching interdependence between regions at scales ranging from local to global.

*Historians:* Research, analyze, record, and interpret the past as recorded in sources, such as government and institutional records, newspapers and other periodicals, photographs, interviews, films, and unpublished manuscripts, such as personal diaries and letters.

*Political Scientists:* Study the origin, development, and operation of political systems. Research a wide range of subjects, such as relations between the United States and foreign countries, the beliefs and institutions of foreign nations, or the politics of small towns or a major metropolis. May study topics, such as public opinion, political decision making, and ideology. May analyze the structure and operation of governments, as well as various political entities. May conduct public opinion surveys, analyze election results, or analyze public documents.

*Miscellaneous:* All social scientists and related workers not listed separately.

**19-4011 Agricultural and Food Science Technicians:** Work with agricultural scientists in food, fiber, and animal research, production, and processing; assist with animal breeding and nutrition work; under supervision, conduct tests and experiments to improve yield and quality of crops or to increase the resistance of plants and animals to disease or insects. Include technicians who assist food scientists or food technologists in the research, development, production technology, quality control, packaging, processing, and use of foods.

**19-4021 Biological Technicians:** Assist biological and medical scientists in laboratories. Set up, operate, and maintain laboratory instruments and equipment, monitor experiments, make observations, and calculate and record results. May analyze organic substances, such as blood, food, and drugs.

**19-4031 Chemical Technicians:** Conduct chemical and physical laboratory tests to assist scientists in making qualitative and quantitative analyses of solids, liquids, and gaseous materials for purposes, such as research and development of new products or processes, quality control, maintenance of environmental standards, and other work involving experimental, theoretical, or practical application of chemistry and related sciences.

**19-4041 Geological and Petroleum Technicians:** Assist scientists in the use of electrical, sonic, or nuclear measuring instruments in both laboratory and production activities to obtain data indicating potential sources of metallic ore, gas, or petroleum. Analyze mud and drill cuttings. Chart pressure, temperature, and other characteristics of wells or bore holes. Investigate and collect information leading to the possible discovery of new oil fields.

**19-40XX Miscellaneous Life, Physical, and Social Science Technicians, Including Social Science Research Assistants & Nuclear Technicians:** *Nuclear Technicians:* Assist scientists in both laboratory and production activities by performing technical tasks involving nuclear physics, primarily in operation, maintenance, production, and quality control support activities.

*Environmental Science and Protection Technicians, Including Health:* Performs laboratory and field tests to monitor the environment and investigate sources of pollution, including those that affect health. Under direction of an environmental scientist or specialist, may collect samples of gases, soil, water, and other materials for testing and take corrective actions as assigned.

*Forensic Science Technicians:* Collect, identify, classify, and analyze physical evidence related to criminal investigations. Perform tests on weapons or substances, such as fiber, hair, and tissue to determine significance to investigation. May testify as expert witnesses on evidence or crime laboratory techniques. May serve as specialists in area of expertise, such as ballistics, fingerprinting, handwriting, or biochemistry.

*Forest and Conservation Technicians:* Compile data pertaining to size, content, condition, and other characteristics of forest tracts, under direction of foresters; train and lead forest workers in forest propagation, fire prevention and suppression. May assist conservation scientists in managing, improving, and protecting rangelands and wildlife habitats, and help provide technical assistance regarding the conservation of soil, water, and related natural resources.

*Miscellaneous:* All life, physical, and social science technicians not listed separately.

## **21-0000: Community and Social Service Occupations**

**21-1010 Counselors:** *Substance Abuse and Behavioral Disorder:* Counsel and advise individuals with alcohol, tobacco, drug, or other problems, such as gambling and eating disorders. May counsel individuals, families, or groups or engage in prevention programs. Exclude "Social Workers" (21-1021 through 21-1029), "Psychologists" (19-3031 through 19-3039), and "Mental Health Counselors" (21-1014) providing these services. *Educational, Vocational, and School:* Counsel individuals and provide group educational and vocational guidance services. *Marriage and Family Therapists:* Diagnose and treat mental and emotional disorders, whether cognitive, affective, or behavioral, within the context of marriage and family systems. Apply psychotherapeutic and family systems theories and techniques in the delivery of professional services to individuals, couples, and families for the purpose of treating such diagnosed nervous and mental disorders. Exclude "Social Workers" (21-1021 through 21-1029) and "Psychologists" of all types (19-3031 through 19-3039).

*Mental Health:* Counsel with emphasis on prevention. Work with individuals and groups to promote optimum mental health. May help individuals deal with addictions and substance abuse; family, parenting, and marital problems; suicide; stress management; problems with self-esteem; and issues associated with aging and mental and emotional health. Exclude "Social Workers" (21-1021 through 21-1029), "Psychiatrists" (29-1066), and "Psychologists" (19-3031 through 19-3039). *Rehabilitation:* Counsel individuals to maximize the independence and employability of persons coping with personal, social, and vocational difficulties that result from birth defects, illness, disease, accidents, or the stress of daily life. Coordinate activities for residents of care and treatment facilities. Assess client needs and design and implement rehabilitation programs that may include personal and vocational counseling, training, and job placement.

**21-1020 Social Workers:** *Child, Family, and School:* Provide social services and assistance to improve the social and psychological functioning of children and their families and to maximize the family well-being and the academic

functioning of children. May assist single parents, arrange adoptions, and find foster homes for abandoned or abused children. In schools, they address such problems as teenage pregnancy, misbehavior, and truancy. May also advise teachers on how to deal with problem children. *Medical and Public Health*: Provide persons, families, or vulnerable populations with the psychosocial support needed to cope with chronic, acute, or terminal illnesses, such as Alzheimer's, cancer, or AIDS. Services include advising family care givers, providing patient education and counseling, and making necessary referrals for other social services. *Mental Health and Substance Abuse*: Assess and treat individuals with mental, emotional, or substance abuse problems, including abuse of alcohol, tobacco, and/or other drugs. Activities may include individual and group therapy, crisis intervention, case management, client advocacy, prevention, and education.

**21-1090 Miscellaneous Community and Social Service Specialists:** *Health Educators*: Promote, maintain, and improve individual and community health by assisting individuals and communities to adopt healthy behaviors. Collect and analyze data to identify community needs prior to planning, implementing, monitoring, and evaluating programs designed to encourage healthy lifestyles, policies and environments. May also serve as a resource to assist individuals, other professionals, or the community, and may administer fiscal resources for health education programs.

*Probation Officers and Correctional Treatment Specialists*: Provide social services to assist in rehabilitation of law offenders in custody or on probation or parole. Make recommendations for actions involving formulation of rehabilitation plan and treatment of offender, including conditional release and education and employment stipulations.

*Social and Human Service Assistants*: Assist professionals from a wide variety of fields, such as psychology, rehabilitation, or social work, to provide client services, as well as support for families. May assist clients in identifying available benefits and social and community services and help clients obtain them. May assist social workers with developing, organizing, and conducting programs to prevent and resolve problems relevant to substance abuse, human relationships, rehabilitation, or adult daycare. Exclude "Rehabilitation Counselors" (21-1015), "Personal and Home Care Aides" (39-9021), "Eligibility Interviewers, Government Programs" (43-4061), and "Psychiatric Technicians" (29-2053).

**21-2011 Clergy**: Conduct religious worship and perform other spiritual functions associated with beliefs and practices of religious faith or denomination. Provide spiritual and moral guidance and assistance to members.

**21-2021 Directors, Religious Activities and Education**: Direct and coordinate activities of a denominational group to meet religious needs of students. Plan, direct, or coordinate church school programs designed to promote religious education among church membership. May provide counseling and guidance relative to marital, health, financial, and religious problems.

**21-2099 Religious Workers, All Other**: All religious workers not listed separately.

### **23-0000: Legal Occupations**

**23-1011 Lawyers**: Represent clients in criminal and civil litigation and other legal proceedings, draw up legal documents, and manage or advise clients on legal transactions. May specialize in a single area or may practice broadly in many areas of law.

**23-1020 Judges, Magistrates, and Other Judicial Workers:** *Administrative Law Judges, Adjudicators, and Hearing Officers*: Conduct hearings to decide or recommend decisions on claims concerning government programs or other government-related matters and prepare decisions. Determine penalties or the existence and the amount of liability, or recommend the acceptance or rejection of claims, or compromise settlements. *Arbitrators, Mediators, and Conciliators*: Facilitate negotiation and conflict resolution through dialogue. Resolve conflicts outside of the court system by mutual consent of parties involved. *Judges, Magistrate Judges, and Magistrates*: Arbitrate, advise, adjudicate, or administer justice in a court of law. May sentence defendant in criminal cases according to government statutes. May determine liability of defendant in civil cases. May issue marriage licenses and perform wedding ceremonies.

**23-2011 Paralegals and Legal Assistants**: Assist lawyers by researching legal precedent, investigating facts, or preparing legal documents. Conduct research to support a legal proceeding, to formulate a defense, or to initiate legal action.

**23-2091 Miscellaneous Legal Support Workers:** *Court Reporters*: Use verbatim methods and equipment to capture, store, retrieve, and transcribe pretrial and trial proceedings or other information. Include stenographers who operate computerized stenographic captioning equipment to provide captions of live or prerecorded broadcasts for hearing-impaired viewers. *Law Clerks*: Assist lawyers or judges by researching or preparing legal documents. May meet with clients or assist lawyers and judges in court. Exclude "Lawyers" (23-1011) and "Paralegals and Legal Assistants" (23-2011). *Title Examiners, Abstractors, and Searchers*: Search real estate records, examine titles, or summarize pertinent legal or insurance details for a variety of purposes. May compile lists of mortgages, contracts, and other instruments pertaining to titles by searching public and private records for law firms, real estate agencies, or title insurance companies.

### **25-0000: Education, Training, and Library Occupations**

**25-1000 Postsecondary Teachers**: Teach courses in any subject matter. Include both teachers primarily engaged in teaching and those who do a combination of both teaching and research. *Graduate Teaching Assistants*: Assist department chairperson, faculty members, or other professional staff members in college or university by performing teaching or teaching-related duties, such as teaching lower level courses, developing teaching materials, preparing and giving examinations, and grading examinations or papers. Graduate assistants must be enrolled in a graduate school program. Graduate assistants who primarily perform non-teaching duties, such as laboratory research, should be reported in the occupational category related to the work performed.

**25-2010 Preschool and Kindergarten Teachers**: Exclude "Special Education Teachers" (25-2041 through 25-2043). *Preschool*: Instruct children (normally up to 5 years of age) in activities designed to promote social, physical, and intellectual growth needed for primary school in preschool, day care center, or other child development facility. May be required to hold State certification. Exclude "Child Care Workers" (39-9011). *Kindergarten*: Teach elemental natural and

social science, personal hygiene, music, art, and literature to children from 4 to 6 years old. Promote physical, mental, and social development. May be required to hold State certification.

**25-2020 Elementary and Middle School Teachers:** Exclude "Special Education Teachers" (25-2041 through 25-2043). *Elementary:* Teach pupils in public or private schools at the elementary level basic academic, social, and other formative skills. *Middle School:* Teach students in public or private schools in one or more subjects at the middle, intermediate, or junior high level, which falls between elementary and senior high school as defined by applicable State laws and regulations. *Vocational Education Middle School:* Teach or instruct vocational or occupational subjects at the middle school level.

**25-2030 Secondary School Teachers:** Exclude "Special Education Teachers" (25-2041 through 25-2043). Instruct students in secondary public or private schools in one or more subjects at the secondary level, such as English, mathematics, or social studies. May be designated according to subject matter specialty, such as typing instructors, commercial teachers, or English teachers. *Vocational Education:* Teach or instruct vocational or occupational subjects at the secondary school level.

**25-2040 Special Education Teachers:** Teach preschool, elementary, middle, and secondary school subjects to educationally and physically handicapped students. Include teachers who specialize and work with audibly and visually handicapped students and those who teach basic academic and life processes skills to the mentally impaired.

**25-3000 Other Teachers and Instructors:** *Adult Literacy, Remedial Education, and GED Teachers and Instructors:* Teach or instruct out-of-school youths and adults in remedial education classes, preparatory classes for the General Educational Development test, literacy, or English as a Second Language. Teaching may or may not take place in a traditional educational institution. *Self-Enrichment Education Teachers:* Teach or instruct courses other than those that normally lead to an occupational objective or degree. Courses may include self-improvement, nonvocational, and nonacademic subjects. Teaching may or may not take place in a traditional educational institution.

**25-4010 Archivists, Curators, and Museum Technicians:** *Archivists:* Appraise, edit, and direct safekeeping of permanent records and historically valuable documents. Participate in research activities based on archival materials. *Curators:* Administer affairs of museum and conduct research programs. Direct instructional, research, and public service activities of institution. *Museum Technicians and Conservators:* Prepare specimens, such as fossils, skeletal parts, lace, and textiles, for museum collection and exhibits. May restore documents or install, arrange, and exhibit materials.

**25-4021 Librarians:** Administer libraries and perform related library services. Work in a variety of settings, including public libraries, schools, colleges and universities, museums, corporations, government agencies, law firms, non-profit organizations, and healthcare providers. Tasks may include selecting, acquiring, cataloguing, classifying, circulating, and maintaining library materials; and furnishing reference, bibliographical, and readers' advisory services. May perform in-depth, strategic research, and synthesize, analyze, edit, and filter information. May set up or work with databases and information systems to catalogue and access information.

**25-4031 Library Technicians:** Assist librarians by helping readers in the use of library catalogs, databases, and indexes to locate books and other materials; and by answering questions that require only brief consultation of standard reference. Compile records; sort and shelve books; remove or repair damaged books; register patrons; check materials in and out of the circulation process. Replace materials in shelving area (stacks) or files. Include bookmobile drivers who operate bookmobiles or light trucks that pull trailers to specific locations on a predetermined schedule and assist with providing services in mobile libraries.

**25-9041 Teacher Assistants:** Perform duties that are instructional in nature or deliver direct services to students or parents. Serve in a position for which a teacher or another professional has ultimate responsibility for the design and implementation of educational programs and services.

**25-90XX Other Education, Training, and Library Workers:** *Audio-Visual Collections Specialists:* Prepare, plan, and operate audio-visual teaching aids for use in education. May record, catalogue, and file audio-visual materials. *Farm and Home Management Advisors:* Advise, instruct, and assist individuals and families engaged in agriculture, agricultural-related processes, or home economics activities. Demonstrate procedures and apply research findings to solve problems; instruct and train in product development, sales, and the utilization of machinery and equipment to promote general welfare. Include county agricultural agents, feed and farm management advisers, home economists, and extension service advisers. *Instructional Coordinators:* Develop instructional material, coordinate educational content, and incorporate current technology in specialized fields that provide guidelines to educators and instructors for developing curricula and conducting courses. Include educational consultants and specialists, and instructional material directors.

## **27-0000: Arts, Design, Entertainment, Sports, and Media Occupations**

**27-1010 Artists and Related Workers:** *Art Directors:* Formulate design concepts and presentation approaches, and direct workers engaged in art work, layout design, and copy writing for visual communications media, such as magazines, books, newspapers, and packaging. *Fine Artists, Including Painters, Sculptors, and Illustrators:* Create original artwork using any of a wide variety of mediums and techniques, such as painting and sculpture. *Multi-Media Artists and Animators:* Create special effects, animation, or other visual images using film, video, computers, or other electronic tools and media for use in products or creations, such as computer games, movies, music videos, and commercials.

**27-1020 Designers:** *Commercial and Industrial:* Develop and design manufactured products, such as cars, home appliances, and children's toys. Combine artistic talent with research on product use, marketing, and materials to create the most functional and appealing product design. *Fashion:* Design clothing and accessories. Create original garments or design garments that follow well established fashion trends. May develop the line of color and kinds of materials. *Floral:* Design, cut, and arrange live, dried, or artificial flowers and foliage. *Graphic:* Design or create graphics to meet a client's specific commercial or promotional needs, such as packaging, displays, or logos. May use a variety of mediums to achieve artistic or decorative effects. *Interior:* Plan, design, and furnish interiors of residential, commercial, or industrial buildings. Formulate design which is practical, aesthetic, and conducive to intended purposes, such as raising productivity, selling merchandise, or improving life style. May specialize in a particular field, style, or phase of interior

design. *Merchandise Displayers and Window Trimmers*: Plan and erect commercial displays, such as those in windows and interiors of retail stores and at trade exhibitions.

*Set and Exhibit*: Design special exhibits and movie, television, and theater sets. May study scripts, confer with directors, and conduct research to determine appropriate architectural styles.

**27-2011 Actors**: Play parts in stage, television, radio, video, or motion picture productions for entertainment, information, or instruction. Interpret serious or comic role by speech, gesture, and body movement to entertain or inform audience. May dance and sing.

**27-2012 Producers and Directors**: Produce or direct stage, television, radio, video, or motion picture productions for entertainment, information, or instruction. Responsible for creative decisions, such as interpretation of script, choice of guests, set design, sound, special effects, and choreography.

**27-2020 Athletes, Coaches, Umpires, and Related Workers**: *Athletes and Sports Competitors*: Compete in athletic events. *Coaches and Scouts*: Instruct or coach groups or individuals in the fundamentals of sports. Demonstrate techniques and methods of participation. May evaluate athletes' strengths and weaknesses as possible recruits or to improve the athletes' technique to prepare them for competition. Those required to hold teaching degrees should be reported in the appropriate teaching category. Exclude "Athletic Trainers" (29-9091). *Umpires, Referees, and Other Sports Officials*: Officiate at competitive athletic or sporting events. Detect infractions of rules and decide penalties according to established regulations. Include all sporting officials, referees, and competition judges.

**27-2030 Dancers**: Perform dances. May also sing or act. **Choreographers**: Create and teach dance. May direct and stage presentations.

**27-2041 Musicians, Singers, and Related Workers**: *Music Directors and Composers*: Conduct, direct, plan, and lead instrumental or vocal performances by musical groups, such as orchestras, choirs, and glee clubs. Include arrangers, composers, choral directors, and orchestrators. *Musicians and Singers*: Play one or more musical instruments or entertain by singing songs in recital, in accompaniment, or as a member of an orchestra, band, or other musical group. Musical performers may entertain on-stage, radio, TV, film, video, or record in studios. Exclude "Dancers" (27-2031).

**27-2099 Entertainers and Performers, Sports and Related Workers, All Other**: All entertainers and performers, sports and related workers not listed separately.

**27-3010 Announcers**: *Radio and Television*: Talk on radio or television. May interview guests, act as master of ceremonies, read news flashes, identify station by giving call letters, or announce song title and artist. *Public Address System and Others*: Make announcements over loud speaker at sporting or other public events. May act as master of ceremonies or disc jockey at weddings, parties, clubs, or other gathering places.

**27-3020 News Analysts, Reporters and Correspondents**: *Broadcast News Analysts*: Analyze, interpret, and broadcast news received from various sources. *Reporters and Correspondents*: Collect and analyze facts about newsworthy events by interview, investigation, or observation. Report and write stories for newspaper, news magazine, radio, or television.

**27-3031 Public Relations Specialists**: Engage in promoting or creating good will for individuals, groups, or organizations by writing or selecting favorable publicity material and releasing it through various communications media. May prepare and arrange displays, and make speeches.

**27-3041 Editors**: Perform variety of editorial duties, such as laying out, indexing, and revising content of written materials, in preparation for final publication. Include technical editors.

**27-3042 Technical Writers**: Write technical materials, such as equipment manuals, appendices, or operating and maintenance instructions. May assist in layout work.

**27-3043 Writers and Authors**: Originate and prepare written material, such as scripts, stories, advertisements, and other material. Exclude "Public Relations Specialists" (27-3031) and "Technical Writers" (27-3042).

**27-3090 Miscellaneous Media and Communication Workers**: *Interpreters and Translators*: Translate or interpret written, oral, or sign language text into another language for others. *Miscellaneous*: All media and communication workers not listed separately.

**27-40XX Broadcast and Sound Engineering Technicians and Radio Operators and Other Media and Communication Equipment Workers**: *Audio and Video Equipment Technicians*: Set up or set up and operate audio and video equipment including microphones, sound speakers, video screens, projectors, video monitors, recording equipment, connecting wires and cables, sound and mixing boards, and related electronic equipment for concerts, sports events, meetings and conventions, presentations, and news conferences. May also set up and operate associated spotlights and other custom lighting systems. *Broadcast Technicians*: Set up, operate, and maintain the electronic equipment used to transmit radio and television programs. Control audio equipment to regulate volume level and quality of sound during radio and television broadcasts. Operate radio transmitter to broadcast radio and television programs. *Radio Operators*: Receive and transmit communications using radiotelegraph or radiotelephone equipment in accordance with government regulations. May repair equipment. *Sound Engineering Technicians*: Operate machines and equipment to record, synchronize, mix, or reproduce music, voices, or sound effects in sporting arenas, theater productions, recording studios, or movie and video productions. *Others*: All media and communication equipment workers not listed separately.

**27-4021 Photographers**: Photograph persons, subjects, merchandise, or other commercial products. May develop negatives and produce finished prints. Include scientific photographers, aerial photographers, and photojournalists.

**27-4030 Television, Video, and Motion Picture Camera Operators and Editors**: *Camera Operators*: Operate television, video, or motion picture camera to photograph images or scenes for various purposes, such as TV broadcasts, advertising, video production, or motion pictures. *Editors*: Edit motion picture soundtracks, film, and video.

## **29-0000: Healthcare Practitioners and Technical Occupations**

**29-1011 Chiropractors**: Adjust spinal column and other articulations of the body to correct abnormalities of the human body believed to be caused by interference with the nervous system. Examine patient to determine nature and extent of

disorder. Manipulate spine or other involved area. May utilize supplementary measures, such as exercise, rest, water, light, heat, and nutritional therapy.

**29-1020 Dentists:** *Dentists, General:* Diagnose and treat diseases, injuries, and malformations of teeth and gums and related oral structures. May treat diseases of nerve, pulp, and other dental tissues affecting vitality of teeth. *Oral and Maxillofacial Surgeons:* Perform surgery on mouth, jaws, and related head and neck structure to execute difficult and multiple extractions of teeth, to remove tumors and other abnormal growths, to correct abnormal jaw relations by mandibular or maxillary revision, to prepare mouth for insertion of dental prosthesis, or to treat fractured jaws.

*Orthodontists:* Examine, diagnose, and treat dental malocclusions and oral cavity anomalies. Design and fabricate appliances to realign teeth and jaws to produce and maintain normal function and to improve appearance.

*Prosthodontists:* Construct oral prostheses to replace missing teeth and other oral structures to correct natural and acquired deformation of mouth and jaws, to restore and maintain oral function, such as chewing and speaking, and to improve appearance. *Dentists, All Other Specialists:* All dentists not listed separately.

**29-1031 Dietitians and Nutritionists:** Plan and conduct food service or nutritional programs to assist in the promotion of health and control of disease. May supervise activities of a department providing quantity food services, counsel individuals, or conduct nutritional research.

**29-1041 Optometrists:** Diagnose, manage, and treat conditions and diseases of the human eye and visual system. Examine eyes and visual system, diagnose problems or impairments, prescribe corrective lenses, and provide treatment. May prescribe therapeutic drugs to treat specific eye conditions.

**29-1051 Pharmacists:** Dispense drugs prescribed by physicians and other health practitioners and provide information to patients about medications and their use. May advise physicians and other health practitioners on the selection, dosage, interactions, and side effects of medications.

**29-1060 Physicians and Surgeons:** *Anesthesiologists:* Administer anesthetics during surgery or other medical procedures.

*Family and General Practitioners:* Diagnose, treat, and help prevent diseases and injuries that commonly occur in the general population.

*Internists, General:* Diagnose and provide non-surgical treatment of diseases and injuries of internal organ systems. Provide care mainly for adults who have a wide range of problems associated with the internal organs. Include subspecialists, such as cardiologists and gastroenterologists, with "All Other Physicians" (29-1069).

*Obstetricians and Gynecologists:* Diagnose, treat, and help prevent diseases of women, especially those affecting the reproductive system and the process of childbirth.

*Pediatricians, General:* Diagnose, treat, and help prevent children's diseases and injuries.

*Psychiatrists:* Diagnose, treat, and help prevent disorders of the mind.

*Surgeons:* Treat diseases, injuries, and deformities by invasive methods, such as manual manipulation or by using instruments and appliances.

*Others:* All physicians and surgeons not listed separately.

**29-1071 Physician Assistants:** Provide healthcare services typically performed by a physician, under the supervision of a physician. Conduct complete physicals, provide treatment, and counsel patients. May, in some cases, prescribe medication. Must graduate from an accredited educational program for physician assistants. Exclude "Emergency Medical Technicians and Paramedics" (29-2041), "Medical Assistants" (31-9092), and "Registered Nurses" (29-1111).

**29-1081 Podiatrists:** Diagnose and treat diseases and deformities of the human foot.

**29-1111 Registered Nurses:** Assess patient health problems and needs, develop and implement nursing care plans, and maintain medical records. Administer nursing care to ill, injured, convalescent, or disabled patients. May advise patients on health maintenance and disease prevention or provide case management. Licensing or registration required. Include advance practice nurses such as: nurse practitioners, clinical nurse specialists, certified nurse midwives, and certified registered nurse anesthetists. Advanced practice nursing is practiced by RNs who have specialized formal, post-basic education and who function in highly autonomous and specialized roles.

**29-1121 Audiologists:** Assess and treat persons with hearing and related disorders. May fit hearing aids and provide auditory training. May perform research related to hearing problems.

**29-1122 Occupational Therapists:** Assess, plan, organize, and participate in rehabilitative programs that help restore vocational, homemaking, and daily living skills, as well as general independence, to disabled persons.

**29-1123 Physical Therapists:** Assess, plan, organize, and participate in rehabilitative programs that improve mobility, relieve pain, increase strength, and decrease or prevent deformity of patients suffering from disease or injury.

**29-1124 Radiation Therapists:** Provide radiation therapy to patients as prescribed by a radiologist according to established practices and standards. Duties may include reviewing prescription and diagnosis; acting as liaison with physician and supportive care personnel; preparing equipment, such as immobilization, treatment, and protection devices; and maintaining records, reports, and files. May assist in dosimetry procedures and tumor localization.

**29-1125 Recreational Therapists:** Plan, direct, or coordinate medically-approved recreation programs for patients in hospitals, nursing homes, or other institutions. Activities include sports, trips, dramatics, social activities, and arts and crafts. May assess a patient condition and recommend appropriate recreational activity.

**29-1126 Respiratory Therapists:** Assess, treat, and care for patients with breathing disorders. Assume primary responsibility for all respiratory care modalities, including the supervision of respiratory therapy technicians. Initiate and conduct therapeutic procedures; maintain patient records; and select, assemble, check, and operate equipment.

**29-1127 Speech-Language Pathologists:** Assess and treat persons with speech, language, voice, and fluency disorders. May select alternative communication systems and teach their use. May perform research related to speech and language problems.

**29-1129 Therapists, All Other:** All Therapist workers not listed separately.

**29-1131 Veterinarians:** Diagnose and treat diseases and dysfunctions of animals. May engage in a particular function, such as research and development, consultation, administration, technical writing, sale or production of commercial products, or rendering of technical services to commercial firms or other organizations. Include veterinarians who inspect livestock.

**29-1199 Health Diagnosing and Treating Practitioners, All Other:** All health diagnosing and treating practitioners not listed separately.

**29-2010 Clinical Laboratory Technologists and Technicians:** *Technologists:* Perform complex medical laboratory tests for diagnosis, treatment, and prevention of disease. May train or supervise staff.

*Technicians:* Perform routine medical laboratory tests for the diagnosis, treatment, and prevention of disease. May work under the supervision of a medical technologist.

**29-2021 Dental Hygienists:** Clean teeth and examine oral areas, head, and neck for signs of oral disease. May educate patients on oral hygiene, take and develop X-rays, or apply fluoride or sealants.

**29-2030 Diagnostic Related Technologists and Technicians:** *Cardiovascular:* Conduct tests on pulmonary or cardiovascular systems of patients for diagnostic purposes. May conduct or assist in electrocardiograms, cardiac catheterizations, pulmonary-functions, lung capacity, and similar tests. Include vascular technologists.

*Medical Sonographers:* Produce ultrasonic recordings of internal organs for use by physicians.

*Nuclear Medicine:* Prepare, administer, and measure radioactive isotopes in therapeutic, diagnostic, and tracer studies utilizing a variety of radioisotope equipment. Prepare stock solutions of radioactive materials and calculate doses to be administered by radiologists. Subject patients to radiation. Execute blood volume, red cell survival, and fat absorption studies following standard laboratory techniques. *Radiologic:* Take X-rays and CAT scans or administer nonradioactive materials into patient's blood stream for diagnostic purposes. Include technologists who specialize in other modalities, such as computed tomography and magnetic resonance. Include workers whose primary duties are to demonstrate portions of the human body on X-ray film or fluoroscopic screen.

**29-2041 Emergency Medical Technicians and Paramedics:** Assess injuries, administer emergency medical care, and extricate trapped individuals. Transport injured or sick persons to medical facilities.

**29-2050 Health Diagnosing and Treating Practitioner Support Technicians:** *Dietetic:* Assist dietitians in the provision of food service and nutritional programs. Under the supervision of dietitians, may plan and produce meals based on established guidelines, teach principles of food and nutrition, or counsel individuals.

*Pharmacy:* Prepare medications under the direction of a pharmacist. May measure, mix, count out, label, and record amounts and dosages of medications. *Psychiatric:* Care for mentally impaired or emotionally disturbed individuals, following physician instructions and hospital procedures. Monitor patients' physical and emotional well-being and report to medical staff. May participate in rehabilitation and treatment programs, help with personal hygiene, and administer oral medications and hypodermic injections. *Respiratory Therapy:* Provide specific, well defined respiratory care procedures under the direction of respiratory therapists and physicians. *Surgical:* Assist in operations, under the supervision of surgeons, registered nurses, or other surgical personnel. May help set up operating room, prepare and transport patients for surgery, adjust lights and equipment, pass instruments and other supplies to surgeons and surgeon's assistants, hold retractors, cut sutures, and help count sponges, needles, supplies, and instruments. *Veterinary:* Perform medical tests in a laboratory environment for use in the treatment and diagnosis of diseases in animals. Prepare vaccines and serums for prevention of diseases. Prepare tissue samples, take blood samples, and execute laboratory tests, such as urinalysis and blood counts. Clean and sterilize instruments and materials and maintain equipment and machines.

**29-2061 Licensed Practical and Licensed Vocational Nurses:** Care for ill, injured, convalescent, or disabled persons in hospitals, nursing homes, clinics, private homes, group homes, and similar institutions. May work under the supervision of a registered nurse. Licensing required.

**29-2071 Medical Records and Health Information Technicians:** Compile, process, and maintain medical records of hospital and clinic patients in a manner consistent with medical, administrative, ethical, legal, and regulatory requirements of the health care system. Process, maintain, compile, and report patient information for health requirements and standards.

**29-2081 Opticians, Dispensing:** Design, measure, fit, and adapt lenses and frames for client according to written optical prescription or specification. Assist client with selecting frames. Measure customer for size of eyeglasses and coordinate frames with facial and eye measurements and optical prescription. Prepare work order for optical laboratory containing instructions for grinding and mounting lenses in frames. Verify exactness of finished lens spectacles. Adjust frame and lens position to fit client. May shape or reshape frames. Include contact lens opticians.

**29-2090 Miscellaneous Health Technologists and Technicians:** *Orthotists and Prosthetists:* Assist patients with disabling conditions of limbs and spine or with partial or total absence of limb by fitting and preparing orthopedic braces or prostheses. *Miscellaneous:* All Health Technologist and Technician workers not listed separately.

**29-9000 Other Healthcare Practitioners and Technical Occupations:** *Occupational Health and Safety Specialists:* Review, evaluate, and analyze work environments and design programs and procedures to control, eliminate, and prevent disease or injury caused by chemical, physical, and biological agents or ergonomic factors. May conduct inspections and enforce adherence to laws and regulations governing the health and safety of individuals. May be employed in the public or private sector. Include environmental protection officers. *Occupational Health and Safety Technicians:* Collect data on work environments for analysis by occupational health and safety specialists. Implement and conduct evaluation of programs designed to limit chemical, physical, biological, and ergonomic risks to workers. *Athletic Trainers:* Evaluate, advise, and treat athletes to assist recovery from injury, avoid injury, or maintain peak physical fitness. *Other:* All Healthcare Practitioners and Technical workers not listed separately.

### **31-0000: Healthcare Support Occupations**

**31-1010 Nursing, Psychiatric, and Home Health Aides:** *Home Health Aides:* Provide routine, personal healthcare, such as bathing, dressing, or grooming, to elderly, convalescent, or disabled persons in the home of patients or in a residential care facility. *Nursing Aides, Orderlies, and Attendants:* Provide basic patient care under direction of nursing staff. Perform duties, such as feed, bathe, dress, groom, or move patients, or change linens. *Psychiatric Aides:* Assist mentally impaired or emotionally disturbed patients, working under direction of nursing and medical staff.

**31-2010 Occupational Therapist Assistants and Aides:** *Assistants:* Assist occupational therapists in providing occupational therapy treatments and procedures. May, in accordance with State laws, assist in development of treatment plans, carry out routine functions, direct activity programs, and document the progress of treatments. Generally requires formal training. *Aides:* Under close supervision of an occupational therapist or occupational therapy assistant, perform only delegated, selected, or routine tasks in specific situations. These duties include preparing patient and treatment room.

**31-2020 Physical Therapist Assistants and Aides:** *Assistants:* Assist physical therapists in providing physical therapy treatments and procedures. May, in accordance with State laws, assist in the development of treatment plans, carry out routine functions, document the progress of treatment, and modify specific treatments in accordance with patient status and within the scope of treatment plans established by a physical therapist. Generally requires formal training.

*Aides:* Under close supervision of a physical therapist or physical therapy assistant, perform only delegated, selected, or routine tasks in specific situations. These duties include preparing the patient and the treatment area.

**31-9011 Massage Therapists:** Massage customers for hygienic or remedial purposes.

**31-9091 Dental Assistants:** Assist dentist, set up patient and equipment, and keep records.

**31-9092 Medical Assistants and Other Healthcare Support Occupations:** *Assistants:* Perform administrative and certain clinical duties under the direction of physician. Administrative duties may include scheduling appointments, maintaining medical records, billing, and coding for insurance purposes. Clinical duties may include taking and recording vital signs and medical histories, preparing patients for examination, drawing blood, and administering medications as directed by physician. Exclude "Physician Assistants" (29-1071). *Equipment Preparers:* Prepare, sterilize, install, or clean laboratory or healthcare equipment. May perform routine laboratory tasks and operate or inspect equipment.

*Transcriptionists:* Use transcribing machines with headset and foot pedal to listen to recordings by physicians and other healthcare professionals dictating a variety of medical reports, such as emergency room visits, diagnostic imaging studies, operations, chart reviews, and final summaries. Transcribe dictated reports and translate medical jargon and abbreviations into their expanded forms. Edit as necessary and return reports in either printed or electronic form to the dictator for review and signature, or correction. *Pharmacy Aides:* Record drugs delivered to the pharmacy, store incoming merchandise, and inform the supervisor of stock needs. May operate cash register and accept prescriptions for filling. *Veterinary Assistants and Laboratory Animal Caretakers:* Feed, water, and examine pets and other nonfarm animals for signs of illness, disease, or injury in laboratories and animal hospitals and clinics. Clean and disinfect cages and work areas, and sterilize laboratory and surgical equipment. May provide routine post-operative care, administer medication orally or topically, or prepare samples for laboratory examination under the supervision of veterinary or laboratory animal technologists or technicians, veterinarians, or scientists. Exclude "Nonfarm Animal Caretakers" (39-2021). *Other:* All healthcare support workers not listed separately.

### **33-0000: Protective Services Occupations**

**33-1011 First-Line Supervisors/Managers of Correctional Officers:** Supervise and coordinate activities of correctional officers and jailers.

**33-1012 First-Line Supervisors/Managers of Police and Detectives:** Supervise and coordinate activities of members of police force.

**33-1021 First-Line Supervisors/Managers of Fire Fighting and Prevention Workers:** Supervise and coordinate activities of workers engaged in fire fighting and fire prevention and control.

**33-1099 Supervisors, Protective Service Workers, All Other:** All protective service supervisors not listed separately.

**33-2011 Fire Fighters:** Control and extinguish fires or respond to emergency situations where life, property, or the environment is at risk. Duties may include fire prevention, emergency medical service, hazardous material response, search and rescue, and disaster management.

**33-2020 Fire Inspectors (and Investigators):** Inspect buildings to detect fire hazards and enforce local ordinances and State laws. Investigate and gather facts to determine cause of fires and explosions.

**33-3010 Bailiffs:** Maintain order in courts of law. **Correctional Officers and Jailers:** Guard inmates in penal or rehabilitative institution in accordance with established regulations and procedures. May guard prisoners in transit between jail, courtroom, prison, or other point. Include deputy sheriffs and police who spend the majority of their time guarding prisoners in correctional institutions.

**33-3021 Detectives and Criminal Investigators:** Conduct investigations related to suspected violations of Federal, State, or local laws to prevent or solve crimes. Exclude "Private Detectives and Investigators" (33-9021).

**33-30XX Miscellaneous Law Enforcement Workers:** *Fish and Game Wardens:* Patrol assigned area to prevent fish and game law violations. Investigate reports of damage to crops or property by wildlife. Compile biological data.

*Parking Enforcement Workers:* Patrol assigned area, such as public parking lot or section of city to issue tickets to overtime parking violators and illegally parked vehicles.

**33-3050 Police Officers:** *Police and Sheriff's Patrol Officers:* Maintain order, enforce laws and ordinances, and protect life and property in an assigned patrol district. Perform combination of following duties: patrol a specific area on foot or in a vehicle; direct traffic; issue traffic summonses; investigate accidents; apprehend and arrest suspects, or serve legal processes of courts. *Transit and Railroad Police:* Protect and police railroad and transit property, employees, or passengers.

**33-9011 Animal Control Workers:** Handle animals for the purpose of investigations of mistreatment, or control of abandoned, dangerous, or unattended animals.

**33-9021 Private Detectives and Investigators:** Detect occurrences of unlawful acts or infractions of rules in private establishment, or seek, examine, and compile information for client.

**33-9030 Security Guards:** Guard, patrol, or monitor premises to prevent theft, violence, or infractions of rules.

**Gaming Surveillance Officers and Gaming Investigators:** Act as oversight and security agent for management and customers. Observe casino or casino hotel operation for irregular activities such as cheating or theft by either employees

or patrons. May utilize one-way mirrors above the casino floor, cashier's cage, and from desk. Use of audio/video equipment is also common to observe operation of the business. Usually required to provide verbal and written reports of all violations and suspicious behavior to supervisor.

**33-9091 Crossing Guards:** Guide or control vehicular or pedestrian traffic at such places as streets, schools, railroad crossings, or construction sites.

**33-909X Lifeguards and Other Protective Service Workers:** All protective service workers not listed separately.

### **35-0000: Food Preparation and Serving-Related Occupations**

**35-1011 Chefs and Head Cooks:** Direct the preparation, seasoning, and cooking of salads, soups, fish, meats, vegetables, desserts, or other foods. May plan and price menu items, order supplies, and keep records and accounts. May participate in cooking.

**35-1012 First-Line Supervisors/Managers of Food Preparation and Serving Workers:** Supervise workers engaged in preparing and serving food.

**35-2010 Cooks:** *Fast Food:* Prepare and cook food in a fast food restaurant with a limited menu. Duties of the cooks are limited to preparation of a few basic items and normally involve operating large-volume single-purpose cooking equipment. *Institution and Cafeteria:* Prepare and cook large quantities of food for institutions, such as schools, hospitals, or cafeterias. *Restaurant:* Prepare, season, and cook soups, meats, vegetables, desserts, or other foodstuffs in restaurants. May order supplies, keep records and accounts, price items on menu, or plan menu. *Short Order:* Prepare and cook to order a variety of foods that require only a short preparation time. May take orders from customers and serve patrons at counters or tables.

**35-2021 Food Preparation Workers:** Perform a variety of food preparation duties other than cooking, such as preparing cold foods and shellfish, slicing meat, and brewing coffee or tea.

**35-3011 Bartenders:** Mix and serve drinks to patrons, directly or through waitstaff.

**35-3021 Combined Food Preparation and Serving Workers, Including Fast Food:** Perform duties which combine both food preparation and food service.

**35-3022 Counter Attendants, Cafeteria, Food Concession, and Coffee Shop:** Serve food to diners at counter or from a steam table. Include counter attendants who also wait tables with "Waiters and Waitresses" (35-3031).

**35-3031 Waiters and Waitresses:** Take orders and serve food and beverages to patrons at tables in dining establishment. Exclude "Counter Attendants, Cafeteria, Food Concession, and Coffee Shop" (35-3022).

**35-3041 Food Servers, Nonrestaurant:** Serve food to patrons outside of a restaurant environment, such as in hotels, hospital rooms, or cars. Exclude "Door-to-Door Sales Workers, News and Street Vendors, and Related Workers" (41-9091) and "Counter Attendants, Cafeteria, Food Concession, and Coffee Shop" (35-3022).

**35-9011 Dining Room and Cafeteria Attendants, Bartender Helpers, and Miscellaneous Food Preparation and Serving Related Workers:** Facilitate food service. Clean tables, carry dirty dishes, replace soiled table linens; set tables; replenish supply of clean linens, silverware, glassware, and dishes; supply service bar with food, and serve water, butter, and coffee to patrons. *Miscellaneous:* All food preparation and serving related workers not listed separately.

**35-9021 Dishwashers:** Clean dishes, kitchen, food preparation equipment, or utensils.

**35-9031 Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop:** Welcome patrons, seat them at tables or in lounge, and help ensure quality of facilities and service.

### **37-0000: Building and Grounds Cleaning and Maintenance Occupations**

**37-1011 First-Line Supervisors/Managers of Housekeeping and Janitorial Workers:** Supervise work activities of cleaning personnel in hotels, hospitals, offices, and other establishments.

**37-1012 First-Line Supervisors/Managers of Landscaping, Lawn Service, and Groundskeeping Workers:** Plan, organize, direct, or coordinate activities of workers engaged in landscaping or groundskeeping activities, such as planting and maintaining ornamental trees, shrubs, flowers, and lawns, and applying fertilizers, pesticides, and other chemicals, according to contract specifications. May also coordinate activities of workers engaged in terracing hillsides, building retaining walls, constructing pathways, installing patios, and similar activities in following a landscape design plan. Work may involve reviewing contracts to ascertain service, machine, and work force requirements; answering inquiries from potential customers regarding methods, material, and price ranges; and preparing estimates according to labor, material, and machine costs.

**37-201X Janitors and Building Cleaners:** Keep buildings in clean and orderly condition. Perform heavy cleaning duties, such as cleaning floors, shampooing rugs, washing walls and glass, and removing rubbish. Duties may include tending furnace and boiler, performing routine maintenance activities, notifying management of need for repairs, and cleaning snow or debris from sidewalk.

**37-2012 Maids and Housekeeping Cleaners:** Perform any combination of light cleaning duties to maintain private households or commercial establishments, such as hotels, restaurants, and hospitals, in a clean and orderly manner. Duties include making beds, replenishing linens, cleaning rooms and halls, and vacuuming.

**37-2021 Pest Control Workers:** Spray or release chemical solutions or toxic gases and set traps to kill pests and vermin, such as mice, termites, and roaches, that infest buildings and surrounding areas.

**37-3010 Grounds Maintenance Workers:** *Landscaping and Groundskeeping Workers:* Landscape or maintain grounds of property using hand or power tools or equipment. Workers typically perform a variety of tasks, which may include any combination of the following: sod laying, mowing, trimming, planting, watering, fertilizing, digging, raking, sprinkler installation, and installation of mortarless segmental concrete masonry wall units. Exclude "Farmworkers and Laborers, Crop, Nursery, and Greenhouse" (45-2092). *Pesticide Handlers, Sprayers, and Applicators, Vegetation:* Mix or apply pesticides, herbicides, fungicides, or insecticides through sprays, dusts, vapors, soil incorporation or chemical application on trees, shrubs, lawns, or botanical crops. Usually requires specific training and State or Federal certification. Exclude

"Commercial Pilots" (53-2012) who operate aviation equipment to dust or spray crops. *Tree Trimmers and Pruners*: Cut away dead or excess branches from trees or shrubs to maintain right-of-way for roads, sidewalks, or utilities, or to improve appearance, health, and value of tree. Prune or treat trees or shrubs using handsaws, pruning hooks, sheers, and clippers. May use truck-mounted lifts and power pruners. May fill cavities in trees to promote healing and prevent deterioration. *Others*: All grounds maintenance workers not listed separately.

### **39-0000: Personal Care and Service Occupations**

**39-1010: First-Line Supervisors/Managers of Gaming Workers:** *Gaming Supervisors*: Supervise gaming operations and personnel in an assigned area. Circulate among tables and observe operations. Ensure that stations and games are covered for each shift. May explain and interpret operating rules of house to patrons. May plan and organize activities and create friendly atmosphere for guests in hotels/casinos. May adjust service complaints. *Slot Key Persons*: Coordinate/supervise functions of slot department workers to provide service to patrons. Handle and settle complaints of players. Verify and payoff jackpots. Reset slot machines after payoffs. Make minor repairs or adjustments to slot machines. Recommend removal of slot machines for repair. Report hazards and enforces safety rules.

**39-1021 First-Line Supervisors/Managers of Personal Service Workers:** Supervise and coordinate activities of personal service workers, such as supervisors of flight attendants, hairdressers, or caddies.

**39-2011 Animal Trainers:** Train animals for riding, harness, security, performance, or obedience, or assisting persons with disabilities. Accustom animals to human voice and contact; and condition animals to respond to commands. Train animals according to prescribed standards for show or competition. May train animals to carry pack loads or work as part of pack team.

**39-2021 Nonfarm Animal Caretakers:** Feed, water, groom, bathe, exercise, or otherwise care for pets and other nonfarm animals, such as dogs, cats, ornamental fish or birds, zoo animals, and mice. Work in settings such as kennels, animal shelters, zoos, circuses, and aquariums. May keep records of feedings, treatments, and animals received or discharged. May clean, disinfect, and repair cages, pens, or fish tanks. Exclude "Veterinary Assistants and Laboratory Animal Caretakers" (31-9096).

**39-3010: Gaming Services Workers:** *Gaming Dealers*: Operate table games. Stand or sit behind table and operate games of chance by dispensing the appropriate number of cards or blocks to players, or operating other gaming equipment. Compare the house's hand against players' hands and payoff or collect players' money or chips.

*Gaming and Sports Book Writers and Runners*: Assist in the operation of games such as keno and bingo. Scan winning tickets presented by patrons, calculate amount of winnings and pay patrons. May operate keno and bingo equipment. May start gaming equipment that randomly selects numbers. May announce number selected until total numbers specified for each game are selected. May pick up tickets from players, collect bets, receive, verify and record patrons' cash wagers.

**39-3021 Motion Picture Projectionists:** Set up and operate motion picture projection and related sound reproduction equipment.

**39-3031 Ushers, Lobby Attendants, and Ticket Takers:** Assist patrons at entertainment events by performing duties, such as collecting admission tickets and passes from patrons, assisting in finding seats, searching for lost articles, and locating such facilities as rest rooms and telephones.

**39-3090: Miscellaneous Entertainment Attendants and Related Workers:** *Amusement and Recreation Attendants*: Perform variety of attending duties at amusement or recreation facility. May schedule use of recreation facilities, maintain and provide equipment to participants of sporting events or recreational pursuits, or operate amusement concessions and rides. *Costume Attendants*: Select, fit, and take care of costumes for cast members, and aid entertainers. *Locker Room, Coatroom, and Dressing Room Attendants*: Provide personal items to patrons or customers in locker rooms, dressing rooms, or coatrooms. *Miscellaneous*: All entertainment attendants and related workers not listed separately.

**39-4010 Funeral Service Workers:** *Embalmers*: Prepare bodies for interment in conformity with legal requirements.

*Funeral Attendants*: Perform variety of tasks during funeral, such as placing casket in parlor or chapel prior to service; arranging floral offerings or lights around casket; directing or escorting mourners; closing casket; and issuing and storing funeral equipment.

**39-5011 Barbers:** Provide barbering services, such as cutting, trimming, shampooing, and styling hair, trimming beards, or giving shaves.

**39-5012 Hairdressers, Hairstylists, and Cosmetologists:** Provide beauty services, such as shampooing, cutting, coloring, and styling hair, and massaging and treating scalp. May also apply makeup, dress wigs, perform hair removal, and provide nail and skin care services.

**39-5090 Miscellaneous Personal Appearance Workers:** *Makeup Artists, Theatrical and Performance*: Apply makeup to performers to reflect period, setting, and situation of their role. *Manicurists and Pedicurists*: Clean and shape customers' fingernails and toenails. May polish or decorate nails. *Shampooers*: Shampoo and rinse customers' hair. *Skin Care Specialists*: Provide skin care treatments to face and body to enhance an individual's appearance.

**39-6010 Baggage Porters and Bellhops:** Handle baggage for travelers at transportation terminals or for guests at hotels or similar establishments. **Concierges:** Assist patrons at hotel, apartment or office building with personal services. May take messages, arrange or give advice on transportation, business services or entertainment, or monitor guest requests for housekeeping and maintenance.

**39-6020 Tour Guides and Escorts:** Escort individuals or groups on sightseeing tours or through places of interest, such as industrial establishments, public buildings, and art galleries. **Travel Guides:** Plan, organize, and conduct long distance cruises, tours, and expeditions for individuals and groups.

**39-6030 Transportation Attendants:** *Flight Attendants*: Provide personal services to ensure the safety and comfort of airline passengers during flight. Greet passengers, verify tickets, explain use of safety equipment, and serve food or beverages. *Other Attendants, Except Baggage Porters*: Provide services to ensure the safety and comfort of passengers aboard ships, buses, trains, or within the station or terminal. Perform duties, such as greeting passengers, explaining the use of safety equipment, serving meals or beverages, or answering questions related to travel.

**39-9011 Child Care Workers:** Attend to children at schools, businesses, private households, and child care institutions. Perform a variety of tasks, such as dressing, feeding, bathing, and overseeing play. Exclude "Preschool Teachers" (25-2011) and "Teacher Assistants" (25-9041).

**39-9021 Personal and Home Care Aides:** Assist elderly or disabled adults with daily living activities at the person's home or in a daytime non-residential facility. Duties performed at a place of residence may include keeping house (making beds, doing laundry, washing dishes) and preparing meals. May provide meals and supervised activities at non-residential care facilities. May advise families, the elderly, and disabled on such things as nutrition, cleanliness, and household utilities.

**39-9030 Recreation and Fitness Workers:** *Fitness Trainers and Aerobics Instructors:* Instruct or coach groups or individuals in exercise activities and the fundamentals of sports. Demonstrate techniques and methods of participation. Observe participants and inform them of corrective measures necessary to improve their skills. Those required to hold teaching degrees should be reported in the appropriate teaching category. Exclude "Athletic Trainers" (29-9091). *Recreation Workers:* Conduct recreation activities with groups in public, private, or volunteer agencies or recreation facilities. Organize and promote activities, such as arts and crafts, sports, games, music, dramatics, social recreation, camping, and hobbies, taking into account the needs and interests of individual members.

**39-9041 Residential Advisors:** Coordinate activities for residents of boarding schools, college fraternities or sororities, college dormitories, or similar establishments. Order supplies and determine need for maintenance, repairs, and furnishings. May maintain household records and assign rooms. May refer residents to counseling resources if needed.

**39-9099 Personal Care and Service Workers, All Other:** All personal care and service workers not listed separately.

#### **41-0000: Sales and Related Occupations**

**41-1011 First-Line Supervisors/Managers of Retail Sales Workers:** Directly supervise sales workers in a retail establishment or department. Duties may include management functions, such as purchasing, budgeting, accounting, and personnel work, in addition to supervisory duties.

**41-1012 First-Line Supervisors/Managers of Non-Retail Sales Workers:** Directly supervise and coordinate activities of sales workers other than retail sales workers. May perform duties, such as budgeting, accounting, and personnel work, in addition to supervisory duties.

**41-2010 Cashiers:** Receive and disburse money in establishments other than financial institutions. Usually involves use of electronic scanners, cash registers, or related equipment. Often involved in processing credit or debit card transactions and validating checks. *Gaming Change Persons and Booth Cashiers:* Exchange coins and tokens for patrons' money. May issue payoffs and obtain customer's signature on receipt when winnings exceed the amount held in the slot machine. May operate a booth in the slot machine area and furnish change persons with money bank at the start of the shift, or count and audit money in drawers.

**41-2021 Counter and Rental Clerks:** Receive orders for repairs, rentals, and services. May describe available options, compute cost, and accept payment.

**41-2022 Parts Salespersons:** Sell spare and replacement parts and equipment in repair shop or parts store.

**41-2031 Retail Salespersons:** Sell merchandise, such as furniture, motor vehicles, appliances, or apparel in a retail establishment. Exclude "Cashiers" (41-2010).

**41-3011 Advertising Sales Agents:** Sell or solicit advertising, including graphic art, advertising space in publications, custom made signs, or TV and radio advertising time. May obtain leases for outdoor advertising sites or persuade retailer to use sales promotion display items.

**41-3021 Insurance Sales Agents:** Sell life, property, casualty, health, automotive, or other types of insurance. May refer clients to independent brokers, work as independent broker, or be employed by an insurance company.

**41-3031 Securities, Commodities, and Financial Services Sales Agents:** Buy and sell securities in investment and trading firms, or call upon businesses and individuals to sell financial services. Provide financial services, such as loan, tax, and securities counseling. May advise securities customers about such things as stocks, bonds, and market conditions.

**41-3041 Travel Agents:** Plan and sell transportation and accommodations for travel agency customers. Determine destination, modes of transportation, travel dates, costs, and accommodations required.

**41-3099 Sales Representatives, Services, All Other:** All services sales representatives not listed separately.

**41-4010 Sales Representatives, Wholesale and Manufacturing:** *Technical and Scientific Products:* Sell goods for wholesalers or manufacturers where technical or scientific knowledge is required in such areas as biology, engineering, chemistry, and electronics, normally obtained from at least 2 years of post-secondary education. *Other Products:* Sell goods for wholesalers or manufacturers to businesses or groups of individuals. Work requires substantial knowledge of items sold.

**41-9010 Models:** Model garments and other apparel to display clothing before prospective buyers at fashion shows, private showings, retail establishments, or photographer. May pose for photos to be used for advertising purposes. May pose as subject for paintings, sculptures, and other types of artistic expression. **Demonstrators and Product Promoters:** Demonstrate merchandise and answer questions for the purpose of creating public interest in buying the product. May sell demonstrated merchandise.

**41-9020 Real Estate Brokers:** Operate real estate office, or work for commercial real estate firm, overseeing real estate transactions. Other duties usually include selling real estate or renting properties and arranging loans. **Real Estate Sales Agents:** Rent, buy, or sell property for clients. Perform duties, such as study property listings, interview prospective clients, accompany clients to property site, discuss conditions of sale, and draw up real estate contracts. Include agents who represent buyer.

**41-9031 Sales Engineers:** Sell business goods or services, the selling of which requires a technical background equivalent to a baccalaureate degree in engineering. Exclude "Engineers" (17-2011 through 17-2199) whose primary function is not marketing or sales.

**41-9041 Telemarketers:** Solicit orders for goods or services over the telephone.  
**41-9091 Door-To-Door Sales Workers, News and Street Vendors, and Related Workers:** Sell goods or services door-to-door or on the street.  
**41-9099 Sales and Related Workers, All Other:** All sales and related workers not listed separately.

#### **43-0000: Office and Administrative Support Occupations**

**43-1011 First-Line Supervisors/Managers of Office and Administrative Support Workers:** Supervise and coordinate the activities of clerical and administrative support workers.

**43-2011 Switchboard Operators, Including Answering Service:** Operate telephone business systems equipment or switchboards to relay incoming, outgoing, and interoffice calls. May supply information to callers and record messages.

**43-2021 Telephone Operators:** Provide information by accessing alphabetical and geographical directories. Assist customers with special billing requests, such as charges to a third party and credits or refunds for incorrectly dialed numbers or bad connections. May handle emergency calls and assist children or people with physical disabilities to make telephone calls.

**43-2099 Communications Equipment Operators, All Other:** All communications equipment operators not listed separately.

**43-3011 Bill and Account Collectors:** Locate and notify customers of delinquent accounts by mail, telephone, or personal visit to solicit payment. Duties include receiving payment and posting amount to customer's account; preparing statements to credit department if customer fails to respond; initiating repossession proceedings or service disconnection; keeping records of collection and status of accounts.

**43-3021 Billing and Posting Clerks and Machine Operators:** Compile, compute, and record billing, accounting, statistical, and other numerical data for billing purposes. Prepare billing invoices for services rendered or for delivery or shipment of goods.

**43-3031 Bookkeeping, Accounting, and Auditing Clerks:** Compute, classify, and record numerical data to keep financial records complete. Perform any combination of routine calculating, posting, and verifying duties to obtain primary financial data for use in maintaining accounting records. May also check the accuracy of figures, calculations, and postings pertaining to business transactions recorded by other workers.

**43-3041 Gaming Cage Workers:** In a gaming establishment, conduct financial transactions for patrons. May reconcile daily summaries of transactions to balance books. Accept patron's credit application and verify credit references to provide check-cashing authorization or to establish house credit accounts. May sell gambling chips, tokens, or tickets to patrons, or to other workers for resale to patrons. May convert gaming chips, tokens, or tickets to currency upon patron's request. May use a cash register or computer to record transaction.

**43-3051 Payroll and Timekeeping Clerks:** Compile and post employee time and payroll data. May compute employees' time worked, production, and commission. May compute and post wages and deductions. May prepare paychecks.

**43-3061 Procurement Clerks:** Compile information and records to draw up purchase orders for procurement of materials and services.

**43-3071 Tellers:** Receive and pay out money. Keep records of money and negotiable instruments involved in a financial institution's various transactions.

**43-4011 Brokerage Clerks:** Perform clerical duties involving the purchase or sale of securities. Duties include writing orders for stock purchases and sales, computing transfer taxes, verifying stock transactions, accepting and delivering securities, tracking stock price fluctuations, computing equity, distributing dividends, and keeping records of daily transactions and holdings.

**43-4031 Court, Municipal, and License Clerks:** Perform clerical duties in courts of law, municipalities, and governmental licensing agencies and bureaus. May prepare docket of cases to be called; secure information for judges and court; prepare draft agendas or bylaws for town or city council; answer official correspondence; keep fiscal records and accounts; issue licenses or permits; record data, administer tests, or collect fees. Include chief clerks with "Managers, All Other" (11-9199).

**43-4041 Credit Authorizers, Checkers, and Clerks:** Authorize credit charges against customers' accounts. Investigate history and credit standing of individuals or business establishments applying for credit. May interview applicants to obtain personal and financial data; determine credit worthiness; process applications; and notify customers of acceptance or rejection of credit.

**43-4051 Customer Service Representatives:** Interact with customers to provide information in response to inquiries about products and services and to handle and resolve complaints. Exclude individuals whose duties are primarily sales or repair.

**43-4061 Eligibility Interviewers, Government Programs:** Determine eligibility of persons applying to receive assistance from government programs and agency resources, such as welfare, unemployment benefits, social security, and public housing.

**43-4071 File Clerks:** File correspondence, cards, invoices, receipts, and other records in alphabetical or numerical order or according to the filing system used. Locate and remove material from file when requested.

**43-4081 Hotel, Motel, and Resort Desk Clerks:** Accommodate hotel, motel, and resort patrons by registering and assigning rooms to guests, issuing room keys, transmitting and receiving messages, keeping records of occupied rooms and guests' accounts, making and confirming reservations, and presenting statements to and collecting payments from departing guests.

**43-4111 Interviewers, Except Eligibility and Loan:** Interview persons by telephone, mail, in person, or by other means for the purpose of completing forms, applications, or questionnaires. Ask specific questions, record answers, and assist persons with completing form. May sort, classify, and file forms.

**43-4121 Library Assistants, Clerical:** Compile records, sort and shelve books, and issue and receive library materials such as pictures, cards, slides and microfilm. Locate library materials for loan and replace material in shelving area, stacks, or files according to identification number and title. Register patrons to permit them to borrow books, periodicals, and other library materials.

**43-4131 Loan Interviewers and Clerks:** Interview loan applicants to elicit information; investigate applicants' backgrounds and verify references; prepare loan request papers; and forward findings, reports, and documents to appraisal department. Review loan papers to ensure completeness, and complete transactions between loan establishment, borrowers, and sellers upon approval of loan.

**43-4141 New Accounts Clerks:** Interview persons desiring to open bank accounts. Explain banking services available to prospective customers and assist them in preparing application form.

**43-4XXX Correspondence Clerks:** Compose letters in reply to requests for merchandise, damage claims, credit and other information, delinquent accounts, incorrect billings, or unsatisfactory services. Duties may include gathering data to formulate reply and typing correspondence. **Order Clerks:** Receive and process incoming orders for materials, merchandise, classified ads, or services such as repairs, installations, or rental of facilities. Duties include informing customers of receipt, prices, shipping dates, and delays; preparing contracts; and handling complaints. Exclude "Dispatchers, Except Police, Fire, and Ambulance" (43-5032) who both dispatch and take orders for services.

**43-4161 Human Resources Assistants, Except Payroll and Timekeeping:** Compile and keep personnel records. Record data for each employee, such as address, weekly earnings, absences, amount of sales or production, supervisory reports on ability, and date of and reason for termination. Compile and type reports from employment records. File employment records. Search employee files and furnish information to authorized persons.

**43-4171 Receptionists and Information Clerks:** Answer inquiries and obtain information for general public, customers, visitors, and other interested parties. Provide information regarding activities conducted at establishment; location of departments, offices, and employees within organization. Exclude "Switchboard Operators, Including Answering Service" (43-2011).

**43-4181 Reservation and Transportation Ticket Agents and Travel Clerks:** Make and confirm reservations and sell tickets to passengers for large hotel or motel chains. May check baggage and direct passengers to designated concourse, pier, or track; make reservations, deliver tickets, arrange for visas, contact individuals and groups to inform them of package tours, or provide tourists with travel information, such as points of interest, restaurants, rates, and emergency service. Exclude "Travel Agents" (41-3041), "Hotel, Motel, and Resort Desk Clerks" (43-4081), and "Cashiers" (41-2011) who sell tickets for local transportation.

**43-4199 Information and Record Clerks, All Other:** All information and record clerks not listed separately.

**43-5011 Cargo and Freight Agents:** Expedite and route movement of incoming and outgoing cargo and freight shipments in airline, train, and trucking terminals, and shipping docks. Take orders from customers and arrange pickup of freight and cargo for delivery to loading platform. Prepare and examine bills of lading to determine shipping charges and tariffs.

**43-5021 Couriers and Messengers:** Pick up and carry messages, documents, packages, and other items between offices or departments within an establishment or to other business concerns, traveling by foot, bicycle, motorcycle, automobile, or public conveyance. Exclude "Truck Drivers, Light or Delivery Services" (53-3033).

**43-5030 Dispatchers: Police, Fire, and Ambulance:** Receive complaints from public concerning crimes and police emergencies. Broadcast orders to police patrol units in vicinity of complaint to investigate. Operate radio, telephone, or computer equipment to receive reports of fires and medical emergencies and relay information or orders to proper officials. *Others:* Schedule and dispatch workers, work crews, equipment, or service vehicles for conveyance of materials, freight, or passengers, or for normal installation, service, or emergency repairs rendered outside the place of business. Duties may include using radio, telephone, or computer to transmit assignments and compiling statistics and reports on work progress.

**43-5041 Meter Readers, Utilities:** Read meter and record consumption of electricity, gas, water, or steam.

**43-5051 Postal Service Clerks:** Perform any combination of tasks in a post office, such as receive letters and parcels; sell postage and revenue stamps, postal cards, and stamped envelopes; fill out and sell money orders; place mail in pigeon holes of mail rack or in bags according to State, address, or other scheme; and examine mail for correct postage.

**43-5052 Postal Service Mail Carriers:** Sort mail for delivery. Deliver mail on established route by vehicle or on foot.

**43-5053 Postal Service Mail Sorters, Processors, and Processing Machine Operators:** Prepare incoming and outgoing mail for distribution. Examine, sort, and route mail by State, type of mail, or other scheme. Load, operate, and occasionally adjust and repair mail processing, sorting, and canceling machinery. Keep records of shipments, pouches, and sacks; and other duties related to mail handling within the postal service. Must complete a competitive exam. Exclude "Postal Service Clerks" (43-5051) and "Postal Service Mail Carriers" (43-5052).

**43-5061 Production, Planning, and Expediting Clerks:** Coordinate and expedite the flow of work and materials within or between departments of an establishment according to production schedule. Duties include reviewing and distributing production, work, and shipment schedules; conferring with department supervisors to determine progress of work and completion dates; and compiling reports on progress of work, inventory levels, costs, and production problems. Exclude "Weighers, Measurers, Checkers, and Samplers, Recordkeeping" (43-5111).

**43-5071 Shipping, Receiving, and Traffic Clerks:** Verify and keep records on incoming and outgoing shipments. Prepare items for shipment. Duties include assembling, addressing, stamping, and shipping merchandise or material; receiving, unpacking, verifying and recording incoming merchandise or material; and arranging for the transportation of products. Exclude "Stock Clerks and Order Fillers" (43-5081) and "Weighers, Measurers, Checkers, and Samplers, Recordkeeping" (43-5111).

**43-5081 Stock Clerks and Order Fillers:** Receive, store, and issue sales floor merchandise, materials, equipment, and other items from stockroom, warehouse, or storage yard to fill shelves, racks, tables, or customers' orders. May mark prices on merchandise and set up sales displays. Exclude "Laborers and Freight, Stock, and Material Movers, Hand" (53-7062), and "Shipping, Receiving, and Traffic Clerks" (43-5071).

**43-5111 Weighers, Measurers, Checkers, and Samplers, Recordkeeping:** Weigh, measure, and check materials, supplies, and equipment for the purpose of keeping relevant records. Duties are primarily clerical by nature. Include workers who collect and keep record of samples of products or materials. Exclude production "Inspectors, Testers, Sorters, Samplers, and Weighers" (51-9061).

**43-6010 Secretaries and Administrative Assistants:** *Executive:* Provide high-level administrative support by conducting research, preparing statistical reports, handling information requests, and performing clerical functions such as preparing correspondence, receiving visitors, arranging conference calls, and scheduling meetings. May also train and supervise lower-level clerical staff. *Legal:* Perform secretarial duties utilizing legal terminology, procedures, and documents. Prepare legal papers and correspondence, such as summonses, complaints, motions, and subpoenas. May also assist with legal research. *Medical:* Perform secretarial duties utilizing specific knowledge of medical terminology and hospital, clinic, or laboratory procedures. Duties include scheduling appointments, billing patients, and compiling and recording medical charts, reports, and correspondence. *Others:* Perform routine clerical and administrative functions such as drafting correspondence, scheduling appointments, organizing and maintaining paper and electronic files, or providing information to callers.

**43-9011 Computer Operators:** Monitor and control electronic computer and peripheral electronic data processing equipment to process business, scientific, engineering, and other data according to operating instructions. May enter commands at a computer terminal and set controls on computer and peripheral devices. Monitor and respond to operating and error messages. Exclude "Data Entry Keyers" (43-9021).

**43-9021 Data Entry Keyers:** Operate data entry device, such as keyboard or photo composing perforator. Duties may include verifying data and preparing materials for printing. Exclude "Word Processors and Typists" (43-9022).

**43-9022 Word Processors and Typists:** Use word processor/computer or typewriter to type letters, reports, forms, or other material from rough draft, corrected copy, or voice recording. May perform other clerical duties as assigned. Include composing data keyers. Exclude "Data Entry Keyers" (43-9021), "Secretaries and Administrative Assistants" (43-6011 through 43-6014), "Court Reporters" (23-2091), and "Medical Transcriptionists" (31-9094).

**43-9031 Desktop Publishers:** Format typescript and graphic elements using computer software to produce publication-ready material.

**43-9041 Insurance Claims and Policy Processing Clerks:** Process new insurance policies, modifications to existing policies, and claims forms. Obtain information from policyholders to verify the accuracy and completeness of information on claims forms, applications and related documents, and company records. Update existing policies and company records to reflect changes requested by policyholders and insurance company representatives. Exclude "Claims Adjusters, Examiners, and Investigators" (13-1031).

**43-9051 Mail Clerks and Mail Machine Operators, Except Postal Service:** Prepare incoming and outgoing mail for distribution. Use hand or mail handling machines to time stamp, open, read, sort, and route incoming mail; and address, seal, stamp, fold, stuff, and affix postage to outgoing mail or packages. Duties may also include keeping necessary records and completed forms.

**43-9061 Office Clerks, General:** Perform duties too varied and diverse to be classified in any specific office clerical occupation, requiring limited knowledge of office management systems and procedures. Clerical duties may be assigned in accordance with the office procedures of individual establishments and may include a combination of answering telephones, bookkeeping, typing or word processing, stenography, office machine operation, and filing.

**43-9071 Office Machine Operators, Except Computer:** Operate one or more of a variety of office machines, such as photocopying, photographic, and duplicating machines, or other office machines. Exclude "Computer Operators" (43-9011), "Mail Clerks and Mail Machine Operators" (43-9051) and "Billing and Posting Clerks and Machine Operators" (43-3021).

**43-9081 Proofreaders and Copy Markers:** Read transcript or proof type setup to detect and mark for correction any grammatical, typographical, or compositional errors. Exclude workers whose primary duty is editing copy. Include proofreaders of Braille.

**43-9111 Statistical Assistants:** Compile and compute data according to statistical formulas for use in statistical studies. May perform actuarial computations and compile charts and graphs for use by actuaries. Include actuarial clerks.

**43-9199 Office and Administrative Support Workers, All Other:** All office and administrative support workers not listed separately.

#### **45-0000: Farming, Fishing, and Forestry Occupations**

**45-1010 First-Line Supervisors/Managers of Farming, Fishing, and Forestry Workers:** Directly supervise and coordinate the activities of agricultural, forestry, aquacultural, and related workers. Exclude "First-Line Supervisors/Managers of Landscaping, Lawn Service, and Groundskeeping Workers" (37-1012).

**45-2011 Agricultural Inspectors:** Inspect agricultural commodities, processing equipment, and facilities, and fish and logging operations, to ensure compliance with regulations and laws governing health, quality, and safety.

**45-2041 Graders and Sorters, Agricultural Products:** Grade, sort, or classify unprocessed food and other agricultural products by size, weight, color, or condition. Exclude "Agricultural Inspectors" (45-2011).

**45-20XX Miscellaneous Agricultural Workers, Including Animal Breeders:** *Animal Breeders:* Breed animals, including cattle, goats, horses, sheep, swine, poultry, dogs, cats, or pet birds. Select and breed animals according to their genealogy, characteristics, and offspring. May require a knowledge of artificial insemination techniques and equipment use. May involve keeping records on heats, birth intervals, or pedigree. Exclude "Nonfarm Animal Caretakers" (39-2021) who may occasionally breed animals as part of their other caretaking duties. Exclude "Animal Scientists" (19-1011) whose primary function is research. *Agricultural Equipment Operators:* Drive and control farm equipment to till soil and to plant, cultivate, and harvest crops. May perform tasks, such as crop baling or hay bucking. May operate stationary equipment to perform post-harvest tasks, such as husking, shelling, threshing, and ginning. *Farmworkers and Laborers, Crop, Nursery, and Greenhouse:* Manually plant, cultivate, and harvest vegetables, fruits, nuts, horticultural specialties, and field crops.

Use hand tools, such as shovels, trowels, hoes, tampers, pruning hooks, shears, and knives. Duties may include tilling soil and applying fertilizers; transplanting, weeding, thinning, or pruning crops; applying pesticides; cleaning, grading, sorting, packing and loading harvested products. May construct trellises, repair fences and farm buildings, or participate in irrigation activities. Exclude "Graders and Sorters, Agricultural Products" (45-2041). Exclude "Forest, Conservation, and Logging Workers" (45-4011 through 45-4029). *Farmworkers, Farm and Ranch Animals:* Attend to live farm, ranch, or aquacultural animals that may include cattle, sheep, swine, goats, horses and other equines, poultry, finfish, shellfish, and bees. Attend to animals produced for animal products, such as meat, fur, skins, feathers, eggs, milk, and honey. Duties may include feeding, watering, herding, grazing, castrating, branding, de-beaking, weighing, catching, and loading animals. May maintain records on animals; examine animals to detect diseases and injuries; assist in birth deliveries; and administer medications, vaccinations, or insecticides as appropriate. May clean and maintain animal housing areas. Include workers who shear wool from sheep, and collect eggs in hatcheries.

**45-3000 Fishing and Hunting Workers:** *Fishers and Related Fishing Workers:* Use nets, fishing rods, traps, or other equipment to catch and gather fish or other aquatic animals from rivers, lakes, or oceans, for human consumption or other uses. May haul game onto ship. Includes aquacultural laborers who work on fish farms with "Agricultural Workers, All Other" (45-2099). *Hunters and Trappers:* Hunt and trap wild animals for human consumption, fur, feed, bait, or other purposes.

**45-4011 Forest and Conservation Workers:** Under supervision, perform manual labor necessary to develop, maintain, or protect forest, forested areas, and woodlands through such activities as raising and transporting tree seedlings; combating insects, pests, and diseases harmful to trees; and building erosion and water control structures and leaching of forest soil. Include forester aides, seedling pullers, and tree planters.

**45-4021 Logging Workers:** *Fallers:* Use axes or chainsaws to fell trees using knowledge of tree characteristics and cutting techniques to control direction of fall and minimize tree damage. *Equipment Operators:* Drive logging tractor or wheeled vehicle equipped with one or more accessories, such as bulldozer blade, frontal shear, grapple, logging arch, cable winches, hoisting rack, or crane boom, to fell tree; to skid, load, unload, or stack logs; or to pull stumps or clear brush. *Log Graders and Scalers:* Grade logs or estimate the marketable content or value of logs or pulpwood in sorting yards, millpond, log deck, or similar locations. Inspect logs for defects or measure logs to determine volume. Exclude "Purchasing Agents and Buyers, Farm Products" (13-1021).

#### **47-0000: Construction and Extraction Occupations**

**47-1011 First-Line Supervisors/Managers of Construction Trades and Extraction Workers:** Directly supervise and coordinate activities of construction or extraction workers.

**47-2011 Boilermakers:** Construct, assemble, maintain, and repair stationary steam boilers and boiler house auxiliaries. Align structures or plate sections to assemble boiler frame tanks or vats, following blueprints. Work involves use of hand and power tools, plumb bobs, levels, wedges, dogs, or turnbuckles. Assist in testing assembled vessels. Direct cleaning of boilers and boiler furnaces. Inspect and repair boiler fittings, such as safety valves, regulators, automatic-control mechanisms, water columns, and auxiliary machines.

**47-2020 Brickmasons and Blockmasons:** Lay and bind building materials, such as brick, structural tile, concrete block, cinder block, glass block, and terra-cotta block, with mortar and other substances to construct or repair walls, partitions, arches, sewers, and other structures. Classify installers of mortarless segmental concrete masonry wall units in "Landscaping and Groundskeeping Workers" (37-3011). **Stonemasons:** Build stone structures, such as piers, walls, and abutments. Lay walks, curbstones, or special types of masonry for vats, tanks, and floors.

**47-2031 Carpenters:** Construct, erect, install, or repair structures and fixtures made of wood, such as concrete forms; building frameworks, including partitions, joists, studding, and rafters; wood stairways, window and door frames, and hardwood floors. May also install cabinets, siding, drywall and batt or roll insulation. Include brattice builders who build doors or brattices (ventilation walls or partitions) in underground passageways to control the proper circulation of air through the passageways and to the working places.

**47-2040 Carpet, Floor, and Tile Installers and Finishers:** *Carpet Installers:* Lay and install carpet from rolls or blocks on floors. Install padding and trim flooring materials. *Floor Layers, Except Carpet, Wood, and Hard Tiles:* Apply blocks, strips, or sheets of shock-absorbing, sound-deadening, or decorative coverings to floors. *Floor Sanders and Finishers:* Scrape and sand wooden floors to smooth surfaces using floor scraper and floor sanding machine, and apply coats of finish. *Tile and Marble Setters:* Apply hard tile, marble, and wood tile to walls, floors, ceilings, and roof decks.

**47-2050 Cement Masons and Concrete Finishers:** Smooth and finish surfaces of poured concrete, such as floors, walks, sidewalks, roads, or curbs using a variety of hand and power tools. Align forms for sidewalks, curbs, or gutters; patch voids; use saws to cut expansion joints. Classify installers of mortarless segmental concrete masonry wall units in "Landscaping and Groundskeeping Workers. (37-3011). **Terrazzo Workers and Finishers:** Apply a mixture of cement, sand, pigment, or marble chips to floors, stairways, and cabinet fixtures to fashion durable and decorative surfaces.

**47-2061 Construction Laborers:** Perform tasks involving physical labor at building, highway, and heavy construction projects, tunnel and shaft excavations, and demolition sites. May operate hand and power tools of all types: air hammers, earth tampers, cement mixers, small mechanical hoists, surveying and measuring equipment, and a variety of other equipment and instruments. May clean and prepare sites, dig trenches, set braces to support the sides of excavations, erect scaffolding, clean up rubble and debris, and remove asbestos, lead, and other hazardous waste materials. May assist other craft workers. Exclude construction laborers who primarily assist a particular craft worker.

**47-2071 Paving, Surfacing, and Tamping Equipment Operators:** Operate equipment used for applying concrete, asphalt, or other materials to road beds, parking lots, or airport runways and taxiways, or equipment used for tamping gravel, dirt, or other materials. Include concrete and asphalt paving machine operators, form tampers, tamping machine operators, and stone spreader operators.

**47-207X Miscellaneous Construction Equipment Operators:** *Pile-Driver Operators:* Operate pile drivers mounted on skids, barges, crawler treads, or locomotive cranes to drive pilings for retaining walls, bulkheads, and foundations of

structures, such as buildings, bridges, and piers. *Operating Engineers and Others*: Operate one or several types of power construction equipment, such as motor graders, bulldozers, scrapers, compressors, pumps, derricks, shovels, tractors, or front-end loaders to excavate, move, and grade earth, erect structures, or pour concrete or other hard surface pavement. May repair and maintain equipment in addition to other duties. Exclude "Crane and Tower Operators" (53-7021) and equipment operators who work in extraction or other non-construction industries.

**47-2080 Drywall and Ceiling Tile Installers**: Apply plasterboard or other wallboard to ceilings or interior walls of buildings. Apply or mount acoustical tiles or blocks, strips, or sheets of shock-absorbing materials to ceilings and walls of buildings to reduce or reflect sound. Materials may be of decorative quality. Include lathers who fasten wooden, metal, or rockboard lath to walls, ceilings or partitions of buildings to provide support base for plaster, fire-proofing, or acoustical material. Exclude "Carpet Installers" (47-2041), "Carpenters" (47-2031), and "Tile and Marble Setters" (47-2044).

**Tapers**: Seal joints between plasterboard or other wallboard to prepare wall surface for painting or papering.

**47-2111 Electricians**: Install, maintain, and repair electrical wiring, equipment, and fixtures. Ensure that work is in accordance with relevant codes. May install or service street lights, intercom systems, or electrical control systems. Exclude "Security and Fire Alarm Systems Installers" (49-2098).

**47-2121 Glaziers**: Install glass in windows, skylights, store fronts, and display cases, or on surfaces, such as building fronts, interior walls, ceilings, and tabletops.

**47-2130 Insulation Workers**: *Floor, Ceiling, and Wall*: Line and cover structures with insulating materials. May work with batt, roll, or blown insulation materials. *Mechanical*: Apply insulating materials to pipes or ductwork, or other mechanical systems in order to help control and maintain temperature.

**47-2141 Painters, Construction and Maintenance**: Paint walls, equipment, buildings, bridges, and other structural surfaces, using brushes, rollers, and spray guns. May remove old paint to prepare surface prior to painting. May mix colors or oils to obtain desired color or consistency. Exclude "Paperhangers" (47-2142).

**47-2142 Paperhangers**: Cover interior walls and ceilings of rooms with decorative wallpaper or fabric, or attach advertising posters on surfaces, such as walls and billboards. Duties include removing old materials from surface to be papered.

**47-2150 Pipelayers**: Lay pipe for storm or sanitation sewers, drains, and water mains. Perform any combination of the following tasks: grade trenches or culverts, position pipe, or seal joints. Exclude "Welders, Cutters, Solderers, and Brazers" (51-4121). **Plumbers, Pipefitters, and Steamfitters**: Assemble, install, alter, and repair pipelines or pipe systems that carry water, steam, air, or other liquids or gases. May install heating and cooling equipment and mechanical control systems.

**47-2161 Plasterers and Stucco Masons**: Apply interior or exterior plaster, cement, stucco, or similar materials. May also set ornamental plaster.

**47-2181 Roofers**: Cover roofs of structures with shingles, slate, asphalt, aluminum, wood, and related materials. May spray roofs, sidings, and walls with material to bind, seal, insulate, or soundproof sections of structures.

**47-2211 Sheet Metal Workers**: Fabricate, assemble, install, and repair sheet metal products and equipment, such as ducts, control boxes, drainpipes, and furnace casings. Work may involve any of the following: setting up and operating fabricating machines to cut, bend, and straighten sheet metal; shaping metal over anvils, blocks, or forms using hammer; operating soldering and welding equipment to join sheet metal parts; inspecting, assembling, and smoothing seams and joints of burred surfaces. Include sheet metal duct installers who install prefabricated sheet metal ducts used for heating, air conditioning, or other purposes.

**47-2171 Iron and Steel Workers**: *Reinforcing and Rebar*: Position and secure steel bars or mesh in concrete forms in order to reinforce concrete. Use a variety of fasteners, rod-bending machines, blowtorches, and hand tools. Include rod busters. *Structural*: Raise, place, and unite iron or steel girders, columns, and other structural members to form completed structures or structural frameworks. May erect metal storage tanks and assemble prefabricated metal buildings.

**47-3011 Helpers, Construction Trades**: Exclude apprentice workers and report them with the appropriate skilled construction trade occupation. Exclude construction laborers who do not primarily assist carpenters, and classify them under "Construction Laborers" (47-2061).

*Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters*: Help brickmasons, blockmasons, stonemasons, or tile and marble setters by performing duties of lesser skill. Duties include using, supplying or holding materials or tools, and cleaning work area and equipment.

*Carpenters*: Help carpenters by performing duties of lesser skill. Duties include using, supplying or holding materials or tools, and cleaning work area and equipment.

*Electricians*: Help electricians by performing duties of lesser skill. Duties include using, supplying or holding materials or tools, and cleaning work area and equipment.

*Painters, Paperhangers, Plasterers, and Stucco Masons*: Help painters, paperhangers, plasterers, or stucco masons by performing duties of lesser skill. Duties include using, supplying or holding materials or tools, and cleaning work area and equipment.

*Pipelayers, Plumbers, Pipefitters, and Steamfitters*: Help plumbers, pipefitters, steamfitters, or pipelayers by performing duties of lesser skill. Duties include using, supplying or holding materials or tools, and cleaning work area and equipment.

*Roofers*: Help roofers by performing duties of lesser skill. Duties include using, supplying or holding materials or tools, and cleaning work area and equipment. *Other*: All construction trades helpers not listed separately.

**47-4011 Construction and Building Inspectors**: Inspect structures using engineering skills to determine structural soundness and compliance with specifications, building codes, and other regulations. Inspections may be general in nature or may be limited to a specific area, such as electrical systems or plumbing.

**47-4021 Elevator Installers and Repairers**: Assemble, install, repair, or maintain electric or hydraulic freight or passenger elevators, escalators, or dumbwaiters.

**47-4031 Fence Erectors**: Erect and repair metal and wooden fences and fence gates around highways, industrial establishments, residences, or farms, using hand and power tools.

**47-4041 Hazardous Materials Removal Workers:** Identify, remove, pack, transport, or dispose of hazardous materials, including asbestos, lead-based paint, waste oil, fuel, transmission fluid, radioactive materials, contaminated soil, etc. Specialized training and certification in hazardous materials handling or a confined entry permit are generally required. May operate earth-moving equipment or trucks.

**47-4051 Highway Maintenance Workers:** Maintain highways, municipal and rural roads, airport runways, and rights-of-way. Duties include patching broken or eroded pavement, repairing guard rails, highway markers, and snow fences. May also mow or clear brush from along road or plow snow from roadway. Exclude "Tree Trimmers and Pruners" (37-3013).

**47-4061 Rail-Track Laying and Maintenance Equipment Operators:** Lay, repair, and maintain track for standard or narrow-gauge railroad equipment used in regular railroad service or in plant yards, quarries, sand and gravel pits, and mines. Include ballast cleaning machine operators and road bed tamping machine operators.

**47-4071 Septic Tank Servicers and Sewer Pipe Cleaners:** Clean and repair septic tanks, sewer lines, or drains. May patch walls and partitions of tank, replace damaged drain tile, or repair breaks in underground piping.

**47-4090 Miscellaneous Construction and Related Workers:** *Segmental Pavers:* Lay out, cut, and paste segmental paving units. Include installers of bedding and restraining materials for the paving units. All other construction trades and related workers.

**47-50YY Derrick, Rotary Drill, and Service Unit Operators, and Roustabouts, Oil, Gas, and Mining:**

*Rotary Drill Operators, Oil and Gas:* Set up or operate a variety of drills to remove petroleum products from the earth and to find and remove core samples for testing during oil and gas exploration. *Service Unit Operators, Oil, Gas, and Mining:* Operate equipment to increase oil flow from producing wells or to remove stuck pipe, casing, tools, or other obstructions from drilling wells. May also perform similar services in mining exploration operations. Include fishing-tool technicians. *Roustabouts, Oil and Gas:* Assemble or repair oil field equipment using hand and power tools. Perform other tasks as needed.

**47-5021 Earth Drillers, Except Oil and Gas:** Operate a variety of drills--such as rotary, churn, and pneumatic--to tap sub-surface water and salt deposits, to remove core samples during mineral exploration or soil testing, and to facilitate the use of explosives in mining or construction. May use explosives. Include horizontal and earth boring machine operators.

**47-5031 Explosives Workers, Ordnance Handling Experts, and Blasters:** Place and detonate explosives to demolish structures or to loosen, remove, or displace earth, rock, or other materials. May perform specialized handling, storage, and accounting procedures. Include seismograph shooters. Exclude "Earth Drillers, Except Oil and Gas" (47-5021) who may also work with explosives.

**47-5040 Mining Machine Operators:** *Continuous:* Operate self-propelled mining machines that rip coal, metal and nonmetal ores, rock, stone, or sand from the face and load it onto conveyors or into shuttle cars in a continuous operation. *Mine Cutting and Channeling:* Operate machinery--such as longwall shears, plows, and cutting machines--to cut or channel along the face or seams of coal mines, stone quarries, or other mining surfaces to facilitate blasting, separating, or removing minerals or materials from mines or from the earth's surface. Include shale planers.

**47-50XX Miscellaneous Extraction Workers, Including Roof Bolters and Helpers:** *Rock Splitters, Quarry:* Separate blocks of rough dimension stone from quarry mass using jackhammer and wedges. *Roof Bolters, Mining:* Operate machinery to install roof support bolts in underground mine. *Helpers--Extraction Workers:* Help extraction craft workers, such as earth drillers, blasters and explosives workers, derrick operators, and mining machine operators, by performing duties of lesser skill. Duties include supplying equipment or cleaning work area. Exclude apprentice workers. *Others:* All extraction workers not listed separately.

#### **49-0000: Installation, Maintenance, and Repair Occupations**

**49-1011 First-Line Supervisors/Managers of Mechanics, Installers, and Repairers:** Supervise and coordinate the activities of mechanics, installers, and repairers. Exclude team or work leaders.

**49-2011 Computer, Automated Teller, and Office Machine Repairers:** Repair, maintain, or install computers, word processing systems, automated teller machines, and electronic office machines, such as duplicating and fax machines.

**49-2020 Radio and Telecommunications Equipment Installers and Repairers:** *Radio:* Test or repair mobile or stationary radio transmitting and receiving equipment and two-way radio communications systems used in ship-to-shore communications and found in service and emergency vehicles. *Telecommunications:* Set-up, rearrange, or remove switching and dialing equipment used in central offices. Service or repair telephones and other communication equipment on customers' property. May install equipment in new locations or install wiring and telephone jacks in buildings under construction.

**49-2091 Avionics Technicians:** Install, inspect, test, adjust, or repair avionics equipment, such as radar, radio, navigation, and missile control systems in aircraft or space vehicles.

**49-2092 Electric Motor, Power Tool, and Related Repairers:** Repair, maintain, or install electric motors, wiring, or switches.

**49-209X Electrical and Electronics Repairers, Industrial, Utility, and Transportation Equipment:**

Exclude "Avionics Technicians" (49-2091), "Electronic Equipment Installers and Repairers, Motor Vehicles" (49-2096).

*Transportation:* Install, adjust, or maintain mobile electronics communication equipment, including sound, sonar, security, navigation, and surveillance systems on trains, watercraft, or other mobile equipment. *Commercial and Industrial:* Repair, test, adjust, or install electronic equipment, such as industrial controls, transmitters, and antennas.

*Others:* Inspect, test, repair, or maintain electrical equipment in generating stations, substations, and in-service relays.

**49-2096 Electronic Equipment Installers and Repairers, Motor Vehicles:** Install, diagnose, or repair communications, sound, security, or navigation equipment in motor vehicles.

**49-2097 Electronic Home Entertainment Equipment Installers and Repairers:** Repair, adjust, or install audio or television receivers, stereo systems, camcorders, video systems, or other electronic home entertainment equipment.

**49-2098 Security and Fire Alarm Systems Installers:** Install, program, maintain, and repair security and fire alarm wiring and equipment. Ensure that work is in accordance with relevant codes. Exclude "Electricians" (47-2111) who do a broad range of electrical wiring.

**49-3011 Aircraft Mechanics and Service Technicians:** Diagnose, adjust, repair, or overhaul aircraft engines and assemblies, such as hydraulic and pneumatic systems. Include helicopter and aircraft engine specialists. Exclude "Avionics Technician" (49-2091).

**49-3021 Automotive Body and Related Repairers:** Repair and refinish automotive vehicle bodies and straighten vehicle frames. Exclude "Painters, Transportation Equipment" (51-9122) and "Automotive Glass Installers and Repairers" (49-3022).

**49-3022 Automotive Glass Installers and Repairers:** Replace or repair broken windshields and window glass in motor vehicles.

**49-3023 Automotive Service Technicians and Mechanics:** Diagnose, adjust, repair, or overhaul automotive vehicles. Exclude "Automotive Body and Related Repairers" (49-3021), "Bus and Truck Mechanics and Diesel Engine Specialists" (49-3031), and "Electronic Equipment Installers and Repairers, Motor Vehicles" (49-2096).

**49-3031 Bus and Truck Mechanics and Diesel Engine Specialists:** Diagnose, adjust, repair, or overhaul trucks, buses, and all types of diesel engines. Include mechanics working primarily with automobile diesel engines.

**49-3040 Heavy Vehicle and Mobile Equipment Service Technicians and Mechanics:** Exclude "Bus and Truck Mechanics and Diesel Engine Specialists" (49-3031). *Farm Equipment:* Diagnose, adjust, repair, or overhaul farm machinery and vehicles, such as tractors, harvesters, dairy equipment, and irrigation systems. *Mobile Heavy Equipment, Except Engines:* Diagnose, adjust, repair, or overhaul mobile mechanical, hydraulic, and pneumatic equipment, such as cranes, bulldozers, graders, and conveyors, used in construction, logging, and surface mining. *Rail Car Repairers:* Diagnose, adjust, repair, or overhaul railroad rolling stock, mine cars, or mass transit rail cars.

**49-3051 Small Engine Mechanics:** *Motorboat:* Repairs and adjusts electrical and mechanical equipment of gasoline or diesel powered inboard or inboard-outboard boat engines. Exclude "Diesel Engine Specialists" (49-3031). *Motorcycle:* Diagnose, adjust, repair, or overhaul motorcycles, scooters, mopeds, dirt bikes, or similar motorized vehicles. *Outdoor Power Equipment and Others:* Diagnose, adjust, repair, or overhaul small engines used to power lawn mowers, chain saws, and related equipment.

**49-3090 Miscellaneous Vehicle and Mobile Equipment Mechanics, Installers, and Repairers:** *Bicycle Repairers:* Repair and service bicycles. *Recreational:* Diagnose, inspect, adjust, repair, or overhaul recreational vehicles including travel trailers. May specialize in maintaining gas, electrical, hydraulic, plumbing, or chassis/towing systems as well as repairing generators, appliances, and interior components. Include workers who perform customized van conversions. Exclude "Automotive Service Technicians and Mechanics" (49-3023) and "Bus and Truck Mechanics and Diesel Engine Specialists" (49-3031) who also work on recreation vehicles. *Tire Repairers and Changers:* Repair and replace tires. *Miscellaneous:* All other vehicle and mobile equipment mechanics not listed separately.

**49-9010 Control and Valve Installers and Repairers:** *Mechanical Door Repairers:* Install, service, or repair opening and closing mechanisms of automatic doors and hydraulic door closers. Include garage door mechanics. *Others:* Install, repair, and maintain mechanical regulating and controlling devices, such as electric meters, gas regulators, thermostats, safety and flow valves, and other mechanical governors.

**49-9021 Heating, Air Conditioning, and Refrigeration Mechanics and Installers:** Install or repair heating, central air conditioning, or refrigeration systems, including oil burners, hot-air furnaces, and heating stoves.

**49-9031 Home Appliance Repairers:** Repair, adjust, or install all types of electric or gas household appliances, such as refrigerators, washers, dryers, and ovens.

**49-904X Industrial and Refractory Machinery Mechanics:** Exclude "Millwrights" (49-9044), "Mobile Heavy Equipment Mechanics, Except Engines" (49-3042), and "Maintenance Workers, Machinery" (49-9043) who perform only routine tasks. *Industrial:* Repair, install, adjust, or maintain industrial production and processing machinery or refinery and pipeline distribution systems. *Refractory, Except Brickmasons:* Build or repair furnaces, kilns, cupolas, boilers, converters, ladles, soaking pits, ovens, etc., using refractory materials.

**49-9042 Maintenance and Repair Workers, General:** Perform work involving the skills of two or more maintenance or craft occupations to keep machines, mechanical equipment, or the structure of an establishment in repair. Duties may involve pipe fitting; boiler making; insulating; welding; machining; carpentry; repairing electrical or mechanical equipment; installing, aligning, and balancing new equipment; and repairing buildings, floors, or stairs. Exclude "Maintenance Workers, Machinery" (49-9043).

**49-9043 Maintenance Workers, Machinery:** Lubricate machinery, change parts, or perform other routine machinery maintenance. Exclude "Maintenance and Repair Workers, General" (49-9042).

**49-9044 Millwrights:** Install, dismantle, or move machinery and heavy equipment according to layout plans, blueprints, or other drawings.

**49-9051 Electrical Power-Line Installers and Repairers:** Install or repair cables or wires used in electrical power or distribution systems. May erect poles and light or heavy duty transmission towers. Exclude "Electrical and Electronics Repairers, Powerhouse, Substation, and Relay" (49-2095).

**49-9052 Telecommunications Line Installers and Repairers:** String and repair telephone and television cable, including fiber optics and other equipment for transmitting messages or television programming.

**49-9060 Precision Instrument and Equipment Repairers:** *Camera and Photographic:* Repair and adjust cameras and photographic equipment, including commercial video and motion picture camera equipment. *Medical:* Test, adjust, or repair biomedical or electromedical equipment. *Musical Instrument:* Repair percussion, stringed, reed, or wind instruments. May specialize in one area, such as piano tuning. Exclude "Electronic Home Entertainment Equipment Installers and Repairers" (49-2097) who repair electrical and electronic musical instruments. *Watch:* Repair, clean, and adjust mechanisms of timing instruments, such as watches and clocks. Include watchmakers. *Others:* All precision instrument and equipment repairers not listed separately.

**49-9091 Coin, Vending, and Amusement Machine Servicers and Repairers:** Install, service, adjust, or repair coin, vending, or amusement machines including video games, juke boxes, pinball machines, or slot machines.

**49-9094 Locksmiths and Safe Repairers:** Repair and open locks; make keys; change locks and safe combinations; and install and repair safes.

**49-9095 Manufactured Building and Mobile Home Installers:** Move or install mobile homes or prefabricated buildings.

**49-9096 Riggers:** Set up or repair rigging for construction projects, manufacturing plants, logging yards, ships and shipyards, or for the entertainment industry.

**49-9098 Helpers--Installation, Maintenance, and Repair Workers:** Help installation, maintenance, and repair workers in maintenance, parts replacement, and repair of vehicles, industrial machinery, and electrical and electronic equipment. Perform duties, such as furnishing tools, materials, and supplies to other workers; cleaning work area, machines, and tools; and holding materials or tools for other workers.

**49-9092 Other Installation, Maintenance, and Repair Workers, Including Commercial Drivers and Signal and Track Switch Repairers:** *Commercial Divers:* Work below surface of water, using scuba gear to inspect, repair, remove, or install equipment and structures. May use a variety of power and hand tools, such as drills, sledgehammers, torches, and welding equipment. May conduct tests or experiments, rig explosives, or photograph structures or marine life. Exclude "Fishers and Related Fishing Workers" (45-3011), "Athletes and Sports Competitors" (27-2021), and "Police and Sheriff's Patrol Officers" (33-3051). *Fabric Menders, Except Garment:* Repair tears, holes, and other defects in fabrics, such as draperies, linens, parachutes, and tents. *Signal and Track Switch Repairers:* Install, inspect, test, maintain, or repair electric gate crossings, signals, signal equipment, track switches, section lines, or intercommunications systems within a railroad system. *Others:* All mechanical, installation, and repair workers and helpers not listed separately.

### **51-0000: Production Occupations**

**51-1011 First-Line Supervisors/Managers of Production and Operating Workers:** Supervise and coordinate the activities of production and operating workers, such as inspectors, precision workers, machine setters and operators, assemblers, fabricators, and plant and system operators. Exclude team or work leaders.

**51-2011 Aircraft Structure, Surfaces, Rigging, and Systems Assemblers:** Assemble, fit, fasten, and install parts of airplanes, space vehicles, or missiles, such as tails, wings, fuselage, bulkheads, stabilizers, landing gear, rigging and control equipment, or heating and ventilating systems.

**51-2020 Electrical, Electronics, and Electromechanical Assemblers:** *Coil Winders, Tapers, and Finishers:* Wind wire coils used in electrical components, such as resistors and transformers, and in electrical equipment and instruments, such as field cores, bobbins, armature cores, electrical motors, generators, and control equipment. *Electrical and Electronic:* Assemble or modify electrical or electronic equipment, such as computers, test equipment telemetering systems, electric motors, and batteries. *Electromechanical:* Assemble or modify electromechanical equipment or devices, such as servomechanisms, gyros, dynamometers, magnetic drums, tape drives, brakes, control linkage, actuators, and appliances.

**51-2031 Engine and Other Machine Assemblers:** Construct, assemble, or rebuild machines, such as engines, turbines, and similar equipment used in such industries as construction, extraction, textiles, and paper manufacturing.

**51-2041 Structural Metal Fabricators and Fitters:** Fabricate, lay out, position, align, and fit parts of structural metal products.

**51-2090 Miscellaneous Assemblers and Fabricators:** *Fiberglass Laminators and Fabricators:* Laminate layers of fiberglass on molds to form boat decks and hulls, bodies for golf carts, automobiles, or other products. *Team Assemblers:* Work as part of a team having responsibility for assembling an entire product or component of a product. Team assemblers can perform all tasks conducted by the team in the assembly process and rotate through all or most of them rather than being assigned to a specific task on a permanent basis. May participate in making management decisions affecting the work. Team leaders who work as part of the team should be included. Exclude assemblers (51-2011 through 51-2099) who continuously perform the same task. *Timing Device Assemblers, Adjusters, and Calibrators:* Perform precision assembling or adjusting, within narrow tolerances, of timing devices, such as watches, clocks, or chronometers. Exclude "Watch Repairers" (49-9064). *Miscellaneous:* All assemblers and fabricators not listed separately.

**51-3011 Bakers:** Mix and bake ingredients according to recipes to produce breads, rolls, cookies, cakes, pies, pastries, or other baked goods. Include pastry chefs in restaurants and hotels with "Chefs and Head Cooks" (35-1011).

**51-3020 Butchers and Other Meat, Poultry, and Fish Processing Workers:** *Butchers and Meat Cutters:* Cut, trim, or prepare consumer-sized portions of meat for use or sale in retail establishments. *Meat, Poultry, and Fish Cutters and Trimmers:* Use hand tools to perform routine cutting and trimming of meat, poultry, and fish. *Slaughterers and Meat Packers:* Work in slaughtering, meat packing, or wholesale establishments performing precision functions involving the preparation of meat. Work may include specialized slaughtering tasks, cutting standard or premium cuts of meat for marketing, making sausage, or wrapping meats.

**51-3091 Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders:** Operate or tend food or tobacco roasting, baking, or drying equipment, including hearth ovens, kiln driers, roasters, char kilns, and vacuum drying equipment.

**51-3092 Food Batchmakers:** Set up and operate equipment that mixes or blends ingredients used in the manufacturing of food products. Include candy makers and cheese makers.

**51-3093 Food Cooking Machine Operators and Tenders:** Operate or tend cooking equipment, such as steam cooking vats, deep fry cookers, pressure cookers, kettles, and boilers, to prepare food products. Exclude "Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders" (51-3091).

**51-4010 Computer Control Programmers and Operators:** *Computer-Controlled Machine Tool Operators, Metal and Plastic:* Operate computer-controlled machines or robots to perform one or more machine functions on metal or plastic work pieces. *Numerical Tool and Process Control Programmers:* Develop programs to control machining or processing of parts by automatic machine tools, equipment, or systems.

**51-4021 Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic:** Set up, operate, or tend machines to extrude or draw thermoplastic or metal materials into tubes, rods, hoses, wire, bars, or structural shapes.

**51-4022 Forging Machine Setters, Operators, and Tenders, Metal and Plastic:** Set up, operate, or tend forging machines to taper, shape, or form metal or plastic parts.

**51-4023 Rolling Machine Setters, Operators, and Tenders, Metal and Plastic:** Set up, operate, or tend machines to roll steel or plastic forming bends, beads, knurls, rolls, or plate or to flatten, temper, or reduce gauge of material.

**51-4031 Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic:** Set up, operate, or tend machines to saw, cut, shear, slit, punch, crimp, notch, bend, or straighten metal or plastic material.

**51-4032 Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic:** Set up, operate, or tend drilling machines to drill, bore, ream, mill, or countersink metal or plastic work pieces.

**51-4033 Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic:** Set up, operate, or tend grinding and related tools that remove excess material or burrs from surfaces, sharpen edges or corners, or buff, hone, or polish metal or plastic work pieces.

**51-4034 Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic:** Set up, operate, or tend lathe and turning machines to turn, bore, thread, form, or face metal or plastic materials, such as wire, rod, or bar stock.

**51-4041 Machinists:** Set up and operate a variety of machine tools to produce precision parts and instruments. Include precision instrument makers who fabricate, modify, or repair mechanical instruments. May also fabricate and modify parts to make or repair machine tools or maintain industrial machines, applying knowledge of mechanics, shop mathematics, metal properties, layout, and machining procedures.

**51-4050 Metal Furnace and Kiln Operators and Tenders:** *Metal-Refining Furnace Operators and Tenders:* Operate or tend furnaces, such as gas, oil, coal, electric-arc or electric induction, open-hearth, or oxygen furnaces, to melt and refine metal before casting or to produce specified types of steel. Exclude "Heat Treating Equipment Setters, Operators, and Tenders, Metal and Plastic" (51-4191). *Pourers and Casters, Metal:* Operate hand-controlled mechanisms to pour and regulate the flow of molten metal into molds to produce castings or ingots.

**51-4060 Model Makers and Patternmakers, Metal and Plastic:** *Model Makers:* Set up and operate machines, such as lathes, milling and engraving machines, and jig borers to make working models of metal or plastic objects. Include template makers. *Patternmakers:* Lay out, machine, fit, and assemble castings and parts to metal or plastic foundry patterns, core boxes, or match plates.

**51-4070 Molders and Molding Machine Setters, Operators, and Tenders, Metal and Plastic:** *Foundry Mold and Coremakers:* Make or form wax or sand cores or molds used in the production of metal castings in foundries. *Molding, Coremaking, and Casting Machine:* Set up, operate, or tend metal or plastic molding, casting, or coremaking machines to mold or cast metal or thermoplastic parts or products.

**51-4111 Tool and Die Makers:** Analyze specifications, lay out metal stock, set up and operate machine tools, and fit and assemble parts to make and repair dies, cutting tools, jigs, fixtures, gauges, and machinists' hand tools.

**51-4120 Welding, Soldering, and Brazing Workers:** *Welders, Cutters, Solderers, and Brazers:* Use hand-welding, flame-cutting, hand soldering, or brazing equipment to weld or join metal components or to fill holes, indentations, or seams of fabricated metal products. *Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders:* Set up, operate, or tend welding, soldering, or brazing machines or robots that weld, braze, solder, or heat treat metal products, components, or assemblies. Include workers who operate laser cutters or laser-beam machines.

**51-4191 Heat Treating Equipment Setters, Operators, and Tenders, Metal and Plastic:** Set up, operate, or tend heating equipment, such as heat-treating furnaces, flame-hardening machines, induction machines, soaking pits, or vacuum equipment to temper, harden, anneal, or heat-treat metal or plastic objects.

**51-4192 Lay-Out Workers, Metal and Plastic:** Lay out reference points and dimensions on metal or plastic stock or workpieces, such as sheets, plates, tubes, structural shapes, castings, or machine parts, for further processing. Include shipfitters.

**51-4193 Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic:** Set up, operate, or tend plating or coating machines to coat metal or plastic products with chromium, zinc, copper, cadmium, nickel, or other metal to protect or decorate surfaces. Include electrolytic processes.

**51-4194 Tool Grinders, Filers, and Sharpeners:** Perform precision smoothing, sharpening, polishing, or grinding of metal objects.

**51-4XXX Other Metalworkers and Plastic Workers, Including Milling, Planing, and Multiple Machine Tool Operators:** *Milling and Planing Machine Setters, Operators, and Tenders, Metal and Plastic:* Set up, operate, or tend milling or planing machines to mill, plane, shape, groove, or profile metal or plastic work pieces. *Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic:* Set up, operate, or tend more than one type of cutting or forming machine tool or robot. *Others:* All metalworkers and plastic workers not listed separately.

**51-5010 Bookbinders:** Perform highly skilled hand finishing operations, such as grooving and lettering to bind books.

**Bindery Workers:** Set up or operate binding machines that produce books and other printed materials. Include hand bindery workers.

**51-5021 Job Printers:** Set type according to copy; operate press to print job order; and read proof for errors and clarity of impression, and correct imperfections. Job printers are often found in small establishments where work combines several job skills.

**51-5022 Prepress Technicians and Workers:** Set up and prepare material for printing presses. Include prepress functions, such as compositing, typesetting, layout, paste-up, camera operating, scanning, film stripping, and photoengraving.

**51-5023 Printing Machine Operators:** Set up or operate various types of printing machines, such as offset, letterset, intaglio, or gravure presses or screen printers to produce print on paper or other materials.

**51-6011 Laundry and Dry-Cleaning Workers:** Operate or tend washing or dry-cleaning machines to wash or dry-clean industrial or household articles, such as cloth garments, suede, leather, furs, blankets, draperies, fine linens, rugs, and carpets. Include spotters and dyers of these articles.

**51-6021 Pressers, Textile, Garment, and Related Materials:** Press or shape articles by hand or machine.

**51-6031 Sewing Machine Operators:** Operate or tend sewing machines to join, reinforce, decorate, or perform related sewing operations in the manufacture of garment or non-garment products.

**51-6041 Shoe and Leather Workers and Repairers:** Construct, decorate, or repair leather and leather-like products, such as luggage, shoes, and saddles.

**51-6042 Shoe Machine Operators and Tenders:** Operate or tend a variety of machines to join, decorate, reinforce, or finish shoes and shoe parts.

**51-6050 Tailors, Dressmakers, and Custom Sewers:** Design, make, alter, repair, or fit garments. **Sewers, Hand:** Sew, join, reinforce, or finish, usually with needle and thread, a variety of manufactured items. Include weavers and stitchers. Exclude "Fabric Menders, Except Garment" (49-9093).

**51-6061 Textile Bleaching and Dyeing Machine Operators and Tenders:** Operate or tend machines to bleach, shrink, wash, dye, or finish textiles or synthetic or glass fibers.

**51-6062 Textile Cutting Machine Setters, Operators, and Tenders:** Set up, operate, or tend machines that cut textiles.

**51-6063 Textile Knitting and Weaving Machine Setters, Operators, and Tenders:** Set up, operate, or tend machines that knit, loop, weave, or draw in textiles. Exclude "Sewing Machine Operators" (51-6031).

**51-6064 Textile Winding, Twisting, and Drawing Out Machine Setters, Operators, and Tenders:** Set up, operate, or tend machines that wind or twist textiles; or draw out and combine sliver, such as wool, hemp, or synthetic fibers. Include slubber machine and drawing frame operators.

**51-6093 Upholsterers:** Make, repair, or replace upholstery for household furniture or transportation vehicles.

**51-609X Miscellaneous Textile, Apparel, and Furnishings Workers, Except Upholsterers:** *Extruding and Forming Machine Setters, Operators, and Tenders, Synthetic and Glass Fibers:* Set up, operate, or tend machines that extrude and form continuous filaments from synthetic materials, such as liquid polymer, rayon, and fiberglass. *Fabric and Apparel Patternmakers:* Draw and construct sets of precision master fabric patterns or layouts. May also mark and cut fabrics and apparel. *Miscellaneous:* All textile, apparel, and furnishings workers not listed separately.

**51-7011 Cabinetmakers and Bench Carpenters:** Cut, shape, and assemble wooden articles or set up and operate a variety of woodworking machines, such as power saws, jointers, and mortisers to surface, cut, or shape lumber or to fabricate parts for wood products. Exclude "Woodworking Machine Setters, Operators, and Tenders" (51-7041 through 51-7042) who specialize in one or a limited number of machine phases.

**51-7021 Furniture Finishers:** Shape, finish, and refinish damaged, worn, or used furniture or new high-grade furniture to specified color or finish.

**51-7041 Sawing Machine Setters, Operators, and Tenders, Wood:** Set up, operate, or tend wood sawing machines. Include head sawyers.

**51-7042 Woodworking Machine Setters, Operators, and Tenders, Except Sawing:** Set up, operate, or tend woodworking machines, such as drill presses, lathes, shapers, routers, sanders, planers, and wood nailing machines.

**51-70XX Miscellaneous Woodworkers:** *Model Makers:* Construct full-size and scale wooden precision models of products. Include wood jig builders and loft workers. *Patternmakers:* Plan, lay out, and construct wooden unit or sectional patterns used in forming sand molds for castings. *Others:* All woodworkers not listed separately.

**51-8010 Power Plant Operators, Distributors, and Dispatchers:** *Nuclear Power Reactor Operators:* Control nuclear reactors. *Power Distributors and Dispatchers:* Coordinate, regulate, or distribute electricity or steam. *Power Plant Operators:* Control, operate, or maintain machinery to generate electric power. Include auxiliary equipment operators.

**51-8021 Stationary Engineers and Boiler Operators:** Operate or maintain stationary engines, boilers, or other mechanical equipment to provide utilities for buildings or industrial processes. Operate equipment, such as steam engines, generators, motors, turbines, and steam boilers.

**51-8031 Water and Liquid Waste Treatment Plant and System Operators:** Operate or control an entire process or system of machines, often through the use of control boards, to transfer or treat water or liquid waste.

**51-8090 Miscellaneous Plant and System Operators:** *Chemical:* Control or operate an entire chemical process or system of machines. *Gas:* Distribute or process gas for utility companies and others by controlling compressors to maintain specified pressures on main pipelines. *Petroleum Pump System Operators, Refinery Operators, and Gaugers:* Control the operation of petroleum refining or processing units. May specialize in controlling manifold and pumping systems, gauging or testing oil in storage tanks, or regulating the flow of oil into pipelines. *Others:* All plant and system operators not listed separately.

**51-9010 Chemical Processing Machine Setters, Operators, and Tenders:** *Chemical Equipment Operators and Tenders:* Operate or tend equipment to control chemical changes or reactions in the processing of industrial or consumer products. Equipment used includes devulcanizers, steam-jacketed kettles, and reactor vessels. Exclude "Chemical Plant and System Operators" (51-8091). *Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders:* Set up, operate, or tend continuous flow or vat-type equipment; filter presses; shaker screens; centrifuges; condenser tubes; precipitating, fermenting, or evaporating tanks; scrubbing towers; or batch stills. These machines extract, sort, or separate liquids, gases, or solids from other materials to recover a refined product. Include dairy processing equipment operators.

**51-9020 Crushing, Grinding, Polishing, Mixing, and Blending Workers:** *Crushing, Grinding, and Polishing Machine Setters, Operators, and Tenders:* Set up, operate, or tend machines to crush, grind, or polish materials, such as coal, glass, grain, stone, food, or rubber. *Grinding and Polishing Workers, Hand:* Grind, sand, or polish, using hand tools or hand-held power tools, a variety of metal, wood, stone, clay, plastic, or glass objects. Include chippers, buffers, and finishers. *Mixing and Blending Machine Setters, Operators, and Tenders:* Set up, operate, or tend machines to mix or blend materials, such as chemicals, tobacco, liquids, color pigments, or explosive ingredients. Exclude "Food Batchmakers" (51-3092).

**51-9030 Cutting Workers:** *Cutters and Trimmers, Hand:* Use hand tools or hand-held power tools to cut and trim a variety of manufactured items, such as carpet, fabric, stone, glass, or rubber. *Cutting and Slicing Machine Setters, Operators, and Tenders:* Set up, operate, or tend machines that cut or slice materials, such as glass, stone, cork, rubber, tobacco, food, paper, or insulating material. Exclude "Woodworking Machine Setters, Operators, and Tenders" (51-7041 through 51-7042), "Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic" (51-4031), and "Textile Cutting Machine Setters, Operators, and Tenders" (51-6062).

**51-9041 Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders:** Set up, operate, or tend machines, such as glass forming machines, plodder machines, and tuber machines, to shape and form products, such as glassware, food, rubber, soap, brick, tile, clay, wax, tobacco, or cosmetics. Exclude "Paper Goods Machine Setters, Operators, and Tenders" (51-9196) and "Shoe Machine Operators and Tenders" (51-6042).

**51-9051 Furnace, Kiln, Oven, Drier, and Kettle Operators and Tenders:** Operate or tend heating equipment other than basic metal, plastic, or food processing equipment. Includes activities, such as annealing glass, drying lumber, curing rubber, removing moisture from materials, or boiling soap.

**51-9061 Inspectors, Testers, Sorters, Samplers, and Weighers:** Inspect, test, sort, sample, or weigh nonagricultural raw materials or processed, machined, fabricated, or assembled parts or products for defects, wear, and deviations from specifications. May use precision measuring instruments and complex test equipment.

**51-9071 Jewelers and Precious Stone and Metal Workers:** Design, fabricate, adjust, repair, or appraise jewelry, gold, silver, other precious metals, or gems. Include diamond polishers and gem cutters and persons who perform precision casting and modeling of molds, casting metal in molds, or setting precious and semi-precious stones for jewelry and related products.

**51-9080 Medical, Dental, and Ophthalmic Laboratory Technicians:** *Dental:* Construct and repair full or partial dentures or dental appliances. Exclude "Dental Assistants" (31-9091). *Medical:* Construct, fit, maintain, or repair medical supportive devices, such as braces, artificial limbs, joints, arch supports, and other surgical and medical appliances. *Ophthalmic:* Cut, grind, and polish eyeglasses, contact lenses, or other precision optical elements. Assemble and mount lenses into frames or process other optical elements. Include precision lens polishers or grinders, centerer-edgers, and lens mounters. Exclude "Opticians, Dispensing" (29-2081).

**51-9111 Packaging and Filling Machine Operators and Tenders:** Operate or tend machines to prepare industrial or consumer products for storage or shipment. Include cannery workers who pack food products.

**51-9120 Painting Workers:** *Coating, Painting, and Spraying Machine Setters, Operators, and Tenders:* Set up, operate, or tend machines to coat or paint any of a wide variety of products including food, glassware, cloth, ceramics, metal, plastic, paper, or wood, with lacquer, silver, copper, rubber, varnish, glaze, enamel, oil, or rust-proofing materials. Exclude "Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic" (51-4193). *Painters, Transportation Equipment:* Operate or tend painting machines to paint surfaces of transportation equipment, such as automobiles, buses, trucks, trains, boats, and airplanes. Include painters in auto body repair facilities. *Painting, Coating, and Decorating Workers:* Paint, coat, or decorate articles, such as furniture, glass, plateware, pottery, jewelry, cakes, toys, books, or leather. Exclude "Artists and Related Workers" (27-1011 through 27-1019), "Designers" (27-1021 through 27-1029), "Photographic Process Workers" (51-9131), and "Etchers and Engravers" (51-9194).

**51-9130 Photographic Process Workers:** Perform precision work involved in photographic processing, such as editing photographic negatives and prints, using photo-mechanical, chemical, or computerized methods. **Photographic Processing Machine Operators:** Operate photographic processing machines, such as photographic printing machines, film developing machines, and mounting presses.

**51-9191 Cementing and Gluing Machine Operators and Tenders:** Operate or tend cementing and gluing machines to join items for further processing or to form a completed product. Processes include joining veneer sheets into plywood; gluing paper; joining rubber and rubberized fabric parts, plastic, simulated leather, or other materials. Exclude "Shoe Machine Operators and Tenders" (51-6042).

**51-9192 Cleaning, Washing, and Metal Pickling Equipment Operators and Tenders:** Operate or tend machines to wash or clean products, such as barrels or kegs, glass items, tin plate, food, pulp, coal, plastic, or rubber, to remove impurities.

**51-9194 Etchers and Engravers:** Engrave or etch metal, wood, rubber, or other materials for identification or decorative purposes. Include such workers as etcher-circuit processors, pantograph engravers, and silk screen etchers. Include photoengravers with "Prepress Technicians and Workers" (51-5022).

**51-9195 Molders, Shapers, and Casters, Except Metal and Plastic:** Mold, shape, form, cast, or carve products such as food products, figurines, tile, pipes, and candles consisting of clay, glass, plaster, concrete, stone, or combinations of materials.

**51-9196 Paper Goods Machine Setters, Operators, and Tenders:** Set up, operate, or tend paper goods machines that perform a variety of functions, such as converting, sawing, corrugating, banding, wrapping, boxing, stitching, forming, or sealing paper or paperboard sheets into products.

**51-9197 Tire Builders:** Operate machines to build tires from rubber components.

**51-9198 Helpers--Production Workers:** Help production workers by performing duties of lesser skill. Duties include supplying or holding materials or tools, and cleaning work area and equipment. Exclude apprentice workers and report them with the appropriate production occupation (51-1011 through 51-9199).

**51-91XX Other Production Workers, Including Semiconductor Processors and Cooling and Freezing Equipment Operators:** *Semiconductor Processors:* Perform any or all of the following functions in the manufacture of electronic semiconductors: load semiconductor material into furnace; saw formed ingots into segments; load individual segment into crystal growing chamber and monitor controls; locate crystal axis in ingot using x-ray equipment and saw ingots into wafers; clean, polish, and load wafers into series of special purpose furnaces, chemical baths, and equipment used to form circuitry and change conductive properties. *Cooling and Freezing Equipment Operators and Tenders:* Operate or tend equipment, such as cooling and freezing units, refrigerators, batch freezers, and freezing tunnels, to cool or freeze products, food, blood plasma, and chemicals. *Others:* All production workers not listed separately.

## **53-0000: Transportation and Material Moving Occupations**

**53-1000 Supervisors, Transportation and Material Moving Workers:** *Aircraft Cargo Handling Supervisors:* Direct ground crew in the loading, unloading, securing, and staging of aircraft cargo or baggage. Determine the quantity and orientation of cargo and compute aircraft center of gravity. May accompany aircraft as member of flight crew and monitor and handle cargo in flight, and assist and brief passengers on safety and emergency procedures. Include loadmasters. *First-Line Supervisors/Managers of Helpers, Laborers, and Material Movers, Hand:* Supervise and coordinate the activities of helpers, laborers, or material movers. *First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle Operators:* Directly supervise and coordinate activities of transportation and material-moving machine and vehicle operators and helpers.

**53-2010 Aircraft Pilots and Flight Engineers:** *Airline Pilots, Copilots, and Flight Engineers:* Pilot and navigate the flight of multi-engine aircraft in regularly scheduled service for the transport of passengers and cargo. Requires Federal Air Transport rating and certification in specific aircraft type used. Include aircraft instructors with similar certification.

*Commercial Pilots:* Pilot and navigate the flight of small fixed or rotary winged aircraft, primarily for the transport of cargo and passengers. Requires Commercial Rating. Include aircraft instructors with similar certification.

**53-2020 Air Traffic Controllers:** Control air traffic on and within vicinity of airport and movement of air traffic between altitude sectors and control centers according to established procedures and policies. Authorize, regulate, and control commercial airline flights according to government or company regulations to expedite and ensure flight safety.

**Airfield Operations Specialists:** Ensure the safe takeoff and landing of commercial and military aircraft. Duties include coordination between air-traffic control and maintenance personnel; dispatching; using airfield landing and navigational aids; implementing airfield safety procedures; monitoring and maintaining flight records; and applying knowledge of weather information.

**53-3020 Bus Drivers:** *Transit and Intercity:* Drive bus or motor coach, including regular route operations, charters, and private carriage. May assist passengers with baggage. May collect fares or tickets. *School:* Transport students or special clients, such as the elderly or persons with disabilities. Ensure adherence to safety rules. May assist passengers in boarding or exiting.

**53-3030 Driver/Sales Workers:** Drive truck or other vehicle over established routes or within an established territory and sell goods, such as food products, including restaurant take-out items, or pick up and deliver items, such as laundry. May also take orders and collect payments. Include newspaper delivery drivers. Exclude "Coin, Vending, and Amusement Machine Servicers and Repairers" (49-9091). **Truck Drivers:** *Heavy and Tractor-Trailer:* Drive a tractor-trailer combination or a truck with a capacity of at least 26,000 GVW, to transport and deliver goods, livestock, or materials in liquid, loose, or packaged form. May be required to unload truck. May require use of automated routing equipment. Requires commercial drivers' license. *Light or Delivery Services:* Drive a truck or van with a capacity of under 26,000 GVW, primarily to deliver or pick up merchandise or to deliver packages within a specified area. May require use of automatic routing or location software. May load and unload truck. Exclude "Couriers and Messengers" (43-5021).

**53-3041 Taxi Drivers and Chauffeurs:** Drive automobiles, vans, or limousines to transport passengers. May occasionally carry cargo. Include hearse drivers. Exclude "Ambulance Drivers and Attendants, Except Emergency Medical Technicians" (53-3011) and "Bus Drivers" (53-3021 through 53-3022).

**53-30XX Miscellaneous Motor Vehicle Operators, Including Ambulance Drivers and Attendants:** *Ambulance Drivers and Attendants, Except Emergency Medical Technicians:* Drive ambulance or assist ambulance driver in transporting sick, injured, or convalescent persons. Assist in lifting patients. *Others:* All motor vehicle operators not listed separately.

**53-4010 Locomotive Engineers and Operators:** *Locomotive Engineers:* Drive electric, diesel-electric, steam, or gas-turbine-electric locomotives to transport passengers or freight. Interpret train orders, electronic or manual signals, and railroad rules and regulations. *Locomotive Firers:* Monitor locomotive instruments and watch for dragging equipment, obstacles on rights-of-way, and train signals during run. Watch for and relay traffic signals from yard workers to yard engineer in railroad yard. *Rail Yard Engineers, Dinkey Operators, and Hostlers:* Drive switching or other locomotive or dinkey engines within railroad yard, industrial plant, quarry, construction project, or similar location.

**53-4021 Railroad Brake, Signal, and Switch Operators:** Operate railroad track switches. Couple or uncouple rolling stock to make up or break up trains. Signal engineers by hand or flagging. May inspect couplings, air hoses, journal boxes, and hand brakes.

**53-4031 Railroad Conductors and Yardmasters:** Conductors coordinate activities of train crew on passenger or freight train. Coordinate activities of switch-engine crew within yard of railroad, industrial plant, or similar location. Yardmasters coordinate activities of workers engaged in railroad traffic operations, such as the makeup or breakup of trains, yard switching, and review train schedules and switching orders.

**53-40XX Subway, Streetcar, and Other Rail Transportation Workers:** *Subway and Streetcar Operators:* Operate subway or elevated suburban train with no separate locomotive, or electric-powered streetcar to transport passengers. May handle fares. *Others:* All rail transportation workers not listed separately.

**53-5011 Sailors and Marine Oilers:** Stand watch to look for obstructions in path of vessel, measure water depth, turn wheel on bridge, or use emergency equipment as directed by captain, mate, or pilot. Break out, rig, overhaul, and store cargo-handling gear, stationary rigging, and running gear. Perform a variety of maintenance tasks to preserve the painted surface of the ship and to maintain line and ship equipment. Must hold government-issued certification and tankerman certification when working aboard liquid-carrying vessels. Include able seamen and ordinary seamen.

**53-5020 Ship and Boat Captains and Operators:** *Captains, Mates, and Pilots of Water Vessels:* Command or supervise operations of ships and water vessels, such as tugboats and ferryboats, that travel into and out of harbors, estuaries, straits, and sounds and on rivers, lakes, bays, and oceans. Required to hold license issued by U.S. Coast Guard. *Motorboat Operators:* Operate small motor-driven boats to carry passengers and freight between ships, or ship to shore. May patrol harbors and beach areas. May assist in navigational activities.

**53-5031 Ship Engineers:** Supervise and coordinate activities of crew engaged in operating and maintaining engines, boilers, deck machinery, and electrical, sanitary, and refrigeration equipment aboard ship.

**53-6021 Parking Lot Attendants:** Park automobiles or issue tickets for customers in a parking lot or garage. May collect fee.

**53-6031 Service Station Attendants:** Service automobiles, buses, trucks, boats, and other automotive or marine vehicles with fuel, lubricants, and accessories. Collect payment for services and supplies. May lubricate vehicle, change motor oil, install antifreeze, or replace lights or other accessories, such as windshield wiper blades or fan belts. May repair or replace tires.

**53-6051 Transportation Inspectors:** Inspect equipment or goods in connection with the safe transport of cargo or people. Include rail transport inspectors, such as freight inspectors, car inspectors, rail inspectors, and other nonprecision inspectors of other types of transportation vehicles.

**53-60XX Miscellaneous Transportation Workers, Including Bridge and Lock Tenders and Traffic Technicians:**  
*Bridge and Lock Tenders:* Operate and tend bridges, canal locks, and lighthouses to permit marine passage on inland waterways, near shores, and at danger points in waterway passages. May supervise such operations. Include drawbridge operators, lock tenders and operators, and slip bridge operators. *Traffic Technicians:* Conduct field studies to determine traffic volume, speed, effectiveness of signals, adequacy of lighting, and other factors influencing traffic conditions, under direction of traffic engineer. *Miscellaneous:* All transportation workers not listed separately.

**53-7021 Crane and Tower Operators:** Operate mechanical boom and cable or tower and cable equipment to lift and move materials, machines, or products in many directions. Exclude "Excavating and Loading Machine and Dragline Operators" (53-7032).

**53-7030 Dredge, Excavating, and Loading Machine Operators:** *Dredge Operators:* Operate dredge to remove sand, gravel, or other materials from lakes, rivers, or streams; and to excavate and maintain navigable channels in waterways. *Excavating and Loading Machine and Dragline Operators:* Operate or tend machinery equipped with scoops, shovels, or buckets, to excavate and load loose materials. *Loading Machine Operators, Underground Mining:* Operate underground loading machine to load coal, ore, or rock into shuttle or mine car or onto conveyors. Loading equipment may include power shovels, hoisting engines equipped with cable-drawn scraper or scoop, or machines equipped with gathering arms and conveyor.

**53-7041 Hoist and Winch Operators:** Operate or tend hoists or winches to lift and pull loads using power-operated cable equipment. Exclude "Crane and Tower Operators" (53-7021).

**53-7051 Industrial Truck and Tractor Operators:** Operate industrial trucks or tractors equipped to move materials around a warehouse, storage yard, factory, construction site, or similar location. Exclude "Logging Equipment Operators" (45-4022).

**53-7061 Cleaners of Vehicles and Equipment:** Wash or otherwise clean vehicles, machinery, and other equipment. Use such materials as water, cleaning agents, brushes, cloths, and hoses. Exclude "Janitors and Cleaners, Except Maids and Housekeeping Cleaners" (37-2011).

**53-7062 Laborers and Freight, Stock, and Material Movers, Hand:** Manually move freight, stock, or other materials or perform other unskilled general labor. Include all unskilled manual laborers not elsewhere classified. Exclude "Material Moving Workers" (53-7011 through 53-7199) who use power equipment. Exclude "Construction Laborers" (47-2061) and "Construction Trades Helpers" (47-3011 through 47-3019).

**53-7063 Machine Feeders and Offbearers:** Feed materials into or remove materials from machines or equipment that is automatic or tended by other workers.

**53-7064 Packers and Packagers, Hand:** Pack or package by hand a wide variety of products and materials.

**53-7070 Pumping Station Operators:** *Gas Compressor:* Operate steam, gas, electric motor, or internal combustion engine driven compressors. Transmit, compress, or recover gases, such as butane, nitrogen, hydrogen, and natural gas. *Pump Operators:* Tend, control, or operate power-driven, stationary, or portable pumps and manifold systems to transfer gases, oil, other liquids, slurries, or powdered materials to and from various vessels and processes. *Wellhead Pumpers:* Operate power pumps and auxiliary equipment to produce flow of oil or gas from wells in oil field.

**53-7081 Refuse and Recyclable Material Collectors:** Collect and dump refuse or recyclable materials from containers into truck. May drive truck.

**53-7XXX Miscellaneous Material Moving Workers; Including Conveyor Operators & Tenders; Shuttle Car Operators; & Tank Car, Truck, & Ship Loaders:** *Conveyor Operators and Tenders:* Control or tend conveyors or conveyor systems that move materials or products to and from stockpiles, processing stations, departments, or vehicles. May control speed and routing of materials or products. *Shuttle Car Operators:* Operate diesel or electric-powered shuttle car in underground mine to transport materials from working face to mine cars or conveyor. *Tank Car, Truck, and Ship Loaders:* Load and unload chemicals and bulk solids, such as coal, sand, and grain into or from tank cars, trucks, or ships using material moving equipment. May perform a variety of other tasks relating to shipment of products. May gauge or sample shipping tanks and test them for leaks. *Miscellaneous:* All material moving workers not listed separately.