



# **National Compensation Survey:** **Guide for Evaluating Your Firm's Jobs and Pay**

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## Introduction

This publication is designed to familiarize data users with how the Bureau of Labor Statistics (BLS) determines the work level of an occupation in the National Compensation Survey (NCS). This information can help data users replicate the process.

Before wage data can be collected, four steps must be completed by the field economist (BLS employee) visiting an establishment. First, is the selection of which jobs in the establishment are to be surveyed. The number of jobs selected is based on the total employment of the establishment. A complete list of employees is used to randomly select up to eight workers, with each selected worker representing a selected job within the establishment. Sampling is done using a technique that results in those jobs with the greatest number of workers having the greatest chance of selection.

In the second step, certain characteristics—union vs. nonunion status, full-time vs. part-time status, time-based pay vs. incentive pay—are identified for each selected job.

In the third step, selected jobs are classified into occupations based on job duties and responsibilities. The 2010 [Standard Occupational Classification](#) (SOC) system manual is used to classify each job into one of approximately 800 detailed classifications based on the highest skill level and primary duties of the occupation.

During the final step before collection of wage rates and hours worked, each sampled job is evaluated to determine the work level of its duties and responsibilities. This process is known as *Point factor leveling*, because it categorizes certain aspects of a job to specific levels of work with assigned point values. The duties and responsibilities of the job, along with consideration given to work performed and the skills, education, and training required for the job are evaluated. Points for each factor are then totaled to determine the overall work level for the job.

## Leveling

### Point Factor Leveling

In point factor leveling, an occupation is matched to a level within each of four factors. The factors are as follows:

- Knowledge
- Job controls and complexity
- Contacts (nature and purpose)
- Physical environment

Each factor consists of several levels, each with an associated description and assigned points. The description within each factor best matching the job is chosen. Points for the four factors are recorded and totaled. The point total determines the overall work level of the occupation. BLS publishes data for 15 work levels; the point range for each level is shown later in the publication.

Most of this publication consists of descriptions for the leveling knowledge factor. The knowledge factor is described separately for broad categories of occupations. Each description contains short definitions of the point levels of knowledge expected for the occupations and relevant examples. The Standard Occupational Classification codes related to each knowledge category are listed below the description.

The other three factors use identical descriptions for all occupational categories and contain a definition of each point level within each factor.

The [point levels](#) within each factor are designed to describe the thresholds of distinct levels of work. When a job does not meet the full description of a point level, the next lowest point level is used. Only the stated point values are used. The last pages contain [leveling examples and worksheets](#) that can be used to determine the level of any job.

### BLS work level

NCS determines the work level for each major occupation group, which is a combination of similar occupations. Here is a list of the 22 major occupational groups:

- Management
- Business and financial operations
- Computer and mathematical
- Architecture and engineering
- Life, physical, and social science
- Community and social services
- Legal
- Education, training, and library

- Arts, design, entertainment, sports, and media
- Healthcare practitioner and technical
- Healthcare support
- Protective service
- Food preparation and serving related
- Building and grounds cleaning and maintenance
- Personal care and service
- Sales and related
- Office and administrative support
- Farming, fishing, and forestry<sup>1</sup>
- Construction and extraction
- Installation, maintenance, and repair
- Production
- Transportation and material moving

<sup>1</sup>Although most industries that employ most of these workers are outside the scope of the NCS, workers classified into occupations within this major occupational group are sometimes found in other industries within the scope of NCS. For example, agricultural workers employed at state or private agricultural colleges would be included in the NCS.

Within the 22 major occupational groups, there can be up to 15 work levels. However, work levels vary by occupational group. Because wages tend to increase as the work level goes up, higher levels are found in the higher paid occupational groups, such as the management. For the same reason, the lower work levels are found in the lower paying occupational groups, such as the building and grounds cleaning and maintenance and production groups.

## Supervisory leveling

*Supervisors* are employees or positions that are responsible for accomplishing tasks by directing others. The amount of responsibility given to a supervisory position can vary widely; what is called a supervisor in one establishment may be called a *working lead* in another and a *senior employee* in a third. The NCS program classifies supervisors according to their level of supervisory responsibility, regardless of titles.

**Lead workers** have the authority to make, coordinate, and review work assignments of employees performing the same general work as the lead worker on a day-to-day basis. Lead worker responsibilities may involve solving problems, providing instruction on work procedures, or providing input into performance evaluations.

**Supervisors** have the authority, in the interest of the employer, to hire, transfer, lay off, promote, reward, and discipline other employees. In some situations, supervisors may only recommend/initiate such actions, but the exercise is not merely routine or advisory input; it requires the use of independent judgment and is generally accepted. These responsibilities are in addition to assigning work to—and reviewing work of—subordinates.

When an occupation is a supervisor, it is further classified as a first-, second-, or third-line supervisor.

**First-line supervisors** direct their staff through face-to-face meetings and are responsible for conducting the employees' performance appraisals.

**Second-line supervisors/managers** direct the actions of staff through intermediate supervisors. The organizational structure is divided into multiple subordinate groups that differ by subject matter or function. There are formal procedures and administrative controls between supervisory levels and groups.

**Third-line supervisors/managers** direct the actions of staff through multiple subordinate levels of supervision. The organizational structure is complex with extensive formal coordination, clearances, and procedural controls between subordinate supervisory levels and organization subdivisions.

Most supervisory occupations are evaluated based on their duties and responsibilities. A modified approach is used for professional and administrative supervisors when they direct professional work and are paid primarily to supervise. Such supervisory occupations are leveled based on the duties and responsibilities of the highest reporting position when they and the positions they supervise are in the BLS occupational categories specified below.

- Professional Accountants and Auditors
- Professional Engineering and Architecture
- Information Technology
- Professional Math and Statistics
- Professional Economics, Sociology, Geography, Psychology, and Similar Jobs
- Social, Welfare, and Health Administration
- Professional Medical (limited coverage)
- Professional Education
- Business Administration
- Professional Library, Museum, and Archival
- Professional Biological and Physical Science
- Investigation, Inspection, and Compliance

For these supervisors, the first step is to identify the highest level subordinate occupation. The highest level of work supervised is based on the company's evaluation method.

- The highest level nonsupervisory worker reporting to a first-line supervisor will be a direct report and may or may not be a lead worker.
- The highest level nonsupervisory worker reporting to a second-line supervisory/manager may be a direct report or may be an employee reporting through an intermediate supervisor.

- The highest level nonsupervisory workers reporting to a third-line supervisor/manager may be a direct report or may be an employee reporting through intermediate supervisory levels.

The subordinate occupation is evaluated using the point factor leveling process. The overall work level for the supervisory occupation is determined by adding levels based on the supervisory responsibilities. The [number of levels added](#) is shown in the back of this publication.



## **Explanation of Job Guide Factors**

### **Guide for Factor 1. Knowledge**

#### **Knowledge Guide for Business Administration**

Covers professional jobs in recognized administrative fields such as human resources, budgeting, contracting, business analysis, marketing, real estate, and building management. Including jobs such as sales managers, cost estimators, employment specialists, and purchasing agents.

#### **Knowledge Guide for Professional Accounting and Auditing**

Covers accounting and auditing jobs that require a 4-year degree.

#### **Knowledge Guide for Information Technology**

Covers information technology jobs such as systems analyst, computer programmer, systems and database administrators.

#### **Knowledge Guide for Professional Mathematics and Statistics**

Covers mathematical science jobs that require a 4-year degree, such as mathematician, statistician, actuary, and operations research analyst.

#### **Knowledge Guide for Professional Engineering and Architecture**

Covers the variety of engineering and architecture jobs requiring a four year college degree; including jobs in electrical, industrial, mechanical, and civil engineering.

#### **Knowledge Guide for Engineering and Scientific Technician**

Covers technician jobs found in fields such as drafting, surveying, civil and electronic engineering, biology, chemistry, geology, and hydrology. Also includes specialties such as health and safety technician and building inspector.

#### **Knowledge Guide for Professional Biological and Physical Science**

Covers life science, physical science, and related jobs that require a four year degree or comparable state certification. Includes jobs such as biologist, botanist, chemist, geologist, cartographer, and professional surveyor.

#### **Knowledge Guide for Professional Economics, Sociology, Geography, Psychology, and Similar Jobs**

Covers social science and related jobs that require a four year degree. Includes jobs such as market analyst, historian, political scientist, urban planner, anthropologist, and archaeologist.

#### **Knowledge Guide for Social, Welfare, and Health Administration**

Covers counselors, social workers, and other social service specialist jobs such as welfare worker, civil rights specialist, safety and risk specialist, and health insurance analyst.

## **Explanation of Job Guide Factors—Continued**

### **Knowledge Guide for Professional Legal**

Covers law clerk and attorney jobs that require a college degree and completion of specialized legal training.

### **Knowledge Guide for Administrative Legal**

Covers administrative legal jobs, such as paralegal and title examiner.

### **Knowledge Guide for Professional Education**

Covers teaching and education specialist jobs that require a related four year degree.

### **Knowledge Guide for Professional Librarian, Museum Curator, and Archivist**

Covers librarian, curator, and archivist jobs that require a related four year degree.

### **Knowledge Guide for Communications and Arts**

Covers jobs in communications, arts, and related fields, such as public relations specialist, exhibit specialist, writer, editor, language interpreter, graphic artist, and photographer. Excludes performing artists, musicians, fine artists, novelists, announcers, and athletes.

### **Knowledge Guide for Professional Medical**

Covers professional healthcare jobs that require related college degrees, such as registered nurse, pharmacist, physical therapist, and physician assistant. Also includes veterinary medicine, psychiatry, dentistry, osteopathy, and doctors of medicine, such as anesthesiologists, epidemiologists, physicians, and surgeons.

### **Knowledge Guide for Medical, Hospital, Dental, Public Health, and Veterinary Technician**

Covers healthcare technologist, technician, and related jobs such as x-ray technician, licensed practical nurse, dental assistant, therapist aide, medical lab worker, and elder-care provider.

### **Knowledge Guide for Protective Service**

Covers fire fighting, law enforcement, and other protective service jobs. Includes such jobs as police, fire fighters, ski patrol, emergency medical technicians, and prison guards.

### **Knowledge Guide for Investigation, Inspection, and Compliance**

Covers jobs involving a variety of inspection, regulatory compliance, and investigation work. Includes criminal investigators, financial examiners, and fire inspectors. Excludes inspection jobs where the essential knowledge required is related to building trades, health, or safety rather than regulatory knowledge.

### **Knowledge Guide for Service**

Covers jobs in personal service, building service, food service and related work. Includes jobs such as janitor, chef, exterminator, train conductor, and manicurist.

## **Explanation of Job Guide Factors—Continued**

### **Knowledge Guide for Sales**

Covers jobs in sales such as insurance broker, car dealer, telemarketer, and sales representative.

### **Knowledge Guide for Office and Administrative Support**

Covers a broad range of secretarial, clerical, and administrative support jobs such as secretary, bank teller, cashier, insurance, medical, personnel, and accounting clerks. Also covers clerical jobs in manufacturing, marketing, and law.

### **Knowledge Guide for Miscellaneous Technician**

Covers aides and technicians engaged in library, educational, archival, mathematical, statistical, transportation, travel, law enforcement, or similar work. Also includes reservation agents, travel agents, rental clerks, and shipping/receiving clerks.

### **Knowledge Guide for Blue Collar**

Covers jobs in construction, maintenance, production, and transportation work. Includes jobs such as electrician, tool and die maker, locksmith, brew master, crane operator, satellite dish installer, and truck driver.

### **Knowledge Guide for Pilots and Air Transportation**

Covers pilots, air traffic controllers, and airfield operation specialists.

## **Guide for Factor 2. Job Controls and Complexity**

Covers the amount and type of direction received, the complexity of work, and the nature of the work within a job.

## **Guide for Factor 3. Contacts**

Covers the nature and purpose of contacts within a job but outside the supervisory chain. Contacts may include e-mail, phone, two-way radio, video conferencing, etc., in addition to face-to-face contact.

## **Guide for Factor 4. Physical Environment**

Covers the nature of risk, and amount of physical demand with a job.

**Guide for Factor 1. Knowledge (Modified for SOC 2010)**  
**SOC codes and SOC titles due to the introduction of SOC 2010 are highlighted in red font.**

**Knowledge Guide for Business Administration Jobs**

<b>750 Points</b>	<b>Examples of How Knowledge Is Used</b>
<p>Entry-level knowledge of the principles and methods of human resources, budgeting, contracting, logistics management, realty appraisal, or other administrative field.</p> <p>Knowledge permits the employee to carry out basic recurring tasks and routine portions of assignments while gaining familiarity with the establishment's policies and goals.</p>	<p>(1) Composes help-wanted advertisements for common jobs such as bank tellers, office assistants, and laborers.</p> <p>(2) Practices cost-control methods to plan national routing and shipping of household goods.</p> <p>(3) Studies the functions and methods of a small manufacturer to assist in the layout of offices, shops, and fabrication areas to streamline workflow.</p>
<p><b>950 Points</b></p> <p>Knowledge of the principles and methods of human resources, budgeting, contracting, logistics management, realty appraisal, or other administrative field.</p> <p>Knowledge permits the employee to complete assignments by applying established methods to recurring types of projects or to projects/problems susceptible to well-documented precedents.</p>	<p>(1) Recruits and screens applicants for a wide variety of traditional jobs for many employers and temporary agencies where applicant supply is adequate, and benefits and compensation packages are simple and competitive.</p> <p>(2) Drafts packages to justify rate increases for a small municipal electric company, drafts form letters to notify consumers of proposed increases, and responds to questions from customers regarding the proposed/final changes.</p> <p>(3) Manages a small multipurpose commercial building providing space for medical offices, laboratories, legal firms, and insurance agents. Ensures that maintenance contracts are established and monitored; checks smoke detectors and fire suppression systems; arranges for repairs and remodeling; and keeps documents such as certification of elevator safety, building permits, and rent and tax payments.</p> <p>(4) Prepares budgets, business models, and profit and loss (P&amp;L) statements for a firm.</p> <p>(5) Appraises homes and small office buildings using standard valuation methods.</p> <p>(6) Prepares state and federal tax returns for individuals and small businesses where few schedules and only minor complications are involved.</p> <p>(7) Carries out standard business functions such as payroll, leasing, accounts maintenance, and purchasing for several affiliated health clubs.</p>
<p><b>1250 Points</b></p> <p>Knowledge of a wide range of concepts, principles, and methods of human resources, budgeting, contracting, logistics management, realty appraisal, or other administrative field.</p> <p>Knowledge permits the employee to develop new or substantially modified approaches that diverge from standard methods to improve administrative and/or line operations.</p>	<p>(1) Works with and advises city officials regarding such issues as union recognition, contract negotiations, charges of unfair labor practices, disputes, grievances, and threatened sick-outs in dealing with municipal firefighters and police officers.</p> <p>(2) Develops construction contracts, negotiates provisions, discounts, and bonuses, and monitors performance for large housing and business complexes.</p> <p>(3) Reviews and recommends approval of complex commercial loans and equity mortgages involving commingled assets, liabilities, and working capital.</p> <p>(4) Develops appraisal methods to estimate the value of real estate such as those requiring costly environmental cleanup, or combining agribusiness and oil exploration where no similar properties exist.</p> <p>(5) Continuously reviews and recommends improvements in the processes that ensure cost-effective production of high-quality household appliances by an international manufacturer.</p> <p>(6) Analyzes demographic data and traffic patterns to identify and recommend sites for establishing large retail businesses.</p> <p>(7) Coordinates the collection and distribution of produce and livestock for a cooperative extending across a midwestern state.</p>

<p><b>1550 Points</b></p> <p>Mastery of the concepts, principles, and methods of human resources, budgeting, contracting, logistics management, realty appraisal, or other administrative field.</p> <p>Knowledge permits the employee to solve difficult or unusual systemic problems characterized by their breadth and importance, and to give authoritative advice to managers.</p>	<ol style="list-style-type: none"> <li>(1) Plans the downsizing of a diversified manufacturer with hundreds of employees by measuring the potential savings in labor, materials, and natural resource costs, as well as the impact of reduced production on market share and stockholder confidence.</li> <li>(2) Plans and monitors the logistical aspects of acquisition, delivery, and handling of the ingredients used by a major frozen food processor operating in many separate locations.</li> <li>(3) Analyzes the financial and underwriting issues of a proposed regional shopping mall for a mortgage-financing corporation.</li> <li>(4) Analyzes the merger of fiber optic service providers and advises brokerage clients about the value of the new corporation.</li> <li>(5) Represents a real-estate corporation buying historic waterfront properties for commercial development, including dealing with reluctant sellers, clouded titles, and organized resistance.</li> <li>(6) Plans, negotiates, and directs the transportation and maintenance of sets, costumes, and instruments for an opera company on a national tour.</li> <li>(7) Plans and monitors the administrative systems and procedures of a major multifunctional clinic and inpatient medical center.</li> </ol>
<p><b>1850 Points</b></p> <p>Expert knowledge of the theories, principles, concepts, and methods of a specialized area of human resources, budgeting, contracting, logistics management, realty appraisal, or other administrative field.</p> <p>Knowledge permits the employee to develop new ways of administering business, lead unprecedented projects, and/or be recognized as a national or international expert in a specialized area.</p>	<ol style="list-style-type: none"> <li>(1) Develops and negotiates innovative recruiting, compensation, and benefits packages for corporate executives.</li> <li>(2) Presents authoritative lectures and articles on advanced manufacturing techniques, administrative practices, and productivity issues regarding the aircraft industry.</li> <li>(3) Develops an international expansion strategy for a national restaurant chain.</li> <li>(4) Plans the administrative policies and procedures for a large multistate health maintenance organization with clinics, hospitals, and laboratories.</li> <li>(5) Designs and implements the protocol to ensure cost control in the manufacture, preservation, and shipment of a variety of vaccines and drugs.</li> </ol>

## Covered SOC Codes

111011	Chief Executives	131011	Agents and Business Managers of Artists, Performers, and Athletes
111021	General and Operations Managers	131021	<b>Buyers and Purchasing Agents, Farm Products</b>
112021	Marketing Managers	131022	Wholesale and Retail Buyers, Except Farm Products
112022	Sales Managers	131023	Purchasing Agents, Except Wholesale, Retail, and Farm Products
113011	Administrative Services Managers	131051	Cost Estimators
113031	Financial Managers	131071	<b>Human Resources Specialist</b>
113051	Industrial Production Managers	<b>131074</b>	<b>Farm Labor Contractors</b>
113061	Purchasing Managers	<b>131075</b>	<b>Labor Relations Specialists</b>
113071	Transportation, Storage, and Distribution Managers	131081	Logisticians
<b>113111</b>	<b>Compensation and Benefits Managers</b>	131111	Management Analysts
<b>113121</b>	<b>Human Resources Managers</b>	131121	<b>Meeting, Convention and Event Planners</b>
<b>113131</b>	<b>Training and Development Managers</b>	<b>131131</b>	<b>Fundraisers</b>
<b>119013</b>	<b>Farmers, Ranchers, and Other Agricultural Managers</b>	<b>131141</b>	<b>Compensation, Benefits, and Job Analysis Specialists</b>
119021	Construction Managers	<b>131151</b>	<b>Training and Development Specialists</b>
119031	<b>Education Administrators, Preschool and Childcare Center/Program</b>	131199	Business Operations Specialists, All Other
119032	Education Administrators, Elementary and Secondary School	132021	Appraisers and Assessors of Real Estate
119033	Education Administrators, Postsecondary	132031	Budget Analysts
119039	Education Administrators, All Other	132041	Credit Analysts
119041	<b>Architectural and Engineering Managers</b>	132051	Financial Analysts
119051	Food Service Managers	132052	Personal Financial Advisors
119061	<b>Funeral Service Managers</b>	132053	Insurance Underwriters
119071	Gaming Managers	132071	<b>Credit Counselors</b>
119081	Lodging Managers	132072	Loan Officers
119141	Property, Real Estate, and Community Association Managers	132081	<b>Tax Examiners, Collectors, and Revenue Agents</b>
119151	Social and Community Service Managers	132082	Tax Preparers
<b>119161</b>	<b>Emergency Management Directors</b>	132099	Financial Specialists, All Other
119199	Managers, All Other		

## Knowledge Guide for Professional Accounting and Auditing Jobs

<b>750 Points</b>	<b>Examples of How Knowledge Is Used</b>
<p>Entry-level knowledge of professional accounting or auditing concepts, principles, and practices.</p> <p>Knowledge permits the employee to gain familiarity with the business practices and accounting systems needed to carry out undemanding assignments.</p>	<p>(1) Reviews and corrects accounting data in automated files of transactions, ledgers, accounts, or financial statements.</p> <p>(2) Audits business activities by comparing contents of books to sales, goods received, inventories, and payroll records.</p>
<p><b>950 Points</b></p> <p>Knowledge of professional accounting or auditing concepts, principles, and methods, plus knowledge of clientele's or establishment's business practices.</p> <p>Knowledge permits the employee to complete assignments through application of well-established principles and practices.</p>	<p>(1) Sets up systems and accounts for such purposes as payroll, sales, purchases, and similar services, and maintenance applicable to many small businesses.</p> <p>(2) Conducts cost analyses to determine the effect of new methods and/or equipment on savings.</p> <p>(3) Audits a contractor's records of labor and material costs by verifying that charges for labor and materials comply with contract provisions, that funds are expended only on products and services specified, and that credit is received for unused materials.</p>
<p><b>1250 Points</b></p> <p>Knowledge of professional accounting or auditing theory, concepts, and practices complete a diversity of assignments.</p> <p>Knowledge permits the employee to plan steps and carry out multiphase projects, coordinate work with others, and to modify accounting and analytical techniques to solve a wide range of accounting or auditing problems.</p>	<p>(1) Establishes accounting structures and procedural instructions to gather new data, or to meet changing conditions and new objectives.</p> <p>(2) Monitors interfaced accounting systems covering payroll, travel, transportation, supplies, rents, services, inventory, and sales accounts. Ensures that the accounting systems comply with regulatory requirements and the establishment's financial policies. Informs line managers on financial status and stability by analyzing periodic reports and systems edits.</p> <p>(3) Develops audit methods to identify conditions affecting manufacturing capability, susceptibility to fraud, and potential for increased efficiency, in order to assess and report on potential cost reduction targets such as could be gained through enhanced technology, or improved financial or logistics management.</p>
<p><b>1550 Points</b></p> <p>Knowledge of the professional theories, concepts, and practices of accounting or auditing to resolve difficult or unusual issues and highly unstructured problems.</p> <p>Knowledge permits the employee to solve problems and structure systems involving interfaces and relationships among many accounting programs, systems, and business functions.</p>	<p>(1) Designs and maintains a complex of automated subsystems to produce accounting and financial information for acquiring, transporting, and wholesaling petrochemicals worldwide. Ensures that the accounting system is integrated with administrative support and program information systems, and that the system complies with legal and regulatory requirements.</p> <p>(2) Provides expert staff advice concerning the sale of product lines in foreign countries, coordinates the solution of accounting system problems with consideration for such issues as shifts in trade policy, market demands, and currency values.</p> <p>(3) Devises innovative audit techniques such as those requiring the development of accessing methods and statistical models to cover multiple financial and management aspects of a business where findings affect long-range planning policies.</p>

<p><b>1850 Points</b></p> <p>Knowledge of the professional theories, concepts, and techniques pertaining to specialized area of accounting or auditing.</p> <p>Knowledge permits the employee to develop new hypotheses, theories, and concepts; to lead unprecedented projects; or to be recognized nationally or internationally as an expert in the specialized area.</p>	<p>(1) Formulates unprecedented accounting concepts and methods.</p> <p>(2) Provides staff advice and leadership for the development of an integrated/interfaced cost accounting system to cover all functions of a diversified corporation with fixed assets and inventories valued at several billion dollars.</p> <p>(3) Serves as an advisor with an international institution engaged in auditing and enhancing business systems through the use of advanced technologies.</p> <p>(4) Provides expert advice to top management regarding the development, installation, and administration of an overall audit program of a conglomerate to include assessing accounting, financial, information systems, and other operations by creating methods for measuring and evaluating the effectiveness of accounting and management controls.</p>
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### Covered SOC Codes

132011 Accountants and Auditors
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## Knowledge Guide for Information Technology Jobs

<b>550 Points</b>	<b>Examples of How Knowledge Is Used</b>
<p>Knowledge of a few basic information technology (IT) terms and methods such as those acquired through on-the-job training in one or more simple work processes.</p> <p>Knowledge permits the employee to carry out a variety of related and recurring assignments that can be quickly mastered.</p>	<ol style="list-style-type: none"> <li>(1) Sets up user network access and instructs new end users in implementing email and word processing procedures.</li> <li>(2) Assists remote entry users in solving simple problems associated with terminal or tie-line malfunctions, or in following written procedures.</li> <li>(3) Initializes and backs-up a local area network according to instructions.</li> <li>(4) Codes portions of simple applications programs and documents program changes, using detailed specifications.</li> </ol>
<p><b>750 Points</b></p> <p>Knowledge of information technology such as could be acquired through experience, online or classroom-based course work, or in either vendor-focused or technology-specific training such as Oracle, HTML, Java, or Extensible Markup Language.</p> <p>Knowledge permits the employee to carry out routine assignments and to gain familiarity with the operating systems, equipment, software, and business goals of the establishment.</p>	<ol style="list-style-type: none"> <li>(1) Develops websites for an interactive distance learning system.</li> <li>(2) Responds to requests to identify and solve recurring end-user problems associated with a local area network.</li> <li>(3) Installs and tests central processing unit upgrades, peripheral devices, and new software.</li> <li>(4) Configures and installs a group of individual computer workstations in accordance with a few standard patterns.</li> </ol>
<p><b>950 Points</b></p> <p>Knowledge of information technology methods and procedures applicable to several types of work processes.</p> <p>Knowledge permits the employee to carry out assignments where the objectives are clearly identified and can be accomplished by adapting precedents and established practices.</p>	<ol style="list-style-type: none"> <li>(1) Maintains and modifies a group of utility programs.</li> <li>(2) Develops code, tests, debugs, and documents applications where specifications set forth features such as interface requirements, inputs, and outputs.</li> <li>(3) Monitors a local area network (LAN), making minor adjustments and maintaining the system.</li> <li>(4) Customizes applications using off-the-shelf software.</li> </ol>
<p><b>1250 Points</b></p> <p>Knowledge of a wide range of information technology methods and procedures, including those regarding systems life cycles and systems applications development.</p> <p>Knowledge permits the employee to plan and carry out a variety of assignments, modify standard practices, solve diverse software and hardware problems, and adapt precedents to accommodate specialized requirements and meet a wide variety of business objectives.</p>	<ol style="list-style-type: none"> <li>(1) Develops plans and specifications for a new multipurpose application.</li> <li>(2) Troubleshoots software design and implementation problems.</li> <li>(3) Evaluates the effectiveness of data security systems, procedures, and methods.</li> <li>(4) Designs relational databases, and develops and creates data dictionaries.</li> </ol>

<p><b>1550 Points</b></p> <p>Knowledge of a wide range of information technology methods and procedures, together with specialized knowledge in one or more functions (e.g., computer security or network enterprise architecture).</p> <p>Knowledge permits the employee to provide authoritative advice on difficult assignments such as planning advanced systems, solving problems and structuring systems involving interfaces and relationships among many different functions, or leading task forces to solve critical systems problems requiring numerous innovations.</p>	<p>(1) Guides other information technology specialists regarding technical concerns, advises executives of the availability of new developments and advanced techniques in the specialty area, and assesses their potential to benefit the establishment.</p> <p>(2) Plans, organizes, and directs studies to develop forecasts and information technology system recommendations.</p> <p>(3) Designs state-of-the-art applications using newly developed technology.</p> <p>(4) Leads, coordinates, and integrates a team involved in a system development effort expected to take several years to complete.</p>
<p><b>1850 Points</b></p> <p>Knowledge of the principles, emerging technical advances, and methods of a specialized area of information technology.</p> <p>Knowledge permits the employee to develop new information technology concepts or to inspire projects of an unprecedented or pioneering nature. Work at this level often leads to national recognition as an expert in the specialized area.</p>	<p>(1) Formulates unprecedented e-commerce concepts and methods.</p> <p>(2) Provides staff advice and leadership for the development of a new voice activated technical information system to provide customer service in several languages.</p> <p>(3) Provides expert advice to top management regarding the development, installation, and administration of a computer security program for a major credit card company.</p> <p>(4) Devises innovative computer applications to facilitate the development of miniature robotic equipment to mimic human dexterity and touch for medical applications.</p>

### Covered SOC Codes

<p>113021 Computer and Information Systems Managers</p> <p><b>151111 Computer and Information Research Scientists</b></p> <p><b>151121 Computer Systems Analysts</b></p> <p><b>151122 Information Security Analysts</b></p> <p><b>151131 Computer Programmers</b></p> <p><b>151132 Software Developers, Applications</b></p> <p><b>151133 Software Developers, Systems Software</b></p> <p><b>151134 Web Developers</b></p>	<p><b>151141</b></p> <p><b>151142</b></p> <p><b>151143</b></p> <p><b>151151</b></p> <p><b>151152</b></p> <p><b>151199</b></p> <p>172061</p>	<p><b>Database Administrators</b></p> <p><b>Network and Computer Systems Administrators</b></p> <p><b>Computer Network Architects</b></p> <p><b>Computer User Support Specialists</b></p> <p><b>Computer and Network Support Specialists</b></p> <p><b>Computer Occupations, All Other</b></p> <p>Computer Hardware Engineers</p>
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## Knowledge Guide for Professional Mathematics and Statistics Jobs

<b>750 Points</b>	<b>Examples of How Knowledge Is Used</b>
<p>Entry-level knowledge of the basic professional concepts, principles, and practices of mathematics, statistics, operations research, or actuarial science.</p> <p>Knowledge permits the employee to carry out undemanding assignments and to gain familiarity with the goals and practices of the employing establishment.</p>	<ol style="list-style-type: none"> <li>(1) Applies well-established computational models and methods to accomplish practical tasks such as routing airline flights between cities.</li> <li>(2) Applies standard theories, such as queuing theory, to solve practical problems, (e.g., long waits at check-out lines, or inefficient floor plans or traffic patterns).</li> <li>(3) Performs basic analytical assignments associated with segments of conventional studies.</li> </ol>
<p><b>950 Points</b></p> <p>Knowledge of the professional concepts, principles, and practices of mathematics, statistics, operations research, or actuarial science as they relate to a few, commonly occurring objectives.</p> <p>Knowledge permits the employee to complete recurring analytical assignments by applying well-established practices.</p>	<ol style="list-style-type: none"> <li>(1) Selects and uses established mathematical models to determine such elements as the cost of alternative modes of distribution for a variety of raw materials or goods.</li> <li>(2) Determines sample sizes needed to carry out valid actuarial surveys.</li> <li>(3) Uses mathematics and statistics to analyze interest rates and spending patterns to reveal conditions and/or trends.</li> <li>(4) Develops statistical models to account for demographic changes in birth rates, morbidity, and disease incidence.</li> <li>(5) Analyzes life expectancy and benefits data to determine actuarial relationships and create benefits tables.</li> </ol>
<p><b>1250 Points</b></p> <p>Knowledge of the professional concepts, principles, and practices of mathematics, statistics, operations research, or actuarial science to resolve a wide range of issues and problems.</p> <p>Knowledge permits the employee to plan and carry out multiphase projects requiring problem definition and modified techniques where data are frequently unreliable or conflicting, and that require preliminary investigations and analyses to identify aberrant sources and complex relationships.</p>	<ol style="list-style-type: none"> <li>(1) Modifies statistical data collection and analysis methods to accommodate changing conditions such as the opening of international markets, considering variables such as population densities, availability of raw material, and logistics.</li> <li>(2) Develops audit and review methods to ensure data accuracy and validity, enhance forecasts, and improve the quality of reports and presentations.</li> <li>(3) Performs complete surveys by gathering, analyzing, and modeling data, and reporting results.</li> <li>(4) Plans and carries out studies to project mortality and disability rates relative to demographic indicators to establish nationwide group insurance rates.</li> <li>(5) Maintains and updates an appliance manufacturer's quality assurance to cover all phases from assembly line functions through distribution.</li> </ol>
<p><b>1550 Points</b></p> <p>Mastery of the professional theories, concepts, principles, and practices of mathematics, statistics, operations research, or actuarial science pertaining to a specialized field.</p> <p>Knowledge permits the employee to formulate and lead projects, apply recent advances, and originate methods to resolve complex issues/problems (e.g., having many variables and relationships that are difficult to define) in order to advise management in planning and resource allocation.</p>	<ol style="list-style-type: none"> <li>(1) Devises and applies statistical models and testing protocol to ensure valid results in connection with a variety of processes or products.</li> <li>(2) Initiates statistically valid methods to evaluate the impact of and consumer reaction to a range of products or services.</li> <li>(3) Provides expert advice regarding the development and execution of market surveys for a diversified corporation.</li> <li>(4) Plans and develops new types of actuarial techniques for use in such areas and computing insurance benefits or managing viatical (life settlement) investments.</li> <li>(5) Examines the cost of alternative production methods and locations based on statistical analyses of factors such as labor costs and availability of materials and transportation.</li> </ol>

<p><b>1850 Points</b></p> <p>Expert knowledge of the theories, concepts, principles, and practices of mathematics, statistics, operations research, or actuarial science in a specialized subject-matter area of application (e.g., medicine, insurance, or economics).</p> <p>Knowledge permits the employee to introduce new concepts or theories that lead to broad recognition and/or studies by others in the field. Serves as an expert consultant for work involving unyielding problems and issues of great importance.</p>	<p>(1) Proposes and tests theories concerning the economic impact of advanced technology on such activities as extracting and refining fossil fuels, and their implications for consumer prices.</p> <p>(2) Provides expert advice to top management on developing and applying data modeling methods on issues of significance such as costs of infrastructure improvements (e.g., dams, bridges, and tunnels).</p> <p>(3) Originates and implements mathematical formula and models interfaced with the law of physics for such purposes as tracking and disabling projectiles emanating from mobile weapons.</p> <p>(4) Leads interdisciplinary teams of experts in developing statistical models to profile individuals such as potential terrorists or their sources of support.</p>
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### Covered SOC Codes

<p>152011 Actuaries</p> <p>152021 Mathematicians</p> <p>152031 Operations Research Analysts</p>	<p>152041 Statisticians</p> <p>152099 Mathematical Science Occupations, All Other</p>
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## Knowledge Guide for Professional Engineering and Architectural Jobs

<b>750 Points</b>	<b>Examples of How Knowledge Is Used</b>
<p>Entry-level knowledge of the professional concepts, principles, and practices of a field of engineering or architecture.</p> <p>Knowledge permits the employee to carry out undemanding assignments and gain familiarity with the goals and practices of the employing establishment.</p>	<p>(1) Builds on entry level knowledge to increase familiarity with electronic equipment, systems, and components. Gathers and compiles engineering data, and accompanies experienced engineers to observe work processes and attend design meetings.</p> <p>(2) Applies basic formulas and searches manufacturers' catalogs for standardized components to use in developing specifications for new and upgraded systems such as those used to pump, filter, and treat well water.</p> <p>(3) Uses any of a few methods to develop detailed designs for portions of heating and ventilating systems for residential buildings that incorporate standard features and present problems that are susceptible to a variety of common solutions.</p>
<p><b>950 Points</b></p> <p>Knowledge of professional engineering or architectural concepts, principles, and methods as they relate to the client's and/or employing establishment's overall objectives.</p> <p>Knowledge permits the employee to complete recurring assignments by applying well-established principles and practices.</p>	<p>(1) Develops electronic test instruments using accepted methods for purposes such as testing cell phones and their components to meet quality and operating standards.</p> <p>(2) Evaluates the operation and maintenance of standardized utility systems such as water and sewage treatment facilities by applying a variety of accepted principles and practices.</p> <p>(3) Designs, develops specifications, and monitors contractor compliance in providing and installing equipment associated with recurring projects as used for ventilating, heating, and plumbing in such structures as theaters and stores.</p> <p>(4) Drafts plans for development of landfills by considering many common variables such as soil composition and permeability, climatic conditions, drainage, water table levels, projected nature and volume of refuse, and refuse transport requirements.</p>
<p><b>1250 Points</b></p> <p>Knowledge of professional engineering or architectural concepts and practices, together with practical knowledge of associated engineering disciplines.</p> <p>Knowledge permits the employee to plan steps and carry out multiphase projects, to coordinate work with others, and to modify techniques and analytical methods to solve problems and meet a wide range of objectives.</p>	<p>(1) Designs, modifies, and constructs electronic instruments to detect and measure such emissions as hydrogen sulfide, carbon monoxide, mercury, and combustible gases in a factory environment.</p> <p>(2) Customizes and improves the design of electronic control systems such as those used to dispatch and redirect electric power, accommodate peak loads, and detect and redirect power in response to power failures, cascades, and spikes.</p> <p>(3) Tests, evaluates, and advises management on how to customize new processes and equipment to enhance worker and community safety for such businesses as paper mills and chemical plants.</p> <p>(4) Redesigns manufacturing and assembly line processes to accommodate newly developed materials (e.g., polymers, graphite compounds, and modern adhesives) by experimenting with and modifying established techniques.</p> <p>(5) Evaluates architectural designs, establishes cost estimates, and prepares contract specifications for the preservation, restoration, or rehabilitation of industrial and commercial structures such as warehouses and office buildings.</p>
<p><b>1550 Points</b></p> <p>Knowledge of professional engineering or architectural theories, advanced concepts, and practices of a specialized engineering field to resolve difficult or unusual issues and highly unstructured problems.</p> <p>Knowledge permits the employee to solve problems and plan projects involving many diverse engineering objectives and problems. Applies skill in analyzing and integrating technical and administrative considerations such as cost factors, and industry and regulatory standards.</p>	<p>(1) Plans, designs, and leads comprehensive tests and maintenance evaluations of electronic avionic systems, subsystems, and components.</p> <p>(2) Devises power generation facilities that interface alternative forms of energy, such as hydropower and geothermal, into commercially viable sources of electricity.</p> <p>(3) Serves as staff specialist in planning and developing innovations such as new ways to earthquake-proof buildings and bridges, or new fire suppressant foams and delivery systems that will not damage electronic components or people.</p> <p>(4) Plans and designs improved mechanical systems considering ergonomic, cost, and security issues for facilities or systems such as airport baggage and freight handling systems, people movers, escalators, and jetways.</p> <p>(5) Designs and coordinates the plans for constructing large multi-purpose buildings, determining architectural features and landscaping to enhance esthetic quality while staying within prescribed construction and maintenance budgets, and adhering to covenants and government codes.</p>

<p><b>1850 Points</b></p> <p>Knowledge of new and emerging engineering or architectural theories, concepts, and techniques together with recognized expertise of a specialized area of engineering.</p> <p>Knowledge permits the employee to develop new hypotheses, theories, and concepts; to lead unprecedented projects; or to be recognized nationally or internationally as an expert in the specialized area.</p>	<p>(1) Exercises programmatic control, and guides research and development projects associated with advanced telemetry and communications systems marketed to diverse businesses.</p> <p>(2) Provides engineering leadership and coordination for an innovative project or a significant portion of a project by developing technological breakthroughs that require extensive simulation and testing prior to implementation/acceptance, such as work associated with designing fusion power plants or telescopes for placement in space.</p> <p>(3) Leads teams that design prototype processes such those involved in rearranging atoms to develop macroscopic products or transforming animal tissue into drug delivery implants.</p>
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### Covered SOC Codes

171011	Architects, Except Landscape and Naval	172111	Health and Safety Engineers, Except Mining Safety Engineers and Inspectors
171012	Landscape Architects	172112	Industrial Engineers
172011	Aerospace Engineers	172121	Marine Engineers and Naval Architects
172021	Agricultural Engineers	172131	Materials Engineers
172031	Biomedical Engineers	172141	Mechanical Engineers
172041	Chemical Engineers	172151	Mining and Geological Engineers, Including Mining Safety Engineers
172051	Civil Engineers	172161	Nuclear Engineers
172071	Electrical Engineers	172171	Petroleum Engineers
172072	Electronics Engineers, Except Computer	172199	Engineers, All Other
172081	Environmental Engineers		

## Knowledge Guide for Engineering and Scientific Technician Jobs

<b>200 Points</b>	<b>Examples of How Knowledge Is Used</b>
<p>Knowledge and/or skill that permit the employee to perform a limited variety of simple, repetitive tasks.</p>	<p>(1) Takes soil samples using prescribed methods, labels them, and submits them for analyses.</p> <p>(2) Cleans laboratory glassware following established methods and prepares simple solutions for others to use in conducting chemical tests.</p> <p>(3) Baits insect traps to obtain data on the level of timber infestation.</p> <p>(4) Inseminates turkeys at poultry plant.</p>
<p><b>350 Points</b></p> <p>Knowledge of standard procedures and tests related to an engineering or scientific field.</p>	<p>(1) Prepares simple detail drawings showing prescribed section views and dimensions of an uncomplicated building such as an out building or storage structure.</p> <p>(2) Collects water and sediment samples from lakes and reservoirs using prescribed procedures to preserve the physical and chemical properties of the samples. Runs standardized laboratory tests on water samples for pH, turbidity, and oxygen levels.</p> <p>(3) Uses computer-aided manufacturing software to add prescribed steps to plant operations.</p>
<p><b>550 Points</b></p> <p>Knowledge of the processes, methods, and procedures associated with a limited range of engineering or scientific objectives or common problems.</p> <p>Knowledge permits the employee to carry out a variety of related and recurring assignments.</p>	<p>(1) Prepares layouts and drawings according to engineering specifications using computer-assisted drafting software, reviews engineering drawings to verify adherence to standard practices, and inputs commands to rotate, zoom-in, or transfer drawings to hard copy.</p> <p>(2) Surveys timber projects by using standard sampling procedures to determine and report seedling survival rate, growth patterns, and obvious causes for seedling failure such as predation or disease.</p>
<p><b>750 Points</b></p> <p>Detailed knowledge of established processes, methods, and techniques, as well as practical knowledge of a few specific engineering or scientific principles.</p> <p>Knowledge permits the employee to schedule and carry out the steps of a limited operation or project, or to complete important stages of a multiphase project.</p>	<p>(1) Solves electro-mechanical and electronic problems such as those related to AC to DC/DC to AC converters, data processors, digital controllers, and shared data transmitting devices.</p> <p>(2) Prepares hydrographic and topographic maps and charts using aerial and ground survey data that include depictions of rivers, reservoirs, locks, dams, and canals overlaying varied topographic features.</p> <p>(3) Analyzes soil samples for trace elements by selecting applicable analytical methods based on the matrix of the material. Prepares standards to calibrate instruments, and uses automated systems to calculate and report findings.</p> <p>(4) Reviews seismic test data, recommends additional geophone locations based on results, and reviews geophysical logs to detect patterns typical of oil deposits.</p>
<p><b>950 Points</b></p> <p>Knowledge of several specific engineering or scientific principles, and skill in using specialized techniques and equipment.</p> <p>Knowledge permits the employee to plan, coordinate, and carry out precedented projects.</p>	<p>(1) Plans and conducts physical testing of composite materials for aircraft, selecting and adapting methods, and calibrating equipment to evaluate the structural integrity under extreme variations in vibration and load stress.</p> <p>(2) Sets up laboratory equipment needed to test new analytical procedures or techniques, documents results, and recommends needed refinements.</p> <p>(3) Modifies steps and methods in stages of hydrologic data collection to accommodate variable situations and conditions such as seasonal flooding, industrial discharge, agricultural runoff, and climate changes.</p>

<p><b>1250 Points</b></p> <p>Knowledge of several specific engineering or scientific principles and skill in using complex techniques and equipment.</p> <p>Knowledge permits the employee to organize and execute multiple steps to develop and/or enhance new methods, approaches, and procedures essential to the completion of important phases of projects or activities.</p>	<p>(1) Supports research regarding weather using specialized instrumentation and interpreting findings for measurements such as solar radiation and optical rain rate based on droplet size, distribution, and rate of fall.</p> <p>(2) Develops new or modifies experimental methods for cryogenic preparation and staining of tissue samples to detect the presence of toxic substances and/or indications of disease.</p> <p>(3) Schedules and leads teams responsible for installing and testing new or modified air traffic control systems at commercial airports.</p>
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### Covered SOC Codes

173011	Architectural and Civil Drafters	194031	Chemical Technicians
173012	Electrical and Electronics Drafters	194041	Geological and Petroleum Technicians
173013	Mechanical Drafters	194051	Nuclear Technicians
173019	Drafters, All Other	194091	Environmental Science and Protection Technicians, Including Health
173021	Aerospace Engineering and Operations Technicians	194092	Forensic Science Technicians
173022	Civil Engineering Technicians	194093	Forest and Conservation Technicians
173023	Electrical and Electronic Engineering Technicians	194099	Life, Physical, and Social Science Technicians, All Other
173024	Electro-Mechanical Technicians	274011	Audio and Video Equipment Technicians
173025	Environmental Engineering Technicians	274012	Broadcast Technicians
173026	Industrial Engineering Technicians	274013	Radio Operators
173027	Mechanical Engineering Technicians	274014	Sound Engineering Technicians
173029	Engineering Technicians, Except Drafters, All Other	299012	Occupational Health and Safety Technicians
173031	Surveying and Mapping Technicians	332022	Forest Fire Inspectors and Prevention Specialists
194011	Agricultural and Food Science Technicians	474011	Construction and Building Inspectors
194021	Biological Technicians		



## Knowledge Guide for Professional Biological and Physical Science Jobs

<b>750 Points</b>	<b>Examples of How Knowledge Is Used</b>
<p>Entry-level knowledge of basic professional concepts, principles, and procedures of one or more of the biological or physical sciences.</p> <p>Knowledge permits the employee to carry out less demanding professional elements of professional assignments while becoming familiar with the objectives and methods of the establishment.</p>	<ol style="list-style-type: none"> <li>(1) Identifies specimens of common insect species and researches literature to develop information about their life cycles and habits.</li> <li>(2) Collects seismic data readings and identifies common patterns indicative of oil and gas deposits.</li> <li>(3) Uses mass spectrometer to determine presence and abundance of specific gases occurring during solar flares. Reports data and findings to experienced scientists.</li> <li>(4) Uses theodolites and global position systems (GPS) to develop geologic maps of unmapped areas. Learns to apply methods to fill GPS data gaps such as those due to a narrow canyon by gathering ground data. Identifies common rocks and minerals. Takes samples of unknown material to identify subsequently with guidance from more experienced colleagues.</li> </ol>
<p><b>950 Points</b></p> <p>Knowledge of the professional concepts, principles, and procedures of one or more of the biological or physical sciences.</p> <p>Knowledge permits the employee to complete recurring assignments by applying well-established scientific principles and practices and to recognize conditions that may impact results.</p>	<ol style="list-style-type: none"> <li>(1) Gathers data, interprets aerial photographs, and applies scientific principles for such purposes as analyzing limited geographic areas to propose locations suitable for timber/fire roads, recreational use, or reforestation.</li> <li>(2) Applies established concepts and practices to advise land owners on such matters as how to improve soil or wildlife habitat while enhancing crop production and grazing quality.</li> <li>(3) Selects and applies any of a number of standard genetic manipulation methods to strengthen desirable characteristics of plants such as pest resistance or rapid growth.</li> <li>(4) Collects and analyzes data to determine recurring patterns such as ocean currents within a limited area.</li> <li>(5) Updates weather forecasts using well-established techniques to cover rapidly changing conditions.</li> <li>(6) Applies scientific principles and data collection/reduction methods to capture and analyze a variety of natural phenomena.</li> <li>(7) Tests foods using established laboratory methods to prepare labels showing sodium, fat, and carbohydrate content.</li> </ol>
<p><b>1250 Points</b></p> <p>Knowledge of a wide range of professional concepts, principles, and methods of one or more of the biological or physical sciences.</p> <p>Knowledge permits the employee to provide advice on or plan and carry out projects and studies involving diverse, varied, and complex features for which the employee must modify approaches.</p>	<ol style="list-style-type: none"> <li>(1) Conducts analyses of food, drugs, or consumer products to meet regulatory requirements.</li> <li>(2) Advises farm cooperatives on strategies for managing/restoring pastures, preventing riparian soil erosion, improving rural transportation infrastructure, and obtaining state and federal grants to fund related projects.</li> <li>(3) Provides guidance, assistance, and theoretical explanations of weather forecasts to television and radio stations.</li> <li>(4) Develops comprehensive hydrologic study plans for a sizable river basin to include snowmelt measurements and identification of tributaries, springs, rainfall, and other variables impacting water availability and quality.</li> <li>(5) Designs and constructs specialized equipment and develops techniques to photograph high speed, low-light, microscopic biological or chemical processes.</li> <li>(6) Develops protocol for a waste disposal corporation engaged in shipping, handling, and isolating hazardous waste.</li> <li>(7) Advises zoos, aquariums, and entertainment corporations on how to feed, breed, and care for a variety of seals, dolphins, and other marine mammals.</li> </ol>

<p><b>1550 Points</b></p> <p>Comprehensive professional knowledge of the theories, concepts, principles, and methods of one or more specialties of the biological or physical sciences.</p> <p>Knowledge permits the employee to lead and coordinate the work of interdisciplinary teams, serve as an in-house authority, develop projects, and solve complex problems by extending existing techniques and devising new approaches.</p>	<p>(1) Leads studies and advises growers, shippers, processors, manufacturers, and customers about the economic impact of widespread crop damage created by insects.</p> <p>(2) Directs efforts to identify and alleviate stresses on livestock at feedlots and advises agricultural companies on ways to minimize defects in resulting food products.</p> <p>(3) Participates with polar research scientists to guide them in determining optimal ocean/weather conditions for planning and conducting studies.</p> <p>(4) Guides teams of scientists/engineers to develop and manufacture semi-permeable membranes and chemical compounds to separate and destroy harmful microorganisms from municipal water supplies.</p> <p>(5) Devises and leads efforts to develop synthetic pharmaceuticals that mimic the effects of naturally occurring substances found in rare plants.</p> <p>(6) Develops experiments and protocols for conduct during space flights.</p> <p>(7) Works with medical experts to extend laser applications to new surgical procedures.</p>
<p><b>1850 Points</b></p> <p>Expertise in the professional theories, concepts, principles, and methods of a broad specialty in the biological or physical sciences.</p> <p>Knowledge permits the employee to develop new scientific hypotheses and theories, carry out pioneering research, and/or be recognized as an expert in a scientific specialty.</p>	<p>(1) Lectures, writes, and consults as a nationally recognized authority on global warming and climate change issues.</p> <p>(2) Leads a team of senior scientists defining the functions of the human genome and developing medical applications for the information.</p> <p>(3) Devises new techniques and materials to economically desalinate sea water and extract oil from shale.</p> <p>(4) Initiates interdisciplinary studies and advises computer chip manufactures on applications of molecular nanotechnology.</p>

### Covered SOC Codes

119121	Natural Sciences Managers	191032	Foresters
171021	Cartographers and Photogrammetrists	191099	Life Scientists, All Other
171022	Surveyors	192011	Astronomers
191011	Animal Scientists	192012	Physicists
191012	Food Scientists and Technologists	192021	Atmospheric and Space Scientists
191013	Soil and Plant Scientists	192031	Chemists
191021	Biochemists and Biophysicists	192032	Materials Scientists
191022	Microbiologists	192041	Environmental Scientists and Specialists, Including Health
191023	Zoologists and Wildlife Biologists	192042	Geoscientists, Except Hydrologists and Geographers
191029	Biological Scientists, All Other	192043	Hydrologists
191031	Conservation Scientists	192099	Physical Scientists, All Other

## Knowledge Guide for Professional Economics, Sociology, Geography, Psychology, and Similar Jobs

<b>750 Points</b>	<b>Examples of How Knowledge Is Used</b>
<p>Entry-level professional knowledge of the concepts, principles, and methods of economics, sociology, psychology, or a similar science.</p> <p>Knowledge permits the employee to carry out portions of studies and developmental assignments while becoming familiar with the methods and practices of the establishment.</p>	<ol style="list-style-type: none"> <li>(1) Identifies and collects geographic data from prescribed sources.</li> <li>(2) Searches databases and/or libraries for readily accessible information, documents, and factors on assigned topics.</li> <li>(3) Records observations during psychology experiments when the behaviors and/or reactions are clearly identifiable.</li> <li>(4) Plots and reduces data using traditional statistical models or programs.</li> <li>(5) Learns to collect and analyze market, interest rate, and economic indicator data such as used for investment planning.</li> <li>(6) Inventories the artifacts and records associated with historical and archeological sites.</li> </ol>
<p><b>950 Points</b></p> <p>Knowledge of the professional concepts, principles, and methods of economics, sociology, psychology, or a similar science.</p> <p>Knowledge permits the employee to carry out assignments by following scientific methods and guidelines, and recognizing conditions that may impact results.</p>	<ol style="list-style-type: none"> <li>(1) Provides marketing and sales data to a real estate corporation on maps and drawings.</li> <li>(2) Reviews census records and interviews people for an oral history project.</li> <li>(3) Tests and provides factual data for human resources placement consultants regarding aptitudes, interests, and abilities as revealed by objective tests.</li> <li>(4) Evaluates, and provides therapy to patients and families in group therapy.</li> <li>(5) Examines proposed construction sites for archaeological artifacts to use in environmental impact assessments.</li> </ol>
<p><b>1250 Points</b></p> <p>Thorough knowledge of a range of professional concepts, principles, and methods in a specialized field of economics, sociology, psychology, or a similar science.</p> <p>Knowledge permits the employee to plan and conduct studies or deal with subjects that require intense research and/or analysis, or make it necessary for the employee to modify approaches to identify causal relationships in order to complete assignments.</p>	<ol style="list-style-type: none"> <li>(1) Runs multiple economic/marketing studies for a manufacturer in order to set prices and conduct lifecycle planning.</li> <li>(2) Researches written and photographic records for studies related to recently discovered military battle/burial sites.</li> <li>(3) Leads a team of social workers running multiple projects to combat alcohol and drug dependency.</li> <li>(4) Provides psychotherapy for patients suffering from a variety of mental illnesses in such places as hospital and prisons.</li> <li>(5) Studies economic patterns and problems such as those facing the working poor.</li> <li>(6) Plans and updates a state's archaeological program, reviews historical/ archaeological surveys and reports, and administers grant and permit programs.</li> </ol>
<p><b>1550 Points</b></p> <p>Mastery of the professional theories, concepts, principles, and methods of economics, sociology, psychology, or a similar science.</p> <p>Knowledge permits the employee to plan major projects and/or coordinate teams to solve stubborn problems that require the employee to create novel approaches and analyze complex, interacting variables.</p>	<ol style="list-style-type: none"> <li>(1) Analyzes the feasibility and cost-benefits of proposed plant sites around the world for various product lines.</li> <li>(2) Plans assistance programs and coordinates with local officials by providing and guiding psychological counselors helping communities cope with tragedies such as school slayings and industrial accidents.</li> <li>(3) Leads teams reviewing, interpreting, and preserving thousands of documents, photos, and artifacts relating to a metropolis.</li> <li>(4) Provides guidance to groups of psychological counselors treating disabled patients with long histories of unemployment or job maladjustment.</li> <li>(5) Advises interior designers and manufacturers on the impact of colors, shapes, and design on productivity, energy, and attitude.</li> <li>(6) Advises urban planners on the potential effect of proposed rapid transit on communities.</li> <li>(7) Evaluates defendants to determine if they are mentally capable of participating in their own defense.</li> </ol>

<p><b>1850 Points</b></p> <p>Expert knowledge of the theories, concepts, principles, and methods of a specialty within psychology, sociology, economics, or similar science.</p> <p>Knowledge permits the employee to generate original hypotheses and theories, and conduct pioneering work in unexplored or previously unpromising areas.</p>	<p>(1) Advises industry executives on the coming economic climate, its potential impact, and how to deal with it.</p> <p>(2) Negotiates with government officials, industrialists, clerics, and/or royal/or tribal leaders of warring nations to bring in famine/medical relief.</p> <p>(3) Advises town planners and entertainment corporations on the economic impact of proposed historic preservation and various commercial developments.</p> <p>(4) Consults, as a nationally recognized behavioral psychologist, with teaching and research institutions regarding educational and intellectual development projects, issues, and studies.</p> <p>(5) Testifies as an historical or archaeological expert in complex situations such as in legal cases with significant social, cultural, or political ramifications.</p>
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### Covered SOC Codes

<b>131161</b>	<b>Market Research Analysts and Marketing Specialists</b>	193041	Sociologists
193011	Economists	193051	Urban and Regional Planners
193021	Market Research Analysts	193091	Anthropologists and Archeologists
193022	Survey Researchers	193092	Geographers
193031	Clinical, Counseling, and School Psychologists	193093	Historians
193032	Industrial-Organizational Psychologists	193094	Political Scientists
193039	Psychologists, All Other	193099	Social Scientists and Related Workers, All Other

## Knowledge Guide for Social, Welfare, and Health Administration Jobs

<b>550 Points</b>	<b>Examples of How Knowledge Is Used</b>
<p>Practical knowledge of a variety of standard administrative procedures, together with knowledge of the basic objectives and governing rules of a specific civil rights, health, or social welfare program.</p> <p>Knowledge permits the employee to assist individuals seeking assistance or benefits, complete a few standardized forms, answer common questions, and extract information from a variety of sources, while gaining knowledge of practices and laws pertaining to the more demanding tasks.</p>	<p>(1) Screens questions from visitors and phone callers, answers basic questions regarding program features, and works with experienced program specialist to gain knowledge and skills to advance to more demanding assignments.</p> <p>(2) Explains legal options, and refers abused spouses and family members to temporary shelters.</p>
<p><b>750 Points</b></p> <p>Knowledge of the basic administrative practices, laws, and regulations related to fields such as civil rights, health, and social welfare programs.</p> <p>Knowledge permits the employee to carry out recurring assignments and gain familiarity with the establishment's practices.</p>	<p>(1) Meets with parolees/probationers to provide advice and document compliance with requirements. Initiates warrants or remediation as needed.</p> <p>(2) Conducts interviews and reviews documents to determine eligibility for in-home nursing care.</p> <p>(3) Searches literature and organizes data on political and social conditions and trends for assigned geographic areas.</p> <p>(4) Collects data on voluntary social welfare services, their sources, and beneficiaries for a nonprofit charitable organization.</p> <p>(5) Plans and provides leisure activities for groups of children, elderly, and/or mildly disabled individuals.</p> <p>(6) Takes suicide hotline calls, provides immediate counseling, suggests subsequent services, and contacts medical/law offices as appropriate.</p> <p>(7) Consoles the bereaved, and refers them to financial assistance sources and support groups to alleviate financial and psychological burdens.</p>
<p><b>950 Points</b></p> <p>Knowledge of the administrative practices, laws, policies, analytical methods, and regulations related to fields such as civil rights, health programs, and social welfare.</p> <p>Knowledge permits the employee to complete assignments using well established practices</p>	<p>(1) Compiles data and prepares reports regarding labor market conditions in various occupations for use in connection with state and local employment and training programs.</p> <p>(2) Plans, administers, and evaluates recreational programs to promote physical and social development for at-risk youth.</p> <p>(3) Conducts segments of broad civil rights evaluation projects.</p> <p>(4) Plans the design of and coordinates records maintenance for social services advice and consultation in a mental institution.</p> <p>(5) Provides information and assistance, and determines clients' needs for a social services program.</p>
<p><b>1250 Points</b></p> <p>Knowledge of a broad range of administrative practices, laws, policies, analytical methods, and regulations related to fields such as civil rights, health programs, and social welfare.</p> <p>Knowledge permits the employee to plan and carry out projects; coordinate work; and modify analytical techniques to complete a wide variety of difficult assignments.</p>	<p>(1) Reviews and settles appealed health insurance and disability claims involving complicated documentation and/or multiple issues.</p> <p>(2) Plans and carries out studies of civil rights issues, analyzes results, and develops methods to facilitate their resolution.</p> <p>(3) Plans and coordinates social, recreational, and cultural activities for a large municipal community center intended to meet the needs of a variety of groups (e.g., elderly, disabled, impoverished, and single-parent families).</p> <p>(4) Provides technical advice and assistance to an operating disease control program, and establishes related information systems.</p> <p>(5) Operates a safety and health program for the employees of a plant where potential for injury/death from moving machinery, falls, burns, and/or chemicals is high.</p>

<p><b>1550 Points</b></p> <p>Mastery of the administrative practices, laws, policies, analytical methods, and regulations related to fields such as civil rights, health programs, and social welfare.</p> <p>Knowledge permits the employee to identify problems and lead teams in exploring and solving multifaceted and/or controversial problems that require the development and use of new methods.</p>	<p>(1) Develops regulations and interpretative materials, assesses impact of new guidelines on need-based program operations.</p> <p>(2) Establishes methods for intelligence collection programs, performs long range planning for gathering intelligence regarding social and political trends, and certifies reports.</p> <p>(3) Studies broad civil rights issues and/or questions and develops reports.</p> <p>(4) Conducts overall planning, administration, and evaluation of a medical records program; identifies deficiencies; and initiates improved procedures for guarding against possibilities such as adverse drug interaction and breach of privacy.</p> <p>(5) Provides comprehensive technical, administrative, and management advice and assistance for complex disease control programs.</p> <p>(6) Plans an employee safety program for a major commercial airline doing business internationally. Recommends new and modified policies, establishes training, and conducts risk analyses.</p>
<p><b>1850 Points</b></p> <p>Expert knowledge of the practices, laws, policies, analytical methods, and regulations related to a specialized aspect of such administrative fields as civil rights, health programs, and social welfare.</p> <p>Knowledge permits the employee to develop new hypotheses, theories, and concepts; to lead unprecedented projects; or to serve as a recognized authority in a specialized area such as managed health care or disaster assistance.</p>	<p>(1) Plans and conducts programs to assess and fill medical, sanitation, and food assistance needs, together with analyzing infrastructure capacity, of a region suffering the results of a natural catastrophe, industrial accident, or man-made disaster.</p> <p>(2) Directs and conducts research to analyze and resolve fundamental questions, issues, or policies affecting such topics as civil rights or child poverty. Establishes new knowledge in the field and contributes to far-reaching policy changes.</p>

### Covered SOC Codes

119111	Medical and Health Services Managers	211091	Health Educators
131031	Claims Adjusters, Examiners, and Investigators	211092	Probation Officers and Correctional Treatment Specialists
131032	Insurance Appraisers, Auto Damage	211093	Social and Human Service Assistants
211011	Substance Abuse and Behavioral Disorder Counselors	<b>211094</b>	<b>Community Health Workers</b>
211012	<b>Educational, Guidance, School, and Vocational Counselors</b>	211099	Community and Social Service Specialists, All Other
211013	Marriage and Family Therapists	212011	Clergy
211014	Mental Health Counselors	212021	Directors, Religious Activities and Education
211015	Rehabilitation Counselors	212099	Religious Workers, All Other
211019	Counselors, All Other	299011	Occupational Health and Safety Specialists
211021	Child, Family, and School Social Workers	299099	Healthcare Practitioners and Technical Workers, All Other
211022	<b>Healthcare Social Workers</b>	399041	Residential Advisors
211029	Social Workers, All Other		

## Knowledge Guide for Professional Legal Jobs

<b>950 Points</b>	<b>Examples of How Knowledge is Used</b>
<p>Entry-level knowledge of basic professional legal principles and concepts, legal research methods, and analytical techniques. The law clerk applies the same academic background as the lawyer and performs many of the same duties, but is not a member of the bar and, therefore, cannot litigate or plead cases in court.</p> <p>Knowledge permits the employee to carry out assignments using well-established principles, practices, and precedents.</p>	<ol style="list-style-type: none"> <li>(1) Analyzes issues of fact and law to prepare digests of cases for litigation by searching law libraries, databases, court reports, appellate records, an/or commercial legal publications to develop background material for legal proceeding.</li> <li>(2) Reviews documents such as wills, contracts, and revocable trusts for legal sufficiency, consistency of facts, and indications of authenticity.</li> <li>(3) Assists experienced colleagues in preparing for hearings, appeals, and/or litigation by analyzing cases and preparing summaries and recommendations based on fairly explicit facts, laws, and precedents.</li> <li>(4) Searches documents and records such as those pertaining to specific kinds of patents for which precedents and legal issues are clear. Drafts correspondence and patent documents for review by experienced colleagues.</li> </ol>
<p><b>1250 Points</b></p> <p>Knowledge of a broad range of professional legal concepts, principles, precedents, methods, and practices.</p> <p>Knowledge permits the employee to examine and decide on approaches to legal proceedings, negotiations, law suits, claims, and/or patent applications.</p>	<ol style="list-style-type: none"> <li>(1) Prepares documents such as those incorporating businesses where special clauses are required to protect the interests of all parties.</li> <li>(2) Provides legal advice to union or corporate managers regarding recognition, promotion policies, benefits, human resources practices, and equal employment issues.</li> <li>(3) Represents and/or advises individual clients in recurring types of cases such as those concerning custody, tax issues, bankruptcies, and personal injury claims.</li> <li>(4) Reviews topical legal precedents and advises clients on issues and appropriate practices for which precedents are normally consistent and controversy is minimal.</li> <li>(5) Prepares documents such as those associated with registering patents where issues are somewhat clouded.</li> <li>(6) A law clerk at this level often carries out staff work on behalf of a judge by finalizing formal written opinions, searching for arcane decisions, and closing completed cases.</li> </ol>
<p><b>1550 Points</b></p> <p>Knowledge of the professional theories, concepts, principles, and practices related to legal work to solve novel and unusual problems where few precedents exist.</p> <p>Knowledge permits the employee to develop legal strategies and solve legal problems requiring innovative approaches.</p>	<ol style="list-style-type: none"> <li>(1) Advises corporate management on complex legal matters where few precedents exist and legal opinion varies considerably.</li> <li>(2) Recommends corporate policy with regard to tort claims for businesses dealing with products and services rife with potential for misuse such as household cleaning products and adhesives.</li> <li>(3) Devises innovative legal strategies such as those to facilitate the immigration of foreign information technology specialists and engineers recruited by high tech industries or defense contractors.</li> <li>(4) Leads a team of attorneys, investigators, and engineers collecting evidence and statements associated with such matters as commercial aircraft accidents.</li> <li>(5) Develops legal strategy for cases that are emotionally charged and involve significant precedents (such as those relating to the recall of child safety seats, damages awarded to victims of commercial transportation mishaps, or re-zoning in an historically significant area) where special interest and political groups are aggressive.</li> <li>(6) Prepares legal documents to register patents where cases involve controversial scientific or engineering issues that require technical testimony or affidavits.</li> </ol>

<p><b>1850 Points</b></p> <p>Mastery of the professional theories, concepts, principles, and techniques pertaining to a specialized area of the legal profession.</p> <p>Knowledge permits the employee to originate new legal theories, interpretations, legislation, and public policy, or serves to set significant precedent.</p>	<ul style="list-style-type: none"> <li>(1) Advises senior executives and/or policy makers on legal issues of special sensitivity such as those involving stem cell, cloning, or trans-genetic experiments.</li> <li>(2) Deals in legal specializations and litigation concerning such significant matters as transportation industry cases involving the public health and safety.</li> <li>(3) Develops lawsuits for special interest groups challenging previous legal decisions or legislation.</li> <li>(4) Lectures as a national expert on complex legal issues.</li> <li>(5) Develops and leads teams of attorneys in such undertakings as class action suits with potential for costly damages and for establishing important precedents.</li> <li>(6) Develops new legal theories to support controversial positions such as copyright and trademark determinations for drug companies or involving international trade.</li> </ul>
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**Covered SOC Codes**

231011 Lawyers	<b>231012 Judicial Law Clerks</b>
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## Knowledge Guide for Administrative Legal Jobs

750 Points	Examples of How Knowledge Is Used
<p>General knowledge of common documents and practices related to legal work.</p> <p>Knowledge permits the employee to assist attorneys and legal staff by: searching and extracting information from designated data sources; using prescribed formats to summarize factual information; preparing drafts of simple legal documents, and gaining familiarity with the statutes, regulations, terminology, practices, and the basic legal research tools relevant to the establishment.</p>	<p>(1) Uses standard forms, contracts, and paragraphs to draft simple wills, trusts, and other common legal documents for review and approval by attorneys.</p> <p>(2) Assists attorneys by completing and filing documents for nonimmigrant and immigrant visa petitions.</p> <p>(3) Interviews clients, views physical locations, and reviews records in preparation for hearings regarding traffic violations and citations.</p>
<p><b>950 Points</b></p> <p>Knowledge of specific statutes, regulations, precedents, practices, and legal research methods relevant to the employing establishment.</p> <p>Knowledge permits the employee to locate, analyze, and prepare reports on relevant statutes and decisions in order to complete assignments covered by established practices and precedent cases handled by the establishment.</p>	<p>(1) Compiles and reviews information presented by potential litigant(s) in medical malpractice suits to evaluate adequacy of information, gauge likelihood of success, and identify appropriate titles of law, precedents, and decision.</p> <p>(2) Researches laws, precedents, and legal opinions, and suggests approaches in cases seeking damages for infringement of copyrights covering music, books, and films.</p> <p>(3) Interviews law firm clients, locates witnesses, drafts legal documents and pleadings, obtains depositions, and prepares interrogatories in suits involving allegations of sexual harassment and employment discrimination.</p> <p>(4) Gathers information for tax attorneys to assist them in explaining the implications of the Internal Revenue Service Code, tax court decisions, regulations, and precedents to corporate clients scheduled for audits.</p> <p>(5) Supports attorneys engaged in advising industry and government entities on public stock offerings and bonds. Reviews annual reports, profit and loss statements, etc. Researches and compiles information on related statutes, regulations, and commonly occurring issues.</p>
<p><b>1250 Points</b></p> <p>In-depth knowledge of laws, decisions, and interpretations applicable to particular area of law or types of cases/actions (e.g., civil versus criminal) together with specialized legal skills such as ability evaluate technical evidence or perform extensive legal research in the particular legal area.</p> <p>Knowledge permits the employee to analyze and evaluate the relevance of specialized technical issues and to thoroughly research the legislative history, precedent cases, decisions, and opinions of the technical specialty to provide substantive information and explanatory material, and suggest possible legal approaches.</p>	<p>(1) Reviews issues of fact and law to prepare analyses for child custody hearings.</p> <p>(2) Resolves complaints and disputes between a stock brokerage firm and its clients in accordance with legal precedent and the firm's established practices.</p> <p>(3) Analyzes adequacy of contested insurance claims by evaluating the evidence and documents provided in terms of credibility, precedent, relevant statutes, and insurance agreements.</p> <p>(4) Classifies and evaluates legal documents for sufficiency, credibility, and consistency of facts in cases where wills and estates of significant value are contested.</p> <p>(5) Researches court records, property tax records, deeds, mortgages, and trusts to determine sequential ownership, liens, judgments, covenants, and zoning designations of real property of interest to developers and conservancy organizations.</p> <p>(6) Drafts responses associated with contract disputes and bankruptcy claims.</p> <p>(7) Drafts incorporation documents and forms for start-up groups engaged in accounting and business management consulting.</p>

### Covered SOC Codes

232011 Paralegals and Legal Assistants	232099 Legal Support Workers, All Other
232093 Title Examiners, Abstractors, and Searchers	

## Knowledge Guide for Professional Education Jobs

<b>750 Points</b>	<b>Examples of How Knowledge Is Used</b>
<p>Entry-level knowledge of professional education and training concepts, principles, and methods, as well as relevant subject matter.</p> <p>Knowledge permits the employee to complete developmental assignments and gain practical experience in applying teaching principles and methods.</p>	<p>(1) Prepares lesson plans and teaches short, repetitive courses that are highly structured such as arithmetic, geography, spelling, wood shop, and typing.</p> <p>(2) Assists in the development or revision of objective tests, and helps evaluate their effectiveness.</p>
<p><b>950 Points</b></p> <p>Knowledge of professional education and training concepts, principles, and methods, as well as relevant subject matter.</p> <p>Knowledge permits the employee to complete recurring assignments where objectives are defined and can be accomplished by applying well-established practices and precedents to teach a full range of subjects at the elementary or secondary level.</p>	<p>(1) Designs curriculum, prepares lesson plans, and teaches courses at the secondary level in such subjects as biology, American history, literature, or algebra.</p> <p>(2) Develops or revises objective tests for mainstream students in traditional high school courses. Determines suitability for intended use, ease of administration and scoring, overlapping items, and clues to answers. Analyzes trial application of tests to determine reliability and makes needed changes to test content and structure.</p>
<p><b>1250 Points</b></p> <p>Knowledge of the professional principles, advanced concepts, and methods applicable to undergraduate subjects or to educational program duties in a specialize field such as adult education or bilingual education.</p> <p>Knowledge permits the employee to develop and teach undergraduate college-level courses in subjects that are subject to varying perspectives or controversies, are theoretical, or scientific in nature.</p> <p>Education program specialists at this level adapt state-of-the-art practices to teaching situations or refine and test innovative alternatives to traditional practices.</p>	<p>(1) Develops course content, prescribes text book material, and teaches under graduate college level courses ensuring consistency with course objectives and policy.</p> <p>(2) Monitors and evaluates programs to provide for educational opportunities for students with special needs such as groups of hearing-impaired students or students who each primarily speak any of several foreign languages. Reviews curricula, educational material, and teaching practices; suggests improvements; and recommends funding levels.</p> <p>(3) Evaluates innovative audio-visual teaching aids for students with special needs for broad use throughout a major school district exceptional student program. Assesses the aids, and decides whether to adopt or reject them. Provides guidance in their application.</p>
<p><b>1550 Points</b></p> <p>Mastery of advanced theories, concepts, and methods applicable to a complex subject area or specialized field of education.</p> <p>Knowledge permits the employee to develop and teach graduate level or comparable courses in complex subject areas, to serve as an authoritative expert, and to carry out professorial functions.</p> <p>Education specialists at this level serve as experts in the design and administration of innovative projects or education models, and serve as leaders in guiding educational boards or institutions.</p>	<p>(1) Designs and teaches courses covering subject matter requiring modification or correction to incorporate significant developments and/or discoveries from multiple disciplines such as courses in genetics and cellular electronics that are undergoing rapid advances and/or include controversial elements.</p> <p>(2) Serves as a top educational advisor to an institution or organization such as a sizable teaching hospital. Recommends broad educational polices and evaluates curricula.</p> <p>(3) Speaks, as an authority in accreditation, at meetings, seminars, and conferences such as those dedicated to enhance and support the development, appraisal, and implementation of academic standards.</p>

## Covered SOC Codes

251011	Business Teachers, Postsecondary	251125	History Teachers, Postsecondary
251021	Computer Science Teachers, Postsecondary	251126	Philosophy and Religion Teachers, Postsecondary
251022	Mathematical Science Teachers, Postsecondary	251191	Graduate Teaching Assistants
251031	Architecture Teachers, Postsecondary	251192	Home Economics Teachers, Postsecondary
251032	Engineering Teachers, Postsecondary	251193	Recreation and Fitness Studies Teachers, Postsecondary
251041	Agricultural Sciences Teachers, Postsecondary	251194	Vocational Education Teachers, Postsecondary
251042	Biological Science Teachers, Postsecondary	251199	Postsecondary Teachers, All Other
251043	Forestry and Conservation Science Teachers, Postsecondary	252011	Preschool Teachers, Except Special Education
251051	Atmospheric, Earth, Marine, and Space Sciences Teachers, Postsecondary	252012	Kindergarten Teachers, Except Special Education
251052	Chemistry Teachers, Postsecondary	252021	Elementary School Teachers, Except Special Education
251053	Environmental Science Teachers, Postsecondary	252022	<b>Middle School Teachers, Except Special and Career/Technical Education</b>
251054	Physics Teachers, Postsecondary	252023	<b>Career/Technical Education Teachers, Middle School</b>
251061	Anthropology and Archeology Teachers, Postsecondary	252031	<b>Secondary School Teachers, Except Special and Career/Technical Education</b>
251062	Area, Ethnic, and Cultural Studies Teachers, Postsecondary	252032	<b>Career/Technical Education Teachers, Secondary School</b>
251063	Economics Teachers, Postsecondary	<b>252051</b>	<b>Special Education Teachers, Preschool</b>
251064	Geography Teachers, Postsecondary	<b>252052</b>	<b>Special Education Teachers, Kindergarten and Elementary School</b>
251065	Political Science Teachers, Postsecondary	<b>252053</b>	<b>Special Education Teachers, Middle School</b>
251066	Psychology Teachers, Postsecondary	<b>252054</b>	<b>Special Education Teachers, Secondary School</b>
251067	Sociology Teachers, Postsecondary	<b>252059</b>	<b>Special Education Teachers, All Other</b>
251069	Social Sciences Teachers, Postsecondary, All Other	253011	<b>Adult Basic and Secondary Education and Literacy Teachers and Instructors</b>
251071	Health Specialties Teachers, Postsecondary	253021	Self-Enrichment Education Teachers
251072	Nursing Instructors and Teachers, Postsecondary	253099	Teachers and Instructors, All Other
251081	Education Teachers, Postsecondary	259011	<b>Audio-Visual and Multimedia Collections Specialists</b>
251082	Library Science Teachers, Postsecondary	259021	Farm and Home Management Advisors
251111	Criminal Justice and Law Enforcement Teachers, Postsecondary	259031	Instructional Coordinators
251112	Law Teachers, Postsecondary		
251113	Social Work Teachers, Postsecondary		
251121	Art, Drama, and Music Teachers, Postsecondary		
251122	Communications Teachers, Postsecondary		
251123	English Language and Literature Teachers, Postsecondary		
251124	Foreign Language and Literature Teachers, Postsecondary		

## Knowledge Guide for Professional Librarian, Museum Curator, and Archivist Jobs

750 Points	Examples of How Knowledge Is Used
<p>Entry-level knowledge of professional library science, curatorial, or archival concepts, principles, objectives, tools, and methods.</p> <p>Knowledge permits the employee to carry out recurring assignments while learning the establishment's goals and needs.</p>	<ol style="list-style-type: none"> <li>(1) Uses standardized cataloging procedures and reference tools, including computer.</li> <li>(2) Answers basic library reference questions and assists patrons suggesting books in common genres (e.g., poetry, mysteries, historical fiction, biographies). Develops reading lists on common topics.</li> <li>(3) Searches archives for historical perspectives on the steps and issues associated with various common subjects.</li> </ol>
<p><b>950 Points</b></p> <p>Knowledge of professional library science, curatorial, or archival concepts, principles, objectives, tools, and methods.</p> <p>Knowledge permits the employee to complete assignments by applying well-established principles, practices, and precedents.</p>	<ol style="list-style-type: none"> <li>(1) Selects and catalogs documents, books, periodicals, and recordings pertaining to federal Government laws and the activities of the executive, congressional, and judicial branches for a university library.</li> <li>(2) Drafts portions of procedures for installing, implementing, and maintaining an online library for a major university library system.</li> <li>(3) Is responsible for a small, localized museum such as a museum housing historical records and artifacts, taxidermy specimens of indigenous fauna, and maps of a town.</li> <li>(4) Analyzes and reorganizes archived material related to a controversial public/political figure. Studies the origin and content of the records, and reconstructs the initial classification or filing scheme of the records.</li> <li>(5) Analyzes archival records that present problems arising from gaps in chronology or background information regarding recently discovered diaries of Antarctic explorers. Locates sources to complete and authenticate records.</li> </ol>
<p><b>1250 Points</b></p> <p>Knowledge of professional concepts, principles, objectives, tools, and methods of a full range of library or museum curator functions.</p> <p>Archivists at this level apply a comparable level of knowledge to deal with unusual, archaic, and/or poorly preserved documents; apply intense subject-matter expertise; or specialize in technical functions (e.g., preservation or reference services).</p> <p>Knowledge permits the employee to carry out work that requires customized methods, guidelines, and explanatory materials; or accommodates a wide variety of needs including some that are highly technical and specialized, or that demand proficiency in more than one language.</p>	<ol style="list-style-type: none"> <li>(1) Analyzes and recommends the size, nature, and scope of library system's collection for a system consisting of a central library and two branches with a collection intended to meet the general interests, recreational reading, and basic information needs of a moderate sized community. Modifies the organization topics, layout, and circulation functions as needed. Establishes agreements with other libraries to meet patron requests. Recommends acquisition budgets and policies to a library board or other governing body.</li> <li>(2) Builds on previous research to establish and maintain a relatively stable museum collection that presents some complexities such as problems in identifying obscure specimens and objects and preserving/restoring delicate or perishable items.</li> <li>(3) Performs original cataloging for a nationwide e-commerce retail network library covering information on preventing cybercrime and identity theft. Devises and adapts headings and subject categories too specialized to be included in published lists.</li> <li>(4) Catalogs books, articles, and unpublished material concerning Islam using proficiency in Arabic and English.</li> <li>(5) Instructs faculty, students, and others on a library's content, nature, and reference tools of a nationally acclaimed music school with holdings that include sheet music, librettos, and collections on vinyl, audio tape, CDs, interactive media, and electronic databases. Recommends the acquisition and discontinuation of materials and systems.</li> <li>(6) Evaluates and recommends acquiring computer software and hardware to support the library functions of a large metropolitan public school system. Coordinates the modernization of systems to improve operations and accomplish new tasks by working with information technology contractors to automate functions.</li> <li>(7) Analyzes and reorganizes archival holdings and related reference tools for and about a major historic university and its administration involving complex subject matter and multiple topics/themes for which some records are deficient and relationships obscure.</li> </ol>

<p><b>1550 Points</b></p> <p>Mastery of one or more major library or archival functions, or subject areas presenting considerable difficulties similar to those at the 1250-point level, together with ability to analyze system needs and solve unusual problems where few precedents exist.</p> <p>Museum curators at this level apply a full range of curatorial knowledge plus knowledge of specialized functions such as interactive/computer aided exhibits.</p> <p>Knowledge permits the employee to carry out duties such as devising innovative cataloging systems for new subjects; introducing novel library functions; or evaluating the relevance, authenticity, and historical value of suspect or archaic documents and artifacts.</p>	<p>(1) Serves as an expert in developing cataloging criteria for published and unpublished information in the fields of bioengineering and cloning. Guides others in cataloging such material using the new criteria.</p> <p>(2) Conducts reference searches on behalf of medical scientists at a major international drug company developing pharmaceuticals to treat tropical diseases. Applies extensive subject-matter knowledge, together with familiarity with an extensive array of databases including full-text databases, to assess and interpret information.</p> <p>(3) Evaluates, adapts, and maintains a huge university teaching hospital’s automated library system that provides integrated educational and hospital reference services and telecommunications links. Assists librarians in functional areas to develop specialized applications. Investigates new technologies such as remote access to electronic storage devices.</p> <p>(4) Develops definitive analytical subject reference tools and preserves archival records on European monetary policy from 1990 to the present.</p> <p>(5) Compiles analytical inventories of archival documents on the relationship of the Roman to the Orthodox Catholic Church to include documents and information available only in Latin and Cyrillic.</p>
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**Covered SOC Codes**

254011	Archivists	254021	Librarians
254012	Curators		

## Knowledge Guide for Communications and Arts Jobs

<b>550 Points</b>	<b>Examples of How Knowledge Is Used</b>
<p>Knowledge of the procedures used to prepare, organize, edit and/or proof uncomplicated narrative and/or graphic material. Ability to ensure clarity, visual appeal, consistency, and compliance with accepted rules of style, spelling, and grammar; or skill in translating simple spoken and/or written sentences from one language to another.</p> <p>Knowledge permits the employee to acquire knowledge of the establishment's methods and terminology, and to gain familiarity with basic communications and aesthetic concepts to carrying out easy, recurring assignments.</p>	<ol style="list-style-type: none"> <li>(1) Proof-reads narrative material. Corrects spelling and grammar. Makes suggestions regarding restructuring sentences and paragraphs to improve flow and clarity, reduce passive voice, and balance textual material on the page.</li> <li>(2) Crops photographs and illustrations to accommodate textual material and improve appearance.</li> <li>(3) Prepares descriptive signage for crafts and artwork displays.</li> <li>(4) Translates proceedings in traffic court to and from Spanish and English.</li> </ol>
<p><b>750 Points</b></p> <p>Basic language skills and/or artistic skills to include knowledge of communication principles and/or aesthetic concepts, related to the methods and equipment used in such fields as writing, photography, and industrial or graphic design.</p> <p>Knowledge permits the employee to perform defined assignments having specific objectives and involving recurrent, predictable factors.</p>	<ol style="list-style-type: none"> <li>(1) Drafts promotional brochures for a new polar bear exhibit at the zoo.</li> <li>(2) Writes noncontroversial expository articles for a small town weekly newspaper.</li> <li>(3) Takes wedding and class photographs.</li> <li>(4) Draws covers for romance and mystery novels.</li> <li>(5) Lays out furniture advertisements for Sunday newspaper inserts.</li> <li>(6) Translates uncomplicated letters and documents, such as birth and marriage certificates, from Russian to English and vice-versa.</li> </ol>
<p><b>950 Points</b></p> <p>Knowledge of the principles and methods of work in a field of communications and/or art.</p> <p>Knowledge permits the employee to complete assignments that involve numerous or changing situations or factors, as well as an understanding of the client's or establishment's activities.</p>	<ol style="list-style-type: none"> <li>(1) Writes the monthly employee newsletter, and lays out the format and graphics for the annual report for a Fortune 500 company.</li> <li>(2) Develops the scripts for a variety of videotaped training courses such as employee training for a restaurant chain or safe-driving training for motorcyclists.</li> <li>(3) Edits articles for a scientific web site.</li> <li>(4) Edits users' manuals for an accounting software company.</li> <li>(5) Designs sections of attractions and exhibits for theme parks and carnivals.</li> <li>(6) Videotapes news events, such as natural disasters and protest demonstrations, for later TV news broadcasts.</li> <li>(7) Uses American Sign Language to translate engineering course lectures for hearing impaired college students in a classroom environment.</li> <li>(8) Simultaneously interprets between Japanese and English for an American sales representative.</li> </ol>
<p><b>1250 Points</b></p> <p>Knowledge of a range of principles, analytical approaches, and techniques, to include practical knowledge of specialize subject matter, applicable to a particular field of information, media, and/or artistic endeavor.</p> <p>Knowledge permits the employee to plan steps and carry out multiphase projects, coordinate work with others, lead projects and studies, advise staff and management on specialized aspect of projects, and modify established practices to solve/address a wide range of problems and/or needs.</p>	<ol style="list-style-type: none"> <li>(1) Writes and diagrams maintenance manuals for aircraft mechanics.</li> <li>(2) Authors particular categories of travel topics (e.g., transportation/route options, historical background, lodging and restaurant reviews, and cultural mores) for display on the web pages of a major travel organization.</li> <li>(3) Edits engineering and physics text books for a technical publishing house.</li> <li>(4) Hangs/arranges paintings and designs lighting for a traveling fine arts exhibit.</li> <li>(5) Design and oversees the construction of the dinosaur exhibit of a major urban museum.</li> <li>(6) Produces photographs of cancerous cell development using high resolution scanning electron microscopes, specially developed stains, and stop-action technology.</li> <li>(7) Advises national historical sites regarding the authenticity of period furniture and interior decorations.</li> <li>(8) Develops foreign language lexicons for Slovak and Romance languages for use by developers of electronic, handheld pronouncing dictionaries.</li> <li>(9) Interprets from English into Arabic and Chinese, and vice-versa, during interrogations and legal proceedings</li> </ol>

<p><b>1550 Points</b></p> <p>Mastery of a wide range of information, mass media communications, and/or arts principles, analytical approaches, and techniques associated with a specialized field and subject matter.</p> <p>Knowledge permits the employee to plan and lead projects; apply innovative approaches to difficult or unprecedented problems; and provide authoritative advice/guidance to staff members, managers, and/or clients.</p>	<p>(1) Draws caricatures and composes dialogue/captions as a syndicated political cartoonist.</p> <p>(2) Writes and edits articles for periodicals dealing with such topics as automotive design and repair that do not require investigative methods or touch upon politically or socially controversial issues, but do require understanding of specialized subject matter and diverse audiences.</p> <p>(3) Adapts methods and develops innovative photographic products such as satellite-holographic imagery or reconnaissance photography from drone aircraft.</p> <p>(4) Briefs print and electronic media representatives regarding a high profile candidate running for a strongly contested state government office.</p> <p>(5) Devises public relations strategy and designs the annual reports for a Fortune 500 company.</p> <p>(6) Translates newly discovered ancient religious scrolls as a recognized Hebrew language expert and theological scholar.</p>
<p><b>1850 Points</b></p> <p>Expert knowledge of the theories, concepts, and techniques of information and/or artistic expression, to include a high level of analytical and organizational ability, applicable to a specialized field.</p> <p>Knowledge permits the employee to develop new ways of performing functions or to devise fresh approaches as a leader and national authority in a specialized area.</p>	<p>(1) Serves as an investigative journalist for a nationally recognized newspaper. Writes persuasively and with authority on controversial and politically sensitive issues.</p> <p>(2) Conceives of and directs historical documentary films that treat major themes and events. Uses new and dramatic approaches and original cinema graphic techniques.</p>

### Covered SOC Codes

<p>112011 Advertising and Promotions Managers</p> <p>112031 <b>Public Relations and Fundraising Managers</b></p> <p>271011 Art Directors</p> <p>271012 Craft Artists</p> <p>271014 Multimedia Artists and Animators</p> <p>271019 Artists and Related Workers, All Other</p> <p>271021 Commercial and Industrial Designers</p> <p>271022 Fashion Designers</p> <p>271023 Floral Designers</p> <p>271024 Graphic Designers</p> <p>271025 Interior Designers</p> <p>271026 Merchandise Displayers and Window Trimmers</p> <p>271027 Set and Exhibit Designers</p>	<p>271029 Designers, All Other</p> <p>273021 Broadcast News Analysts</p> <p>273022 Reporters and Correspondents</p> <p>273031 Public Relations Specialists</p> <p>273041 Editors</p> <p>273042 Technical Writers</p> <p>273043 Writers and Authors</p> <p>273091 Interpreters and Translators</p> <p>273099 Media and Communication Workers, All Other</p> <p>274021 Photographers</p> <p>274031 Camera Operators, Television, Video, and Motion Picture</p> <p>274032 Film and Video Editors</p> <p>274099 Media and Communication Equipment Workers, All Other</p>
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## Knowledge Guide for Professional Medical Jobs

<b>750 Points</b>	<b>Examples of How Knowledge Is Used</b>
<p>Entry-level knowledge of professional nursing, pharmacy, or health care concepts, principles, and methods.</p> <p>Knowledge permits the employee to carry out undemanding assignments and gain familiarity with the practices and objectives of the discipline.</p>	<ol style="list-style-type: none"> <li>(1) Provides nursing care for patients; e.g., administers prescribed drugs, records case histories, takes blood pressure, pulse, and temperature.</li> <li>(2) Interprets prescriptions for routine drug selections, compounds established medicines and dispenses uncomplicated drugs.</li> <li>(3) Assists in developing physical therapy treatment plans, determines patient abilities through testing and observation.</li> <li>(4) Assists in developing nutritional plans and master menus in a training capacity.</li> <li>(5) Carries out a limited variety of specialized medical tests using standardized methods and techniques in one or more areas of a clinical laboratory.</li> </ol>
<p><b>950 Points</b></p> <p>Knowledge of professional nursing, pharmacy, or health care concepts, principles, and methods.</p> <p>Knowledge permits the employee to complete recurring assignments by applying well-established principles and practices.</p>	<ol style="list-style-type: none"> <li>(1) As a staff nurse, provides bedside care and carries out medical regimens in a hospital environment, consults with physicians when changes in patients' conditions warrant reevaluation of treatment or intervention. Initiates emergency procedures as needed. Directs practical nurses and nursing aids participating in patient care.</li> <li>(2) As a certified nurse-midwife, provides physical care, emotional support, and newborn care through all stages of labor and delivery in situations without medical complications.</li> <li>(3) Serves as an occupational health nurse in a foundry, gives oral and intramuscular injections for pain or vaccination against such problems as flu or tetanus, dresses minor wounds and burns, and refers more serious problems to physicians as needed.</li> <li>(4) Works in a developmental capacity as a physician's assistant by conducting diagnostic and treatment protocols of a limited nature where patients have common ailments that are responsive to well-known treatments. Monitors medical conditions and adjusts treatments within established standing order, and recognizes when to refer patients to the physician.</li> <li>(5) Selects, compounds, and dispenses a varied range of therapeutic drugs and agents, suggesting alternative medications to avoid incompatibilities and adverse side effects.</li> <li>(6) Carries out occupational therapy for patients with severe multiple disabilities and/or for patients recuperating from chest surgery.</li> <li>(7) Advises medical teams during rounds on patients' dietary needs, and coordinates food services for wards.</li> <li>(8) Evaluates procedures to determine suitability of tissue and fluid specimens for analyses, prepares reagents and primary reference materials, selects and monitors nonroutine and specialized test procedures.</li> </ol>
<p><b>1250 Points</b></p> <p>Knowledge of professional nursing, pharmacy, or health care concepts, principles, and methods, together with extended clinical experience.</p> <p>Note: This is the entry-level for professional physicians (general practice interns), veterinarians, psychiatrists, and dentists who apply knowledge of concepts, principles, and practices.</p> <p>Knowledge permits the employee to plan steps, carry out multiphase projects, coordinate work with others, and modify techniques to solve a wide range of problems.</p>	<ol style="list-style-type: none"> <li>(1) Provides specialized nursing care to patients by adapting established nursing procedures for heart and vascular diseases.</li> <li>(2) As a nurse anesthetist, administers and controls general anesthetics intravenously and topically.</li> <li>(3) As a physician's assistant, conducts physical exams using such techniques as inspection, auscultation, percussion, and palpitation. Determines the need for, collects, and analyzes laboratory specimens (e.g., lumbar puncture, fluid aspiration, superficial biopsies, gastric and urinary samples, and vaginal smears). Writes prescriptions for antibiotics and therapeutic drugs to treat common conditions and ailments.</li> <li>(4) Detects cavities and restores teeth using metallic, polymer, or other common materials, extracts decayed or impacted teeth, and prepares teeth for and fits veneers, crowns, and bridges.</li> <li>(5) As a large-animal veterinarian, tests for, diagnoses, and treats equine and bovine diseases and conditions using established protocols and regimens.</li> </ol>



<p><b>1550 Points</b></p> <p>Knowledge of the professional theories, concepts, and practices of specialized medical, dental, or other professional medical science fields to resolve difficult or unusual issues and solve complex problems. (Note: This is the resident level for specialists and surgeons in field such as oncology or orthopedics.)</p> <p>Knowledge permits the employee to solve problems and plan projects involving a variety of variables and problems, and to analyze and integrate diverse medical and technical approaches in identifying ailments and prescribing treatments.</p>	<p>(1) Performs work often complicated by overlapping symptoms due to the presence of multiple conditions and requiring involved and complicated diagnostic and testing procedures. Identifies these symptoms and develops a treatment regimen.</p> <p>(2) Performs a range of dental and oral surgery procedures including the most demanding and sensitive bone grafts, root canal removals, and tooth implants.</p> <p>(3) Establishes and implements new electro-convulsive therapies to alleviate symptoms of obsessive-compulsive disorder.</p>
<p><b>1850 Points</b></p> <p>Knowledge of new and emerging professional medical theories, concepts, and techniques in a specialized area of medicine, psychiatry, dentistry, or veterinary science.</p> <p>Knowledge permits the employee to develop new hypotheses, theories, concepts and/or treatments; to lead unprecedented projects; or to be nationally recognized as an expert in the specialized area.</p>	<p>(1) Provides expert consultation to hospitals and laboratories in cardiology cases of an unusual or controversial nature such as those involving specialized categories of patients.</p> <p>(2) Advises on or performs the most advanced cardiac diagnostic and treatment procedures, such as cardiac catheterization. Recommendations carry the weight of “an authority” in the field.</p> <p>(3) Leads a team of medical experts engaged in maxillo-facial surgery such as those caused by trauma or birth defects.</p> <p>(4) Provides consultation as an expert physician or veterinarian, and generates fresh techniques to detect prevent, or eradicate diseases and conditions of major significance.</p>

### Covered SOC Codes

191041	Epidemiologists	291081	Podiatrists
191042	Medical Scientists, Except Epidemiologists	291122	Occupational Therapists
291011	Chiropractors	291123	Physical Therapists
291021	Dentists, General	291124	Radiation Therapists
291022	Oral and Maxillofacial Surgeons	291125	Recreational Therapists
291023	Orthodontists	291126	Respiratory Therapists
291024	Prosthodontists	291127	Speech Language Pathologists
291029	Dentists, All Other Specialists	<b>291128</b>	<b>Exercise Physiologists</b>
291031	Dietitians and Nutritionists	291129	Therapists, All Other
291041	Optometrists	291131	Veterinarians
291051	Pharmacists	<b>291141</b>	<b>Registered Nurses</b>
291061	Anesthesiologists	<b>291151</b>	<b>Nurse Anesthetists</b>
291062	Family and General Practitioners	<b>291161</b>	<b>Nurse Midwives</b>
291063	Internists, General	<b>291171</b>	<b>Nurse Practitioners</b>
291064	Obstetricians and Gynecologists	<b>291181</b>	<b>Audiologists</b>
291065	Pediatricians, General	291199	Health Diagnosing and Treating Practitioners, All Other
291066	Psychiatrists	<b>299092</b>	<b>Genetic Counselors</b>
291067	Surgeons		
291069	Physicians and Surgeons, All Other		
291071	Physician Assistants		

## Knowledge Guide for Medical, Hospital, Dental, Public Health, and Veterinary Technician Jobs

<b>200 Points</b>	<b>Examples of How Knowledge Is Used</b>
<p>Knowledge of, and skill in performing, basic commonly-used health care methods.</p> <p>Knowledge permits the employee to carry out a limited variety of simple health or personal care assignments.</p>	<p>(1) Provides nursing support by taking and recording vital signs (e.g., temperature, blood pressure, and pulse rate). Administers commonly prescribed oral medication. Changes sterile dressings.</p> <p>(2) Provides basic elder care. Dresses, feeds, and bathes charges as needed.</p> <p>(3) Prepares trays of instruments. Cleans glassware and slides. Sterilizes equipment.</p>
<p><b>350 Points</b></p> <p>Knowledge of common practices of a health care area.</p> <p>Knowledge permits the employee to complete a few routine medical and healthcare procedures and operate basic equipment and instruments.</p>	<p>(1) Administers prescribed oral, topical, and intramuscular medication and observes for emotional and physical contraindications. Sets up and gives treatments requiring the assembly and operation of equipment such as oxygen, suction, and respirator. Responds to emergency situations such as cardiopulmonary arrest.</p> <p>(2) Performs simple laboratory tests such as checking urine for sugar and stool for blood. Prepares, fixes, and stains tissue smears for microscopic examination by others.</p> <p>(3) Prepares patients for treatment or diagnostic examinations. Conducts chest x-ray and pulmonary tests.</p> <p>(4) Inserts hypodermic needle in vein of blood donor. Instructs donor on correct behavior during and following blood donation. Ensures that the vital signs of donor remain stable throughout the donating process. Follows prescribed procedures for labeling, segregating, and storing donated blood.</p> <p>(5) Operates dental x-ray equipment and develops x-rays. Prepares amalgams and adhesives for use by the dentist. Constructs base plates, bite rims and impressions trays. Inspects dental casts and model impressions for deficiencies. Fabricates casts.</p> <p>(6) Cares for laboratory animals. Takes stool and blood samples. Runs simple diagnostic laboratory tests. Maintains records of gross observations and test results.</p>
<p><b>550 Points</b></p> <p>Knowledge of principles and procedures associated with providing a limited range of tasks in a health care area.</p> <p>Knowledge permits the employee to carry out a variety of interrelated tasks and recurring assignments.</p>	<p>(1) Freezes, slices, and stains tissue samples to enable physicians to detect, diagnose, and treat abnormal cellular growth.</p> <p>(2) Cares for and monitors a group of critically ill patients assessing deviations in patient conditions.</p> <p>(3) Administers and monitors procedures such as radiographic procedures, gastro-intestinal series and cholangiograms.</p> <p>(4) Administers oxygen and therapeutic gas mixtures using nasal cannulas, masks, or other appliances.</p> <p>(5) Operates dialysis systems, electroencephalograms and ultrasound equipment.</p> <p>(6) Produces ultrasonic recording of internal organs, embryos, and fetuses for use by physicians.</p> <p>(7) Reviews orders for intravenous additive medications and solutions. Determines kind, strength, and dosage of drugs prescribed. Performs bulk com-pounding.</p> <p>(8) Fabricates custom orthotics and/or prosthetics using a diversity of materials such as metal and plastic.</p> <p>(9) Performs preventative oral treatment by cleaning, scaling, and polishing teeth.</p>

<p><b>750 Points</b></p> <p>Knowledge of the detailed processes, methods, and techniques, as well as practical knowledge of a specific health-care area.</p> <p>Knowledge permits the employee to schedule and carry out the steps of a treatment or examination or to complete important steps of a procedure.</p>	<ul style="list-style-type: none"> <li>(1) Administers occupational therapy and physical therapy to patients suffering from pulmonary disease and recovering from surgery.</li> <li>(2) Performs laboratory tests where standardized procedures do not exist or where results are not conclusive, and, therefore, require multiple approaches such as in testing for Anthrax.</li> <li>(3) Uses bronchography, mammography, and magnetic resonance imaging equipment. Reviews results for clarity.</li> <li>(4) Administers controlled ventilation, and adjusts delivery after assessing respiratory status of patients.</li> <li>(5) Performs procedures to control and maintain artificial airways by such methods as tracheal intubations and extubations, tracheal lavage, and tracheotomy.</li> <li>(6) Constructs fixed or removable partial dentures or complete dentures. Fabricates orthodontic appliances, dental splints and obturators.</li> </ul>
<p><b>950 Points</b></p> <p>Knowledge of specific medical hospital, dental, or allied health principles and practices, as well as skill in using specialized techniques and equipment.</p> <p>Knowledge permits the employee to plan, coordinate and carry out precedent procedures.</p>	<ul style="list-style-type: none"> <li>(1) Carries out treatment for severely disabled patients such as physical therapy for tubercular patients, chest-surgery patients, and neuro/psychiatric patients.</li> <li>(2) Fabricates a variety of nuclear medicine implants for inoperable tumors and as alternatives to radical cancer treatments.</li> <li>(3) Works with pharmaceutical researchers by infecting laboratory animals, subsequently obtaining material from them, and using the material to test new processes to develop vaccines and serums to prevent or treat diseases.</li> </ul>

## Covered SOC Codes

292011	Medical and Clinical Laboratory Technologists	311011	Home Health Aides
292012	Medical and Clinical Laboratory Technicians	311013	Psychiatric Aides
292021	Dental Hygienists	<b>311014</b>	<b>Nursing Assistants</b>
292031	Cardiovascular Technologists and Technicians	<b>311015</b>	<b>Orderlies</b>
292032	Diagnostic Medical Sonographers	312011	<b>Occupational Therapy Assistants</b>
292033	Nuclear Medicine Technologists	312012	<b>Occupational Therapy Aides</b>
292034	Radiologic Technologists and Technicians	312021	Physical Therapist Assistants
<b>292035</b>	<b>Magnetic Resonance Imaging Technologists</b>	312022	Physical Therapist Aides
292051	Dietetic Technicians		
292052	Pharmacy Technicians	319011	Massage Therapists
292053	Psychiatric Technicians	319091	Dental Assistants
292054	Respiratory Therapy Technicians	319092	Medical Assistants
292055	Surgical Technologists	319093	Medical Equipment Preparers
292056	Veterinary Technologists and Technicians	319095	Pharmacy Aides
<b>292057</b>	<b>Ophthalmic Medical Technicians</b>	319096	Veterinary Assistants and Laboratory Animal Caretakers
292061	Licensed Practical and Licensed Vocational Nurses	<b>319097</b>	<b>Phlebotomists</b>
292081	Opticians, Dispensing	319099	Healthcare Support Workers, All Other
292091	Orthotists and Prosthetists	319011	Massage Therapists
<b>292092</b>	<b>Hearing Aid Specialists</b>	319091	Dental Assistants
292099	Health Technologists and Technicians, All Other	319092	Medical Assistants
299091	Athletic Trainers	319093	Medical Equipment Preparers
		319099	Healthcare Support Workers, All Other
		394011	Embalmers
		<b>394031</b>	<b>Morticians, Undertakers, and Funeral Directors</b>
		399021	<b>Personal Care Aides</b>
		519081	Dental Laboratory Technicians
		519082	Medical Appliance Technicians
		519083	Ophthalmic Laboratory Technicians

## Knowledge Guide for Protective Service Jobs

<b>50 Points</b>	<b>Examples of How Knowledge Is Used</b>
<p>Knowledge of simple, repetitive guard or police tasks that follow step-by-step procedures that require little or no previous training.</p> <p>Knowledge permits the employee to perform simple tasks, assist experienced coworkers, or gain knowledge and skill needed to take on more difficult assignments.</p>	<ol style="list-style-type: none"> <li>(1) Guards building entrances to prevent access by people without proper identification.</li> <li>(2) Directs rush-hour traffic.</li> <li>(3) Issues parking and jaywalking tickets.</li> </ol>
<p><b>200 Points</b></p> <p>Knowledge of general principles and methods applicable to basic guard, police, and firefighting/first aid work.</p> <p>Knowledge permits the employee to carry out recurring assignments consisting of several straightforward tasks, including those that may require the use of simple equipment, force, and/or restraining devices.</p>	<ol style="list-style-type: none"> <li>(1) Patrols buildings and/ or grounds to prevent theft or damage. Controls access or egress by identifying individuals and inspects/scans items to detect prohibited objects or material.</li> <li>(2) Detains, arrests, and/or issues citations to drivers for moving violations. Testifies in court as necessary.</li> <li>(3) Responds to urgent phone requests for assistance at accidents, crime scenes, and other emergencies by dispatching fire, police, and/or ambulance units.</li> <li>(4) Uses and maintains firefighting hand-tools (e.g., fire axes, hoses, ladders, and portable fire extinguishers). Assists fully trained coworkers in extinguishing structural and brush fires. Moves or carries people away from fire sites. Gives basic first aid (e.g., cleans wounds, applies antiseptic and bandages, and obtains additional medical help as needed).</li> </ol>
<p><b>350 Points</b></p> <p>Knowledge of a variety of standard principles (e.g., laws, rights, combustion principles) and procedures related to guard, police or firefighting/prevention work.</p> <p>Knowledge permits the employee to perform several types of duties using well-established procedures and equipment or weapons common to the occupation.</p>	<ol style="list-style-type: none"> <li>(1) Guards and controls access to restricted areas with high potential for breach of national security or danger to public safety/ health.</li> <li>(2) Apprehends/arrests those fleeing a crime scene, subdues individuals causing disturbances and turns over information/ evidence to detectives.</li> <li>(3) Controls and extinguishes structural and wild fires, operates hose lines, and makes forced entries to combat structural fires.</li> <li>(4) Gives first aid for minor burns, cuts, and/or sprains; takes vital signs, and performs cardio-pulmonary resuscitation (CPR) in connection with fires, auto accidents, swimming or skiing mishaps, and/or other similar incidents.</li> </ol>
<p><b>550 Points</b></p> <p>Knowledge of an extensive body of techniques and procedures associated with clear-cut objectives and/or common problems encountered in police, firefighting/prevention, or correctional officer work.</p> <p>Knowledge permits the employee to carry out a wide variety of interrelated tasks and recurring assignments. (<b>Note:</b> No security guard work exists at this level. This is the entry-level for correctional officer work in federal jobs.)</p>	<ol style="list-style-type: none"> <li>(1) Conducts short-term investigations (e.g., up to several weeks) to detect and apprehend individuals involved in crimes, assaults, thefts, and drugs.</li> <li>(2) Fights fires and carries out crash/rescue activities at a major airport handling large aircraft or located in a metropolitan area.</li> <li>(3) Serves as a fire crew chief, operates a fire crash-rescue truck or pumper truck, or trains others in their operation.</li> <li>(4) Administers CPR and automatic external defibrillator as an EMT controls external bleeding, applies splints, and assists victims in taking prescribed medication such as nitroglycerin. Does not administer intravenous (IV) fluids.</li> <li>(5) Reviews fire prevention methods and suppression systems at shops, offices, warehouses, and new construction to advise owners/builders on alternatives to prevent/control fire and store/use flammables.</li> <li>(6) Receives training in controlling incidents such as fights among inmates, assaults on prison staff, and riots as a trainee correctional officer. Participates in hunts for escapees.</li> </ol>

<p><b>750 Points</b></p> <p>Knowledge of the technical and practical processes, methods, and systems pertaining to the specialized work of police officers, firefighters, inspectors, emergency medical technicians (EMTs), or correctional officers.</p> <p>Knowledge permits the employee to schedule and carry out the steps in an operation, or to complete important stages of a multiphase project.</p>	<p>(1) Participates in investigations under the direction of a trained investigator in cases that require many hours of support work, involve felonies or outside jurisdictions, relate to large monetary values, and extend over several months or longer.</p> <p>(2) Controls and combats fires and/or rescues personnel where conditions create extremely difficult and dangerous situations such as hazardous material (hazmat) incidences.</p> <p>(3) Administers and interprets electro-cardiograms (EKGs) and certain medications in accord with protocols as an EMT. Does administer intravenous (IV) fluids.</p> <p>(4) Monitors and corrects deficiencies in a variety of fixed fire protection systems to include those that are complex and designed for customized uses (e.g., jet fuel farms, flourmills, or aircraft). Recommends changes and additions to improve fire prevention and fire protection.</p>
<p><b>950 Points</b></p> <p>Thorough knowledge of, and skill in using, specialized principles and methods, such as those used by paramedics, correctional officers, or hostage negotiators, gained through stringent formalized training.</p> <p>Knowledge permits the employee to plan, coordinate, and carry out precedented projects and/or actions.</p>	<p>(1) Applies practical skills and methods to supplement prison counseling and rehabilitation programs in group counseling, interviewing, reality therapy, inter-personal relationships, etc.</p> <p>(2) Plans and carries out institution adjustment programs for newly arrived inmates (e.g., admission and orientation programs; rules familiarization; and mail, phone, and visiting procedures). Develops and hosts pre-release programs for offenders about to be discharged and re-integrated into the community.</p> <p>(3) Performs invasive life-saving measures such as tracheotomies and airway intubations as a Paramedic; uses stomach pumps; and conducts manual external defibrillations.</p> <p>(4) Participates as a member of Special Weapons and Tactics (SWAT) teams as a hostage negotiator. Uses nonlethal techniques, such as pressure-point incapacitation and psychological stratagems that require special training and understanding of the implications of delicate situations.</p>

### Covered SOC Codes

292041	Emergency Medical Technicians and Paramedics	333052	Transit and Railroad Police
331011	<b>First-Line Supervisors of Correctional Officers</b>	339011	Animal Control Workers
331012	<b>First-Line Supervisors of Police and Detectives</b>	339021	Private Detectives and Investigators
331021	<b>First-Line Supervisors of Fire Fighting and Prevention Workers</b>	339031	Gaming Surveillance Officers and Gaming Investigators
331099	<b>First-Line Supervisors, Protective Service Workers, All Other</b>	339032	Security Guards
332011	<b>Firefighters</b>	<b>339093</b>	<b>Transportation Security Screeners</b>
333011	Bailiffs	339091	Crossing Guards
333012	Correctional Officers and Jailers	339092	Lifeguards, Ski Patrol, and Other Recreational Protective Service Workers
333031	Fish and Game Wardens	339099	Protective Service Workers, All Other
333041	Parking Enforcement Workers	435031	Police, Fire, and Ambulance Dispatchers
333051	Police and Sheriff's Patrol Officers		

## Knowledge Guide for Investigation, Inspection, and Compliance Jobs

<b>750 Points</b>	<b>Examples of How Knowledge Is Used</b>
<p>Entry-level knowledge of investigation, inspection, or compliance principles and methods; basic laws and regulations, and related equipment (e.g., scanning devices and weapons).</p> <p>Knowledge permits the employee to carry out routine procedures and undemanding assignments while gaining familiarity with the practices and objectives of the employing establishment.</p>	<p>(1) Visits establishments serving alcoholic beverages to review licenses and permits; observes procedures to screen for underage customers, and verifies appropriate hours of operation.</p> <p>(2) Gathers, organizes, and reports straightforward, factual information regarding assaults and robberies. Interviews complainants and witnesses. Takes sworn statements. Learns to identify possible organized efforts to commit and conceal criminal activities.</p> <p>(3) Drafts arrest warrants. Arrests individuals implicated in crimes. Learns to collect/preserve evidence and present courtroom testimony.</p> <p>(4) Inspects parcels, backpacks, and handbags, and scans individuals entering public buildings (e.g., court houses and jails) to detect and confiscate prohibited or suspect items. Questions and detains individuals as necessary. Develops skills to advance to more demanding duties.</p>
<p><b>950 Points</b></p> <p>Knowledge of investigation, inspection, or compliance principles and methods; applicable laws, regulations, and court decisions; goals of the employing establishment; and (for financial specialties) business and accounting practices.</p> <p>Knowledge permits the employee to select and apply established methods to plan and conduct inquiries into complaints, analyze information, document violations, justify subsequent action, and present cases.</p>	<p>(1) Investigates allegations of food stamp abuses based on tips and leads from supermarket personnel, shoppers, family members, and/or arising anonymously. Investigates allegations by questioning informants, reviewing sales slips, and observing transactions. Prepares reports recommending discontinuation of benefits as appropriate.</p> <p>(2) Inspects commercial hemoglobin and blood plasma donor and storage procedures, facilities, records, and screening methods. Certifies that operations comply with laws and regulations.</p> <p>(3) Cross-references the financial/tax records of social security benefit recipients to identify indications of noncompliance/fraud. Contacts recipients to clarify situations. Refers cases to officials in cases where the need for further investigation is indicated.</p>
<p><b>1250 Points</b></p> <p>Knowledge of a wide range of investigation, inspection, or compliance principles and methods relevant to a specialty area, as well as relevant laws, regulations, precedents, case law, and legal procedures.</p> <p>Knowledge permits the employee to plan and conduct work; interpret case law; devise new approaches to fact-finding and analyses; and complete sustained assignments where conditions, problems, and individuals vary considerably.</p>	<p>(1) Examines homicide crime scenes. Interrogates uncooperative witnesses and suspects, ensuring compliance with legal procedures. Provides case records, testimony, and technical support in connection with prosecution of cases.</p> <p>(2) Coordinates multi-jurisdictional investigations with federal officials on behalf of state bank examining operations.</p> <p>(3) Inspects private pilot training schools for compliance with security and safety requirements. Determines corrective actions required. Gathers data and immediately alerts law enforcement officials to indication of serious infractions.</p> <p>(4) Customizes and devises a variety of inspection and evaluation techniques to gather and analyze safety and maintenance plans and procedures in industrial and manufacturing environments. Ensures that state occupational health and safety regulations are employed. Explains laws/regulations and needed corrective action to management. Recommends prosecution and/or punitive damages as appropriate.</p> <p>(5) Assesses computer security for corporations and government entities by evaluating physical security and using software packages to assess vulnerability. Recommends corrective action to secure information systems and communications hardware. May advise further evaluation by information technology.</p>

<p><b>1550 Points</b></p> <p>Mastery of the theories, concepts, principles, and advanced methods of a specialty area of investigation, inspection, or regulatory compliance to include related laws, case law decisions, and their implications.</p> <p>Knowledge permits the employee to recognize carefully concealed illegal activities and systemic problems; provide authoritative advice; plan and lead long-term or multi-jurisdictional operations; and contribute to new interpretation of law, new case law decision, or the development/ modification of policies or programs.</p>	<p>(1) Plans and leads a team of arson investigators in cases where the origins and cause of fires are obscure; evidence is sparse, pains have been taken to obliterate detection, and financial considerations are substantial.</p> <p>(2) Establishes and updates procedures and determines the technology used by an international air carrier to comply with laws, regulations, and legal decisions, while ensuring the safety of passengers and crew. Gives expert testimony regarding airline liability in the event of accidents.</p> <p>(3) Examines the policies, procedures, and investment holdings of major accounting/ auditing firms to ensure reliability, competence and objectivity. Recommends new and/or modified policies and/or procedures to foster public confidence and satisfy government regulations.</p> <p>(4) Develops state inspection procedures for mining activities to include guide-lines for investigating accidents, citing infractions, responding to tort claims, levying fines, and pursuing litigation.</p> <p>(5) Advises railway executives of safety and security requirements by translating laws and regulations into operating guidelines. Oversees operating and baggage handling activities, personnel background investigations and drug tests. Introduces new and modified procedures. Proposes the use of advanced technology to enhance security. Leads accident investigation teams. Gives testimony regarding railway accidents.</p>
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**Covered SOC Codes**

131041 <b>Compliance Officers</b>	333021 Detectives and Criminal Investigators
132061 Financial Examiners	536051 Transportation Inspectors
332021 Fire Inspectors and Investigators	



## Knowledge Guide for Service Jobs

<b>50 Points</b>	<b>Examples of How knowledge is used</b>
<p>Knowledge of simple, routine, or repetitive tasks which typically includes following step-by-step instructions and requires little or no knowledge of the product.</p> <p>OR</p> <p>Skill to operate simple equipment or equipment which operates repetitively, requiring little or no previous training or experience typically in the food, health, or janitorial sectors.</p>	<p>(1) Janitor mops and sweeps floors. Includes the use of lightweight hand or powered cleaning equipment.</p> <p>(2) Dishwasher runs a commercial dishwasher, stacks and delivers plates and silverware to work stations.</p> <p>(3) Ticket Taker in a movie theater removes ticket stub and directs people to correct theater.</p>
<p><b>200 Points</b></p> <p>Knowledge of basic or commonly-used rules, procedures, or equipment which typically requires some previous training or experience.</p>	<p>(1) Food Service Worker chops and blanches vegetables under direction of a Sous Chef. Prepares simple salads and toast. Makes coffee, tea, and other beverages.</p> <p>(2) Floor Buffer polishes floors of different surfaces needing different buffers and waxes. Uses heavy industrial type power operated equipment.</p> <p>(3) Production Sanitation Worker disassembles, cleans, and sanitizes the production equipment, and prepares it for inspection in the morning prior to general operations start up.</p>
<p><b>350 Points</b></p> <p>Knowledge of a body of standardized, goods, services, tools, or equipment for use or sale, and knowledge of the standard policies, procedures, and/or markets, requiring considerable training and experience to perform the full range of standard assignments and resolve recurring problems.</p>	<p>(1) Bar Manager (Nonsupervisory); helps makes both alcoholic and nonalcoholic drinks, re-stocks and orders liquors for bar, and reconciles the cash register at the end of the day. Makes sure the bar is maintained in a presentable and sanitary condition. Makes out work schedules for bartenders.</p> <p>(2) Pest Control Worker knows and complies with federal/state/local laws and regulation for the safe use hazard chemicals and application of same. Requires general knowledge of pest species and the ability to locate and recognize them.</p>
<p><b>550 Points</b></p> <p>Knowledge of an extensive body of products, services, tools, equipment, and methods in a field. Knowledge of standard policies, procedures, and the markets requiring extended training and experience to perform tasks that involve specialized requirements or events or modifications.</p> <p>OR</p> <p>Comprehensive knowledge of a service skill, usually acquired through a formal apprenticeship.</p>	<p>(1) Chef (Senior Cook) plans and prepares menus, estimates food needs, either following or developing/modifying recipes. Leads and directs lower level kitchen workers. (Some chefs with lesser knowledge might start at lower knowledge level.)</p> <p>(2) Licensed Barbers and Beauticians use comprehensive knowledge to style, cut, shampoo, bleach, dye, and perm hair. Beauticians also can condition and beautify the skin and nails of customers.</p> <p>(3) Building Superintendent hires and supervises maintenance staff, schedules repairs, purchases needed materials and supplies, and tracks small maintenance budget.</p> <p>(4) Pit Boss supervises gaming operations and dealers, assigns dealers to shifts and tables, explains house rules and resolves complaints.</p>
<p><b>750 Points</b></p> <p>In addition to the practical knowledge of standard procedures in 550 point level, Knowledge of the technical and practical processes, methods, and systems pertaining to the specialized work of the field.</p> <p>OR</p> <p>Advanced knowledge of a service skill to solve unusually complex problems.</p>	<p>(1) Chef controls the operation of the restaurant kitchen, including determining special or seasonal menu items, streamlining workflow, selecting suppliers and directing cleaning of equipment. Analyzes recipes to determine the food and labor costs for menu pricing. Determines inventory levels, orders supplies, and assesses content and quality of perishable deliveries.</p> <p>(2) Pest Control specialist formulates or modifies extermination solutions and applies them in extremely hazardous or enclosed situations. Requires extensive knowledge of pest species and the ability to locate and recognize them.</p>

<p><b>950 Points</b></p> <p>Knowledge of the principles, concepts, and methodology of a service field gained through job experience and formalized training.</p>	<p>Executive Chef covers the full range of supervisory, purchasing, personnel, and planning for a large kitchen or restaurant.</p>
<p><b>1250 Points</b></p> <p>Knowledge of a wide range of concepts, principles, and practices in a field. OR A comprehensive, intensive, practical knowledge of a field and skill in applying this knowledge to the development of new methods, approaches, or procedures to tailor the product or service to the customers needs.</p>	<p>Some Executive Chefs match at this level.</p>

## Covered SOC Codes

351011	Chefs and Head Cooks	391012	Slot Key Persons
351012	<b>First-Line Supervisors of Food Preparation and Serving Workers</b>	391021	<b>First-Line Supervisors of Personal Service Workers</b>
352011	Cooks, Fast Food	392011	Animal Trainers
352012	Cooks, Institution and Cafeteria	392021	Nonfarm Animal Caretakers
352013	Cooks, Private Household	393011	Gaming Dealers
352014	Cooks, Restaurant	393012	Gaming and Sports Book Writers and Runners
352015	Cooks, Short Order	393019	Gaming Service Workers, All Other
352019	Cooks, All Other	393021	Motion Picture Projectionists
352021	Food Preparation Workers	393031	Ushers, Lobby Attendants, and Ticket Takers
353011	Bartenders	393091	Amusement and Recreation Attendants
353021	Combined Food Preparation and Serving Workers, Including Fast Food	393092	Costume Attendants
353022	Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	393093	Locker Room, Coatroom, and Dressing Room Attendants
353031	Waiters and Waitresses	393099	Entertainment Attendants and Related Workers, All Other
353041	Food Servers, Nonrestaurant	394021	Funeral Attendants
359011	Dining Room and Cafeteria Attendants and Bartender Helpers	395011	Barbers
359021	Dishwashers	395012	Hairdressers, Hairstylists, and Cosmetologists
359031	Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	395091	Makeup Artists, Theatrical and Performance
359099	Food Preparation and Serving Related Workers, All Other	395092	Manicurists and Pedicurists
371011	<b>First-Line Supervisors of Housekeeping and Janitorial Workers</b>	395093	Shampooers
371012	<b>First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers</b>	395094	<b>Skincare Specialists</b>
372011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	396011	Baggage Porters and Bellhops
372012	Maids and Housekeeping Cleaners	396012	Concierges
372019	Building Cleaning Workers, All Other	399011	<b>Childcare Workers</b>
372021	Pest Control Workers	399031	Fitness Trainers and Aerobics Instructors
373011	Landscaping and Groundskeeping Workers	399032	Recreation Workers
373012	Pesticide Handlers, Sprayers, and Applicators, Vegetation	399099	Personal Care and Service Workers, All Other
373013	Tree Trimmers and Pruners	<b>532031</b>	<b>Flight Attendants</b>
373019	Grounds Maintenance Workers, All Other	<b>536061</b>	<b>Transportation Attendants, Except Flight Attendants</b>
391011	Gaming Supervisor		

## Knowledge Guide for Sales Jobs

<b>50 Points</b>	<b>Examples of How knowledge is used</b>
<p>Knowledge of simple, routine, or repetitive sales tasks which typically includes following step-by-step instructions and requires little or no knowledge of the product;</p> <p>OR</p> <p>Skill to operate simple equipment or equipment which operates repetitively, requiring little or no previous training or experience.</p>	<p>(1) Demonstrates a simple product and responds to basic questions using scripted answers.</p> <p>(2) Distributes free samples or coupons.</p>
<p><b>200 Points</b></p> <p>Knowledge of basic or commonly-used rules, procedures, or equipment which typically requires some previous training or experience.</p>	<p>(1) Pulls customer order from stock, operates a cash register, and checks prices of items to determine if displayed price is correct.</p> <p>(2) Distinguishes between similar items, suggests substitute items, and explains prices or discounts for a variety of common items offered for sale in a public setting.</p>
<p><b>350 Points</b></p> <p>Knowledge of a body of standardized, goods, services, tools, or equipment offered for sale, and knowledge of the standard sales policies, procedures, and markets, requiring considerable training and experience to perform the full range of standard assignments and resolve recurring problems.</p>	<p>(1) Develops new customers and expands existing accounts for newspaper advertising, preprinted inserts, and special publications by identifying key customers, making presentations, and negotiating new contracts.</p> <p>(2) Prepares simple bids where there may be price differences based on quantities, multiple product lines, or established contracts.</p> <p>(3) Schedules, trains, and supervises telemarketers who are selling multiple products; handles customer complaints and other referred calls.</p>
<p><b>550 Points</b></p> <p>Knowledge of an extensive body of products or services and knowledge of standard sales policies, procedures, and the markets that require extended training and experience to increase market penetration and perform sales involving specialized requirements or modifications, unique price or product characteristics.</p>	<p>(1) Sells payroll and HR administration services and software that can be customized to meet the specific client needs, including specialized reports, system modifications, online options, and tax payment services. Differentiates the critical components from competitors' products.</p> <p>(2) Develops and services a client base for ongoing sales of several lines of office furniture systems, including different client configurations, materials, and pricing discounts.</p>
<p><b>750 Points</b></p> <p>In addition to the practical knowledge of standard procedures in 550-point level, must have extensive knowledge of the industry or knowledge of a professional field, which may require a license.</p>	<p>(1) Represents a line of pharmaceuticals to doctors, advising on the efficacy of the product as compared to similar products on the market.</p> <p>(2) Sets up an insurance package from a variety of coverage options and policies for a business to cover employees' health and disability claims.</p>
<p><b>950 Points</b></p> <p>Knowledge of the principles, concepts, and methodology of a professional field as described at 750-point level which has been either:</p> <p>(a) Supplemented by skill gained through job experience to permit independent performance of complex sales;</p> <p>OR</p> <p>(b) Supplemented by extended study of the federal, state, and industry regulations governing sales of the product.</p>	<p>(1) Completes sales using knowledge of the manufacturing industry and engineering principles to show how an industrial furnace could be designed and installed to meet the client-specific problems and applications.</p> <p>(2) Devises a financial portfolio for a client that includes securities, life insurance, bonds, mutual funds, CDs and other investments.</p>

<p><b>1250 Points</b></p> <p>Knowledge of a wide range of concepts, principles, and practices in a professional field, OR A comprehensive, intensive, practical knowledge of a technical field and skill in applying this knowledge to the development of new methods, approaches, or procedures to tailor the product line to the customers' needs.</p>	<p>(1) Develops and manages a complex sales contract which involves a variety of product lines and services as well as including interior construction, space design, and materials selection, prepares bid proposals, site evaluations, and installation plans. (2) Handles the sale of a new issue of corporate securities, specializing in institutional investing.</p>
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### Covered SOC Codes

411011	<b>First-Line Supervisors of Retail Sales Workers</b>	414012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products
411012	<b>First-Line Supervisors of Non-Retail Sales Workers</b>	419011	Demonstrators and Product Promoters
412022	Parts Salespersons	419021	Real Estate Brokers
412031	Retail Salespersons	419022	Real Estate Sales Agents
413011	Advertising Sales Agents	419031	Sales Engineers
413021	Insurance Sales Agents	419041	Telemarketers
413031	Securities, Commodities, and Financial Services Sales Agents	419091	Door To Door Sales Workers, News and Street Vendors, and Related Workers
413099	Sales Representatives, Services, All Other	419099	Sales and Related Workers, All Other
414011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	414012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products
		419011	Demonstrators and Product Promoters

## Knowledge Guide for Office and Administrative Support Jobs

<b>50 Points</b>	<b>Examples of How Knowledge Is Used</b>
<p>Simple clerical work requiring little or no work related knowledge or experience.</p>	<ol style="list-style-type: none"> <li>(1) Stuffs envelopes.</li> <li>(2) Sorts distinctive documents into a few predetermined groups.</li> <li>(3) Shreds assigned material and documents.</li> <li>(4) Delivers mail to designated rooms by room number.</li> <li>(5) Answers the telephone using scripted responses and takes short messages.</li> <li>(6) Date-stamps incoming and/or outgoing mail.</li> <li>(7) Makes copies using duplicating machines with few features.</li> </ol>
<p><b>200 Points</b></p> <p>Knowledge of and skill in general office work in order to carry out repetitive clerical tasks.</p>	<ol style="list-style-type: none"> <li>(1) Receives and routes mail to many different people and functions.</li> <li>(2) Sets up and uses an alphabetic filing system.</li> <li>(3) Delivers packages to local addresses on foot or by vehicle.</li> <li>(4) Selects proper format and applies keyboard skills to prepare simple forms and letters.</li> <li>(5) Refers phone calls and visitors to multiple staff members and departments.</li> <li>(6) Takes telephone orders for catalog goods. Tells customer total cost and delivery date. Records credit card information in computer or on standard form.</li> <li>(7) Processes bank withdrawals, (e.g., cashes checks, and issues money orders).</li> </ol>
<p><b>350 Points</b></p> <p>Knowledge of one or a few types of clerical work common to many different establishments (e.g., knowledge of practices, standard terminology, and methods to support an office or administrative function).</p>	<ol style="list-style-type: none"> <li>(1) Enters, maintains, and retrieves data using one or more complex automated systems.</li> <li>(2) Maintains a computer tape/media library. Follows basic procedures for backing up computerized files. Assigns, activates, and retires personal access codes of computer users. Runs recurring system operating reports.</li> <li>(3) Carries out basic secretarial functions such as making travel arrangements, preparing correspondence, reminding the supervisor and staff of impending due dates.</li> <li>(4) Records telephone messages pertaining to detailed medical laboratory reports, x-rays, and test results, referring urgent messages to the appropriate professional staff for immediate attention.</li> <li>(5) Explains job application procedures, requirements, and forms to prospective applicants.</li> <li>(6) Prepares bank deposits, ensuring negotiability of items by verifying date, endorsement, signature, and agreement of figures.</li> <li>(7) Verifies availability of funds and obligates dollar amounts against multiple cost-center and project codes such as those associated with dozens of engineering service contracts.</li> <li>(8) Maintains accounts receivable ledgers.</li> <li>(9) Processes payroll deductions and requests for allotment changes, ensuring that deductions, e.g., union dues, court-ordered garnishments, mortgage payments, 401(k) contributions, and stock purchases, are authorized. Prepares paychecks.</li> <li>(10) Codes unallowable tax deductions.</li> <li>(11) Finalizes letters, charts, and reports using commercial off-the-shelf software.</li> </ol>

<p><b>550 Points</b></p> <p>Knowledge of an extensive body of rules and/or laws, precedents, and procedures applicable to administrative support work, along with knowledge of the employing establishment's structure, goals, and specialized terminology.</p>	<ul style="list-style-type: none"> <li>(1) Authorizes payment of minor property/casualty insurance claims requiring minimal adjustments.</li> <li>(2) Drafts workers' compensation claims instructions.</li> <li>(3) Certifies purchase order and travel voucher payments that comply with a wide range of requirements and limitations.</li> <li>(4) Applies standard interviewing or surveying techniques to collect marketing information and identify trends and patterns.</li> <li>(5) Completes numerous complex forms, selecting and applying a wide array of eligibility, entitlement, billing, or other computational formulas.</li> <li>(6) Ensures that medical records contain appropriate documentation to support principal diagnoses, procedures, and associated complications. Ensures security and thoroughness of medical records.</li> <li>(7) Applies many varied steps and procedures to assemble and maintain procurement files related to costly services, construction, or specialized supplies.</li> <li>(8) Works with applicants to develop and resolve applications for benefits containing insufficient evidence.</li> <li>(9) Answers basic questions concerning procedures and requirements pertaining to legal or social services.</li> </ul>
<p><b>750 Points</b></p> <p>Thorough knowledge of an extensive body of rules and/or laws, administrative methods, precedents, along with detailed knowledge of the establishment's operations, structure, and procedures.</p>	<ul style="list-style-type: none"> <li>(1) Recommends the use or rejection of new office software products, techniques, and procedures.</li> <li>(2) Improves administrative procedures and instructions for an establishment's principal functions (e.g., recording and expediting orders and deliveries, redesigning invoice forms, and streamlining billing processes).</li> <li>(3) Resolves taxpayers' questions and concerns regarding tax delinquency and liens.</li> <li>(4) Explains complicated employee benefits issues such as health and life insurance benefit conversions, spousal retirement annuity obligations, and related calculations.</li> <li>(5) Makes decisions regarding the reimbursement of medical expenses rendered in the treatment of injuries as the result of negligent acts by third parties.</li> <li>(6) Prepares applications and amendments for registration of stockbroker-dealers to ensure that information is complete and that conflicts and discrepancies are eliminated prior to submission.</li> <li>(7) Performs secretarial and administrative assignments that include using many software packages to produce sophisticated reports, presentations, financial spreadsheets, and legal documents.</li> </ul>

## Covered SOC Codes

232091	Court Reporters	434131	Loan Interviewers and Clerks
292071	Medical Records and Health Information Technicians	434141	New Accounts Clerks
319094	Medical Transcriptionists	434151	Order Clerks
391012	Slot Key Persons	434161	Human Resources Assistants, Except Payroll and Timekeeping
412011	Cashiers	434171	Receptionists and Information Clerks
412012	Gaming Change Persons and Booth Cashiers	434199	Information and Record Clerks, All Other
431011	<b>First-Line Supervisors of Office and Administrative Support Workers</b>	435021	Couriers and Messengers
432011	Switchboard Operators, Including Answering Service	435032	Dispatchers, Except Police, Fire, and Ambulance
432021	Telephone Operators	435041	Meter Readers, Utilities
432099	Communications Equipment Operators, All Other	435061	Production, Planning, and Expediting Clerks
433011	Bill and Account Collectors	435081	Stock Clerks and Order Fillers
433021	<b>Billing and Posting Clerks</b>	435111	Weighers, Measurers, Checkers, and Samplers, Recordkeeping
433031	Bookkeeping, Accounting, and Auditing Clerks	436011	<b>Executive Secretaries and Executive Administrative Assistants</b>
433041	Gaming Cage Workers	436012	Legal Secretaries
433051	Payroll and Timekeeping Clerks	436013	Medical Secretaries
433061	Procurement Clerks	436014	<b>Secretaries and Administrative Assistants, Except Legal, Medical, and Executive</b>
433071	Tellers	439011	Computer Operators
<b>433099</b>	<b>Financial Clerks, All Other</b>	439021	Data Entry Keyers
434011	Brokerage Clerks	439022	Word Processors and Typists
434021	Correspondence Clerks	439031	Desktop Publishers
434031	Court, Municipal, and License Clerks	439041	Insurance Claims and Policy Processing Clerks
434041	Credit Authorizers, Checkers, and Clerks	439051	Mail Clerks and Mail Machine Operators, Except Postal Service
434051	Customer Service Representatives	439061	Office Clerks, General
434061	Eligibility Interviewers, Government Programs	439071	Office Machine Operators, Except Computer
434071	File Clerks	439081	Proofreaders and Copy Markers
434081	Hotel, Motel, and Resort Desk Clerks	439199	Office and Administrative Support Workers, All Other
434111	Interviewers, Except Eligibility and Loan		



## Knowledge Guide for Miscellaneous Technician Jobs

<b>200 Points</b>	<b>Examples of How Knowledge Is Used</b>
<p>Basic knowledge of a few commonly used library/archival, mathematical/statistical, transportation, or law enforcement processes.</p> <p>Knowledge permits the employee to operate equipment and carry out a variety of repetitive tasks.</p>	<p>(1) Verifies eligibility and issues library cards. Explains library policies. Checks material in and out of library.</p> <p>(2) Moves blocks of archived records from one area to another. Shelves records in accordance with approved plans. Retrieves and returns items as requested, ensuring proper order.</p> <p>(3) Makes computations using a short series of arithmetic/algebraic operations in accordance with instructions.</p> <p>(4) Prepares rental car agreements; explains rates, applies discounts; checks for valid driver's licenses and credit cards; and authorizes use of cars.</p> <p>(5) Assigns law enforcement case numbers and enters information in databases as it is acquired.</p>
<p><b>350 Points</b></p> <p>Knowledge of a body of standard methods of library/archival, mathematical/statistical, transportation, or law enforcement work.</p> <p>Knowledge permits the employee to complete a set of recurring processes to fulfill a technical function, deal with a sequence of computations, or apply a few specific transportation or law enforcement regulations and guides.</p>	<p>(1) Accessions library periodicals (e.g., magazines, newspapers, journals, <i>Congressional Records</i>). Updates catalog entries. Verifies deliveries and follows up as necessary. Prepares completed volumes for binding, microfiche, or electronic retention.</p> <p>(2) Books reservations for accommodations and transportation for travelers. Advises them on passport, visa, and immunizations needed. Informs travelers of necessary precautions, as well as special events and/or points of particular interest.</p> <p>(3) Archives personal papers, scores, and librettos, of composers in accordance with instructions.</p> <p>(4) Uses a few types of mathematical or statistical methods to translate information from source documents to charts and graphs.</p> <p>(5) Takes reservations for packing and moving services for homes and businesses. Explains insurance and liability provisions, rates, credit policies, schedules, regulatory restrictions, and warehousing/delivery options.</p>
<p><b>550 Points</b></p> <p>Knowledge of a wide range of procedures and requirements associated with a functional or technical area of library/ archival, mathematics/statistics, transportation, or law enforcement work.</p> <p>Knowledge permits the employee to carry out a variety of interrelated tasks and recurring assignments relating to one or more major functions or specialty areas.</p>	<p>(1) Completes intensive multi-library system searches for unusual material available for interlibrary loans. Arranges for shipment and return of material. Monitors records for overdue items exchanged under interlibrary loan agreements and takes follow up action as needed.</p> <p>(2) Inspects motion picture and still photography archives for damaged items and initiates restorative procedures and/or duplication.</p> <p>(3) Processes statistical information and maintains marketing databases for a national manufacturer. Computes and combines weighted data using statistical measures. Resolves minor discrepancies. Provides data in the prescribed form (e.g., tables, charts, graphs) for use by others.</p> <p>(4) Compiles information on tariffs, tariff routings, suitability of specified routes, availability of terminal facilities, and carrier data nation wide.</p> <p>(5) Makes arrangements for telephone services, vehicles, bank accounts, and fake identification to support undercover operatives. Helps build case files by maintaining and safeguarding information, and preserving chain-of-evidence.</p>

<p><b>750 Points</b></p> <p>Knowledge of the detailed processes, and methods, as well as practical knowledge of a specific technical/regulatory area, of library/archival, mathematics/statistics, transportation, or law enforcement work.</p> <p>Knowledge permits the employee to plan personal work and complete all phases of a function or process.</p>	<p>(1) Carries out preliminary cataloging for a large theological university's philosophy and religion library. Proposes catalog entries for titles, authors, subjects, edition data, and call numbers.</p> <p>(2) Prepares archival cross-references and develops finding aids for a sizable business of long standing, such as an international insurance corporation or auction house.</p> <p>(3) Applies standardized mathematical formulae, statistical software packages, and methods to determine materials and scheduling requirements for an engineering and architectural firm.</p> <p>(4) Plans and implements loading schemes for multi-engine aircraft carrying express mail. Computes the distribution of weight and balance of cargo. Ensures that loading is accomplished according to plans and required procedures. Verifies that cargo is safely stowed and anchored. Performs preflight checks of cargo doors, ramps, and hatches.</p>
<p><b>950 Points</b></p> <p>Knowledge of the full array of methods and a few of the underlying principles associated with a functional specialty of library/ archival, mathematics/statistics, transportation, or law enforcement work.</p> <p>Knowledge permits the employee to plan, coordinate, and/or implement new and modified procedures, improve methods, and accommodate unexpected conditions or factors.</p>	<p>(1) Implements the archival/retrieval process for the historical records of an e-business. Establishes the tagging procedures for assets and products by developing keyword finding aids. Suggests criteria for disposing of or recycling aging material and establishes related schedules.</p> <p>(2) Works with scientists to design/select statistical programs to study such phenomena as the demographics, influences, and changes in populations of flora and fauna. Adapts data retrieval software parameters to track and report changes, ensuring that analytical results are sound.</p>

### Covered SOC Codes

<p>152091 Mathematical Technicians</p> <p>194061 Social Science Research Assistants</p> <p>254013 Museum Technicians and Conservators</p> <p>254031 Library Technicians</p> <p>259041 Teacher Assistants</p> <p>259099 Education, Training, and Library Workers, All Other</p> <p><b>397011 Tour Guides and Escorts</b></p> <p><b>397012 Travel Guides</b></p>	<p>412021 Counter and Rental Clerks</p> <p>413041 Travel Agents</p> <p>434121 Library Assistants, Clerical</p> <p>434181 Reservation and Transportation Ticket Agents and Travel Clerks</p> <p>435011 Cargo and Freight Agents</p> <p>435071 Shipping, Receiving, and Traffic Clerks</p> <p>439111 Statistical Assistants</p>
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## Knowledge Guide for Blue Collar Jobs

<b>50 Points</b>	<b>Examples of How knowledge is used</b>
<p>Knowledge of simple, routine, repetitive tasks or operations which typically include following step-by-step instructions and require little or no previous training or experience;</p> <p>OR</p> <p>Skill to use common hand tools, set up and operate simple power tools, machines, or equipment, typically to perform repetitive and routine tasks which require little or no previous training or experience;</p> <p>OR</p> <p>Skill to perform manual tasks that are routine and repetitive, such as sweeping, cleaning, sorting, stacking, moving, loading, digging, lubricating, and similar tasks which may be physically demanding, but require little or no previous training or experience.</p>	<p>Use simple hand tools to perform simple or rough tasks where dexterity or pace not important. Operate simple on/off switches, valves, or lever controls. Handle ordinary material manually. May operate motor vehicle where no other skill training is required.</p> <p>Knowledge key: Unskilled—little or no experience or training required.</p>
<p><b>200 Points</b></p> <p>Knowledge of basic or commonly-used shop rules, measurement or calibration techniques, tools, methods, procedures, or operations which typically requires some previous training or experience;</p> <p>OR</p> <p>Basic skills to set-up, operate, or maintain machinery or equipment requiring some previous training or experience.</p>	<p>Operate variable controls, such as rheostats and levers to control movement of machines or material through equipment where monitoring and adjustment is required. Operate medium or heavy trucks, forklifts, or similar.</p> <p>Knowledge key: Unskilled—some training and/or experience required.</p>
<p><b>350 Points</b></p> <p>Knowledge of a body of standardized rules, materials, processes, procedures, operations, and tools necessary to fabricate, install, repair, maintain, calibrate, set-up, adjust or operate products, equipment, machinery, physical systems, or devices, requiring considerable training and experience to perform the full range of standard assignments and resolve recurring problems.</p>	<p>Use several hand or trade tools on assembly work. Adjust equipment or machinery where close tolerances are required. Perform manual tasks such as positioning and assembling where pace, dexterity, and accuracy is critical to continuous operation. Operate tractor-trailers.</p> <p>Knowledge key: Semi-skilled—Requires combined training and experience for a minimum of 6-12 months.</p>
<p><b>550 Points</b></p> <p>Knowledge of an extensive body of standard rules, procedures, processes, operations, tools, machinery, and equipment, beyond that described for 350- point level, requiring extended training and experience to perform a wide variety of interrelated or nonstandard tasks and resolve a wide range of problems;</p> <p>OR</p> <p>Practical knowledge of standard procedures, requiring extended training or experience, to perform such work as: adapting equipment when this requires considering the functioning characteristics of equipment; reasoning through problems involving set-up and operation of moderately complex equipment, diagnostics, repair and maintenance of such equipment, or fabrication and production processes involving multiple sequential operations;</p> <p>OR</p> <p>Comprehensive knowledge of a skilled trade usually acquired through a formal apprenticeship.</p>	<p>Set up and operate machine tools or fabrication processes requiring a variety of adjustments. Ability to perform general repairs of mechanical or electrical equipment. Certified proficiency in a recognized skilled trade or similar occupation. Operate heavy material moving or other heavy mobile equipment.</p> <p>Knowledge key: Skilled—Completion of a formal training program, such as an apprenticeship or technical/vocational program, is required which also typically includes 1-2 years of on-the-job training.</p>

<p><b>750 Points</b></p> <p>In addition to the practical knowledge of standard procedures at 550-point level, practical knowledge of technical methods to perform assignments such as carrying out limited projects which involve use of specialized tools, instruments, calibration and measuring devices, machinery, or equipment, or involves complicated or highly specialized techniques; OR Advanced knowledge of a skilled trade to solve unusually complex problems.</p>	<p>Use trade tools for a wide variety of difficult tasks involving precision for close tolerances. Fabricate or assemble miniature parts, perform precision instrument repair and similar tasks where precise control and delicate touch are required.</p> <p>Knowledge key: Skilled—Recognized mastery of skill or trade described for 550 points. Minimum 5 years experience. Often leads team of experienced workers that match knowledge at 550 points.</p>
<p><b>950 Points</b></p> <p>Knowledge of the principles, concepts, and methodology of an occupation as described at 750-point level which has been either: (a) supplemented by skill gained through job experience to permit independent performance of nonstandard assignments, or (b) supplemented by expanded professional or technical knowledge gained through relevant specialized training or experience, which has provided skill in carrying out assignments, operations, and procedures in the occupation which are significantly more difficult and complex than those covered by 750-point level. OR Practical knowledge of a wide range of technical methods, principles, and practices similar to a narrow area of a professional field, and skill in applying this knowledge to such assignments as the design and planning of difficult, but well-precedented projects.</p>	<p>Fabricate highly specialized tools and dies or similar specialized parts or equipment. Perform multiple complex calibrations and measurements on specialized and sensitive equipment that requires constant monitoring. Lead operation of a complex production unit that determines size, shape, or analysis of physical properties. Plan complex work details and procedures to obtain desired results.</p> <p>Knowledge key: Specialist—Occupations typically require specialized training and experience beyond that described for 750 points. May have multiple certifications.</p>

**Covered SOC Codes: Due to the number of occupations, the SOC coverage is listed at the minor group level except for *new SOC 2010 occupations that are individual listed at the end of the table*. [Broad occupational groups excluded are grayed out below and are classified elsewhere]**

451000 <b>Supervisors of Farming, Fishing, and Forestry Workers</b>	517000 Woodworkers
452000 Agricultural Workers	518000 Plant and System Operators
453000 Fishing and Hunting Workers	519000 Other Production Occupations
454000 Forest, Conservation, and Logging Workers	519080 <b>Medical, Dental, and Ophthalmic Laboratory Technicians</b>
471000 <b>Supervisors of Construction and Extraction Workers</b>	531000 <b>Supervisors of Transportation and Material Moving Workers</b>
472000 Construction Trades Workers	533000 Motor Vehicle Operators
473000 Helpers, Construction Trades	534000 Rail Transportation Workers
474000 Other Construction and Related Workers	535000 Water Transportation Workers
474010 <b>Construction and Building Inspectors</b>	536000 Other Transportation Workers
475000 Extraction Workers	536050 <b>Transportation Inspectors</b>
491000 <b>Supervisors of Installation, Maintenance, and Repair Workers</b>	537000 Material Moving Workers
492000 Electrical and Electronic Equipment Mechanics, Installers, and Repairers	472231 <b>Solar Photovoltaic Installers</b>
493000 Vehicle and Mobile Equipment Mechanics, Installers, and Repairers	499071 <b>Maintenance and Repair Workers, General</b>
499000 Other Installation, Maintenance, and Repair Occupations	499081 <b>Wind Turbine Service Technicians</b>
511000 <b>Supervisors of Production Workers</b>	515111 <b>Prepress Technicians and Workers</b>
512000 Assemblers and Fabricators	513099 <b>Food Processing Workers, All Other</b>
513000 Food Processing Workers	515112 <b>Printing Press Operators (part)</b>
514000 Metal Workers and Plastic Workers	515113 <b>Print Binding and Finishing Workers (part)</b>
515000 Printing Workers	519151 <b>Photographic Process Workers and Processing Machine Operators</b>
516000 Textile, Apparel, and Furnishings Workers	

## Knowledge Guide for Pilots and Air Transportation Jobs

<b>550 Points</b>	<b>Examples of How Knowledge Is Used</b>
<p>Knowledge of a wide range of operations, rules, and procedures related to flight operations support, to address a variety of nonstandard assignments and problems</p> <p>Knowledge permits the employee to assist higher level airfield operations specialists at moderate size airfields or to oversee operations at small airfields.</p>	<p>(1) Supports airfield operations between air-traffic control and maintenance at small airfields that serve private and other light aircraft, following established procedures for airfield safety.</p>
<p><b>750 Points</b></p> <p>Knowledge of air transport basic principles and methodology and skill in applying this knowledge to elementary assignments and operations.</p> <p>Knowledge permits the employee to learn the various technical and operational aspects of their job and to perform basic duties.</p>	<p>(1) Provides basic airport information and limited direction to pilots as an entry level air traffic controller.</p> <p>(2) Coordinates or directs coordination of airfield operations between air-traffic control and maintenance to achieve airfield safety at small airfields.</p> <p>(3) Instructs student pilots for private pilot certificates at civil aviation flight schools. Requires a flight instructor rating.</p>
<p><b>950 Points</b></p> <p>Knowledge of air transport or flight operations principles and methodology, supplemented by job or flight hour experience.</p> <p>Knowledge permits the employee to complete analytical assignments with the application of well established principles and practices using specialized techniques or equipment. These assignments are significantly more difficult and complex than the 750-point level.</p>	<p>(1) Operates an aircraft as captain (pilot-in-command) or first officer (second-in-command), where an aircraft type rating is not required. Flights are typically for purposes such as charters, sightseeing, air ambulance, helicopter services, or corporate shuttles.</p> <p>(2) Monitors the operation of engines and the electrical, hydraulic, and fuel systems/levels during flight, as a qualified flight engineer on multi-engine aircraft.</p> <p>(3) Serves as chief pilot for civil aviation flight schools. Requires a flight instructor rating.</p> <p>(4) Instructs pilots for commercial certificates. Requires a flight instructor rating.</p> <p>(5) Controls air traffic, on and around airports and in air, following established procedures for flight safety, in the first independent level of operation.</p> <p>(6) Coordinates or directs coordination of airfield operations between air-traffic control and maintenance at large airfields to achieve airfield safety.</p> <p>(7) Serves as a first-line supervisor of airfield operations at small airfields.</p> <p>(8) Performs maintenance flight checks and testing of repairs and modifications for aircraft that do not require an aircraft type rating to operate.</p>
<p><b>1250 Points</b></p> <p>Knowledge of a wide range of concepts, applied skills, and practices associated with all aspects of flight operations for multi-engine aircraft. OR A comprehensive, intense, practical knowledge of flight operations and skill in applying this knowledge in development methods, approaches, and modification procedures.</p> <p>Knowledge permits the employee to carryout multiphase projects requiring problem definition and modified techniques, where data may be unreliable or conflicting.</p>	<p>(1) Operates an aircraft as captain (pilot-in-command) or first officer (second-in-command), where an Airline Transport Pilot (ATP) certificate and appropriate aircraft type rating is required.</p> <p>(2) Test-pilots aircraft with substantially modified systems, or does maintenance flight checks and testing of repairs and modifications for commercial aircraft that require a type rating to operate.</p> <p>(3) Instructs pilots for certificates or conducts refresher training for experienced pilots. Requires a flight instructor rating</p> <p>(4) Controls air traffic at stations that involve high levels of service. Determines arrival and departure routes or restrictions based on air traffic and conditions and coordination with pilots and other controllers.</p> <p>(5) Directs airfield operations between air-traffic control and maintenance at large airfields to achieve airfield safety.</p>

<p><b>1550 Points</b></p> <p>Mastery in the field of flight operations. May apply experimental theories and new developments to problems in area of flight testing and aircraft design.</p> <p>Knowledge permits the employee to solve problems, plan and implement testing procedures involving many diverse flight engineering objectives and problems.</p>	<p>(1) Test-pilots aircraft with new or critically modified designs, typically after completion of formal flight test training. Works with engineers in developing flight protocols and procedures for use by pilots of these aircraft.</p> <p>(2) Controls air traffic at stations that experience regular peaks of heavy traffic and involve high levels of service where national air traffic may be affected. Uses knowledge of different airport configurations, satellite airport procedures, and noise abatement procedures to coordinate actions with other controllers and pilots almost simultaneously.</p>
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### Covered SOC Codes

532011 Airline Pilots, Copilots, and Flight Engineers	532021 Air Traffic Controllers
532012 Commercial Pilots	532022 Airfield Operations Specialists

Type Rating - Any aircraft having a gross takeoff weight of more than 12,500 lbs. is required to have an aircraft type certificate.

Examples of such aircraft are a Lear Jet (LR-35), Boeing 737 (B-737), MD-80 (DC-9), and Boeing 747 (B-747). A pilot flying as pilot-in-command on an aircraft that has a type certificate must have a "Type Rating" for that aircraft.

## Factor 2. Job Controls and Complexity

### 100 Points

- Employee does not deviate from detailed directions given by the supervisor and guides; e.g., standard operating procedures (SOPs), handbooks, and reference manuals.

AND

- Tasks are clear-cut and related. There is little choice in deciding what to do or how to do it. The level of complexity is low.

AND

- Work relieves others in the unit/ office of simple, repetitive tasks. The work has minimal impact outside of the immediate organizational unit.

### 300 Points

- Employee rarely varies from the sequential steps and methods explained by the supervisor and/or described in guidelines; e.g., SOPs, handbooks, and reference manuals.

AND

- Tasks involve related steps, processes, and methods that require the employee to recognize clear differences in a variety of situations.

AND

- Work product or service affects the accuracy, reliability, or acceptability of further processes or services.

### 475 Points

- Employee carries out a group of procedures using the general methods and desired results that the supervisor indicates, selects from among the most appropriate of several guidelines, makes minor adjustments to methods, and refers unforeseen situations to others for solution.

AND

- Processes, procedures, or software vary from one assignment to the next, although assignments are related in function and objective. Based on the assignment, the employee must use diverse but conventional methods, techniques, or approaches.

AND

- Work has the same effect as the next lower level.

### 625 Points

- Employee either (a) carries out work with minimal supervision (i.e., the supervisor sets only goals, priorities, and deadlines; and the employee uses guidelines that cover most situations), **or** (b) the employee follows the supervisor's directions on methods and desired results but modifies methods to resolve unforeseen situations and problems.

AND

- Level of complexity is the same as the next lower level.

AND

- Work has the same effect as the next lower level.

### 850 Points

- Employee both (a) carries out work with minimal supervisory direction (i.e., the supervisor sets only goals, priorities, and deadlines), **and** (b) modifies or extends written guidelines that do not cover all situations and problems. The supervisor provides direction on methods only for unprecedented work.

AND

- Level of complexity is the same as the next lower level.

AND

- Work affects the overall efficiency and image of the organization served.

**1175 Points**

- Either (a) the employee operates under supervision expressed in terms of goals, priorities, and deadlines, but must interpret inadequate guidelines, develop plans, and initiate new methods to complete assignments, **or** (b) supervision is primarily given through statements of overall objectives and available resources, but guidelines are more comprehensive so that the employee need only fill gaps in interpretation and adapt established methods.

AND

- Work requires many different processes and methods applied to an established administrative or professional field. Problems are typically the result of unusual circumstances, variations in approach, and incomplete or conflicting data. The employee must interpret data and refine methods to complete assignments.

AND

- Work affects a wide range of professional projects or administrative activities of the employing establishment, influences internal or external operations, or impacts many people.

**1450 Points**

- Employee both (a) operates under minimal supervision based on overall objectives and available resources **and** (b) must make decisions based on inadequate guidelines that require considerable interpretation and force the employee to plan all the phases of the assignment and develop some new methods.

AND

- In addition to work that requires many different processes and methods, work also demands great depth of analysis to identify the nature and extent of problems, develop new methods, and deal with many variables including some that are unclear or conflicting.

AND

- Level of complexity is the same as the next lower level.

**1950 Points**

- Employee works (a) with only administrative and policy direction **and** (b) must make decisions based on broadly stated guidelines that lack specificity or proven validity, e.g., general policy statements, basic laws, or scientific theory. The employee defines objectives, plans work, and develops new method or hypotheses that have led to recognition as a technical authority.

AND

- Level of complexity is the same as the next lower level.

AND

- Work affects the work of other experts, influences important professional or administrative activities of the establishment, or impacts the well being of many groups of people.



### Factor 3. Contacts (Their Nature and Purpose)

<b>30 Points</b>
Contacts are primarily with: <ul style="list-style-type: none"><li>• coworkers inside the organizational unit and/or</li><li>• visitors to the work area, such as the general public.</li></ul> AND Contacts are to exchange straightforward, factual information.
<b>75 Points</b>
Contacts are primarily routine and structured, typically involving: <ul style="list-style-type: none"><li>• employees inside the establishment but engaged in different functions,</li><li>• employees of other establishments, and/or</li><li>• the general public.</li></ul> AND Contacts are to coordinate work, advise on collaborative work, and/or solve recurring types of problems in situations where others are usually cooperative.
<b>110 Points</b>
Contacts are somewhat unstructured and may include those such as: <ul style="list-style-type: none"><li>• inmates,</li><li>• witnesses,</li><li>• potential felons, or</li><li>• emotionally disturbed individuals</li></ul> AND Contacts are for such purposes as obtaining or providing statements or evidence, questioning suspects, and/or controlling situations.  (Note: This level applies mainly to protective and social service occupations.)
<b>180 Points</b>
Contacts are somewhat unstructured and primarily with: <ul style="list-style-type: none"><li>• scientists,</li><li>• engineers, and/or</li><li>• influential individuals inside and outside the employing establishment such as:<ul style="list-style-type: none"><li>- elected officials,</li><li>- managers,</li><li>- media representatives,</li><li>- judges, or</li><li>- attorneys</li></ul></li></ul> AND Contacts are to influence, interrogate, or control others through debate, persuasion, or authoritative recognition; contacts are often in situations subject to divergent views, skepticism, resistance, and/or uncooperative attitudes and behavior.
<b>280 Points</b>
Contacts are virtually the same as those at the next lower level. AND Contacts are to defend, negotiate, or resolve controversial and/or long-range issues and problems.

## Factor 4. Physical Environment

<b>10 Points</b>
<ul style="list-style-type: none"> <li>• Nonstrenuous with Low Risk (See definitions below.)</li> </ul>
<b>25 Points</b>
<ul style="list-style-type: none"> <li>• Moderately Strenuous with Low Risk or</li> <li>• Nonstrenuous with Moderate Risk (See definitions below.)</li> </ul>
<b>40 Points</b>
<ul style="list-style-type: none"> <li>• Strenuous with Low Risk or</li> <li>• Moderately Strenuous with Moderate Risk (See definitions below.)</li> </ul>
<b>70 Points</b>
<ul style="list-style-type: none"> <li>• Moderately Strenuous with High Risk or</li> <li>• Strenuous with Moderate Risk (See definitions below.)</li> </ul>
<b>100 Points</b>
<ul style="list-style-type: none"> <li>• Strenuous with High Risk (See definitions below.)</li> </ul>

### Definition

**Nonstrenuous** - Primarily sedentary with some walking, standing, and carrying of light objects.

**Moderately strenuous** - Often lifts 30 to 50 pounds, walks over uneven surfaces, and/or stands for long periods.

**Strenuous** - Often lifts more than 50 pounds, climbs high, runs, or defends against physical attack.

**Low risk** - Adequately lighted, ventilated, and heated area where normal precautions must be observed.

**Moderate risk** - Requires special mitigating precautions and/or protective gear or clothing due to potential risk from such sources as moving machinery, chemicals, animals, or diseases.

**High risk** - Extreme temperatures, likelihood of physical attack, or potential exposure to smoke and fire.

## Leveling Instructions and Points

After recording the level for each factor for a job, determine points associated with that level from the chart below. Sum the points to determine overall work level.

### Points associated with each factor

<i>Factor</i>	<i>Factor number</i>								
Knowledge	50	200	350	550	750	950	1250	1550	1850
Job controls and complexity	100	300	475	625	850	1175	1450	1950	X
Contacts	30	75	110	180	280	X	X	X	X
Physical environment	10	25	40	70	100	X	X	X	X

### Point range by work level

<i>Level</i>	<i>Minimum points</i>	<i>Maximum points</i>
1	190	254
2	255	454
3	455	654
4	655	854
5	855	1104
6	1105	1354
7	1355	1605
8	1605	1854
9	1855	2104
10	2105	2354
11	2355	2754
12	2755	3154
13	3155	3604
14	3605	4054
15	4055 and up	

## Supervisory Leveling

Most supervisors' levels are based on their own duties and responsibilities. Supervisors of professional and administrative workers that are paid *primarily to supervise* may be evaluated based on the work of their highest-level subordinates. Add the following number of levels to the subordinate level of work to determine overall work level of the supervisory occupation.

	Subordinate below level 12	Subordinate at or above level 12
First-line supervisor	Add 2 levels	Add 1 level
Second-line supervisor/manager	Add 3 levels	Add 2 levels
Third-line supervisor/manager	Add 4 levels	Add 3 levels

# Leveling Examples

## Leveling Example #1

The combination of points from the four leveling factors is used to arrive at an overall level. Below is an example of the leveling evaluation for a *senior cost accountant* position in a manufacturing plant. Information describing the job is the type available from a position description or from discussions with company officials who are familiar with the job's content. To evaluate your firm's job, use the information available, going through each level within a factor. Choose the level best matching the job, and record the points associated with that level. (Worksheets are provided at the end of this online publication.)

### Knowledge: 1250 points

Senior cost accountant must have an accounting or business degree and a minimum of 7 years' experience in computerized manufacturing accounting. This position requires knowledge of Generally Accepted Accounting Principles (GAAP) and a working knowledge of a fully integrated manufacturing cost system. Working knowledge of Material Requirements Planning (MRP II) and Enterprise Resource Planning (ERP) is also required.

Required knowledge is used to maintain and improve product cost processes and systems, as they related to tracking and reporting of financial information. The position leads the preparation, analysis, and communication of cost and financial data for manufacturing costs and contract quotes. Other essential functions include preparation and analysis of financial predictions and insuring the accuracy of product costs and cost reporting.

### Job controls and complexity: 1175 points

This position functions independently within the cost accounting system. This includes responsibility for analyzing and implementing improvements to the tracking of cost, inventory, and manufacturing account data in an activity-based system. Major changes to the accounting system are decided at a higher level. The position must follow GAAP.

### Contacts: 75

Works with suppliers to ensure accuracy of product costs and cost reporting. Assists project managers in communication of manufacturing information and may meet with customers to explain costs.

### Physical environment: 10

Work is in a standard office setting and is sedentary.

## Leveling Example #1 Worksheet

**Company job title:** Senior Cost Accountant

<b>Factor</b>	<b>Points</b>		
Knowledge	<u>1250</u>		
Job controls and complexity	<u>1175</u>		
Contacts	<u>75</u>		
Physical environment	<u>10</u>		
		<b>Total Points</b>	<u>2510</u>
		<b>Work level</b>	<u>11</u>

**Company job title:** Accounting Manager

Assume the cost accountant above is the highest level subordinate for an accounting manager, that the accounting manager is paid primarily to supervise the work of the accounting staff, and that the manager is a first-line supervisor.

Level of work supervised	<u>11</u>		
Level for supervisory work	<u>2</u>		
		<b>Work level</b>	<u>13</u>

## Leveling Example #2

The combination of points from the four leveling factors is used to arrive at an overall level. Below is an example of the leveling evaluation for an *administrative assistant* position in a school administration office. Information describing the job is the type available from a position description or from discussions with company officials who are familiar with the job's content. To evaluate your firm's job, use the information available, going through each level within a factor. Choose the level best matching the job, and record the points associated with that level. (Worksheets are provided at the end of this online publication.)

### Knowledge: 550 points

An administrative assistant must have 3 years' secretarial experience, or formal secretarial training and experience. Must be able to use word processing and spreadsheet software and be familiar with bookkeeping and other recordkeeping procedures. Must be able to maintain information posted on external Web pages.

Required knowledge is used to research and prepare an assortment of correspondence, memos, and detailed reports. Reports and memos, including imbedded charts and graphs, are converted to HTML format and posted to the administration office website. Position assists with coordination of various department activities including payroll and purchasing. This includes collecting, entering, and retrieving necessary data from several different systems.

### Job controls and complexity: 475 points

Work is performed under general supervision, and covers a wide variety of office functions. Position is required to work independently, to make sound judgments based on the situation and desired results, and to assume responsibility for general departmental tasks and projects. Work directly impacts the quality of services provided to school personnel and the general public.

### Contacts: 30

Administrative assistant is in contact with students, staff, parents and the community and must deal with sensitive student, family, and personnel issues. While position handles problems, it is primarily to share information with other staff responsible for resolving issues.

### Physical environment: 10

Work is in a standard office setting and is sedentary.

## Leveling Example #2 Worksheet

**Company job title:** Administrative Assistant

<b>Factor</b>	<b>Points</b>
Knowledge	<u>550</u>
Job controls and complexity	<u>475</u>
Contacts	<u>30</u>
Physical environment	<u>10</u>
<b>Total points</b>	<u>1065</u>
<b>Work level</b>	<u>5</u>

## Leveling Example #3

The combination of points from the four leveling factors is used to arrive at an overall level. Below is an example of the leveling evaluation for a *line clearance worker* at a utility company. Information describing the job is the type available from a position description or from discussions with company officials who are familiar with the job's content. To evaluate your firm's job, use the information available, going through each level within a factor. Choose the level best matching the job, and record the points associated with that level. (Worksheets are provided at the end of this online publication.)

### Knowledge: 550 points

This journey-level line clearance worker requires completion of an apprenticeship comprised of 4000 hours of on-the-job training (OJT) and 240 classroom-training hours. Worker must have basic arboriculture knowledge, including tree structure and growth patterns, identification of diseases, and pruning methods. Worker must also have working knowledge of regulations that cover hazards and safety precautions of tree trimming and removal. In addition, a line clearance worker must have working knowledge of electrical line clearing hazards, safety practices, and rescue procedures.

### Job controls and complexity: 475 points

Work is performed under general supervision of the crew leader. A line clearance worker checks the work site and conditions for safety hazards and must follow a work plan that addresses those hazards.

A line clearance worker can make adjustments to approaches used based on the situation, problems encountered, and desired results. The techniques and tools used vary based on what is being trimmed or removed, as well as the size, health, and location of the trees. The work directly affects the quality and continuity of service provided to customers.

### Contacts: 30

Line clearance workers primarily are in contact with other employees in the work crew. There is occasional contact with customers to inform them of work being performed in the area or to obtain access to property.

### Physical environment: 100

Work is strenuous and usually done at great heights in the vicinity of energized high-voltage power lines. Line clearance work is exclusively performed outdoors, often during inclement weather conditions.

## Leveling Example #3 Worksheet

**Company job title:** Line Clearance Worker

<b>Factor</b>	<b>Points</b>
Knowledge	<u>550</u>
Job controls and complexity	<u>475</u>
Contacts	<u>30</u>
Physical environment	<u>100</u>
<b>Total Points</b>	<u>1155</u>
<b>Work level</b>	<u>6</u>



## Leveling Worksheets

1. Company job title: \_\_\_\_\_

Factor	Level	Points	
Knowledge	_____	_____	
Job controls and complexity	_____	_____	
Contacts	_____	_____	
Physical environment	_____	_____	
			<b>Total Points</b> _____
			<b>Work level</b> _____

2. Company job title: \_\_\_\_\_

Factor	Level	Points	
Knowledge	_____	_____	
Job controls and complexity	_____	_____	
Contacts	_____	_____	
Physical environment	_____	_____	
			<b>Total Points</b> _____
			<b>Work level</b> _____

3. Company job title: \_\_\_\_\_

Factor	Level	Points	
Knowledge	_____	_____	
Job controls and complexity	_____	_____	
Contacts	_____	_____	
Physical environment	_____	_____	
			<b>Total Points</b> _____
			<b>Work level</b> _____

