



# **APPROVED 2020 CIP CODES**

***DATA SERVICES***

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# Approved 2020 CIP Codes and Descriptions

## 01. AGRICULTURAL/ANIMAL/PLANT/VETERINARY SCIENCE AND RELATED FIELDS

*Instructional programs that focus on agriculture, animal, plant, veterinary and related sciences and that prepare individuals to apply specific knowledge, methods, and techniques to the management and performance of agricultural and veterinary operations.*

### 01.0000: Agriculture, General

A program that focuses on the general principles and practice of agricultural research and production that may prepare individuals to apply this knowledge to the solution of practical agricultural problems. Includes instruction in basic animal, plant, and soil science; animal husbandry and plant cultivation; soil conservation; and agricultural operations such as farming, ranching, and agricultural business. (Academic)

### 01.0101: Agricultural Business and Management, General

A program that focuses on modern business and economic principles involved in the organization, operation, and management of agricultural enterprises. (Vocational)

### 01.0104: Farm and Ranch Management

A program that prepares individuals to manage farms, ranches, and similar enterprises. Includes instruction in applicable agricultural specialization as well as business management, accounting, taxation, capitalization, purchasing, government programs and regulations, operational planning and budgeting, contracts and negotiation, and estate planning. (Vocational)

### 01.0105: Agricultural/Farm Supplies Retailing and Wholesaling

A program that prepares individuals to sell agricultural products and supplies, provide support services to agricultural enterprises, and purchase and market agricultural products. Includes instruction in basic business management, marketing, retailing and wholesaling operations, and applicable principles of agriculture and agricultural operations. (Vocational)

### 01.0201: Agricultural Mechanization, General

A program that generally prepares individuals to sell, select, and service agriculture or agribusiness technical equipment and facilities, including computers, specialized software, power units, machinery, equipment, structures, and utilities. Includes instruction in agricultural power systems; planning and selecting materials for the construction of support facilities; mechanical practices associated with irrigation and water conservation; erosion control; and agricultural data processing systems. (Vocational)

### 01.0204: Agricultural Power Machinery Operator

A program that prepares individuals to operate specialized farm, ranch, and agribusiness power equipment of a stationary, mobile, and/or hand-operated nature. Includes instruction in operating specialized equipment such as terrestrial and airborne crop spraying equipment; tractors and hauling equipment; planting and harvesting equipment; cutting equipment; power sources and systems for silos, irrigation, pumping, and applications such as dairy, feeding, and shearing

operations; processing equipment; and applicable electrical, mechanical, and safety principles. (Vocational)

#### **01.0205: Agricultural Mechanics and Equipment/Machine Technology**

A program that prepares individuals to maintain and repair specialized farm, ranch, and agribusiness power equipment and vehicles. Includes instruction in the principles of diesel, combustion, electrical, steam, hydraulic, and mechanical systems and their application to the maintenance of terrestrial and airborne crop spraying equipment; tractors and hauling equipment; planting and harvesting equipment; cutting equipment; power sources and systems for silos; irrigation and pumping equipment; dairy, feeding, and shearing operations; and processing systems. (Vocational)

#### **01.0207: Irrigation Management Technology/Technician**

A program that prepares individuals for employment in the field of agricultural technology and irrigation. Includes instruction in irrigation and drainage methodologies, pumping and delivery systems, system design and evaluation, and principles of installation and repair of irrigation systems. (Vocational)

#### **01.0301: Agricultural Production Operations, General**

A program that focuses on the general planning, economics, and use of facilities, natural resources, equipment, labor, and capital to produce plant and animal products, and that may prepare individuals for work in farming, ranching, and agribusiness. (Vocational)

#### **01.0302: Animal/Livestock Husbandry and Production**

A program that prepares individuals to select, breed, care for, process, and market livestock and small farm animals. Includes instruction in basic animal science, animal nutrition, and animal health as applied to various species and breeds; design and operation of housing, feeding, and processing facilities; and related issues of safety, applicable regulations, logistics, and supply. (Vocational)

#### **01.0303: Aquaculture**

A program that prepares individuals to select, culture, propagate, harvest, and market domesticated fish, shellfish, and marine plants, both freshwater and saltwater. Includes instruction in the basic principles of aquatic and marine biology; health and nutrition of aquatic and marine life; design and operation of fish farms, breeding facilities, culture beds, and related enterprises; and related issues of safety, applicable regulations, logistics, and supply. (Vocational)

#### **01.0304: Crop Production**

An instructional program that prepares individuals to operate enterprises concerned with the production of cereal grain, fiber, forage, oilseed, tree fruits and nuts, small fruits, vegetables, and other crops. Includes instruction in soils, plant nutrition, plant and seed identification, genetics, physiology, entomology, plant pathology, plant disease, and pest control, including insecticides, fungicides, herbicides, nonchemical controls, and plant genetic resistance. (Vocational)

#### **01.0308: Agroecology and Sustainable Agriculture**

A program that focuses on agricultural principles and practices that, over the long term, enhance environmental quality, make efficient use of nonrenewable resources, integrate natural biological cycles and controls, and are economically viable and socially responsible; and that may prepare

individuals to apply this knowledge to the solution of agricultural and environmental problems. Includes instruction in principles of agroecology, crop and soil sciences, entomology, horticulture, animal science, weed science and management, soil fertility and nutrient cycling, applied ecology, agricultural economics, and rangeland ecology and watershed management. (Vocational)

#### **01.0401: Agricultural and Food Products Processing**

A program that prepares individuals to receive, inspect, store, process, and package agricultural products in the form of human food consumables, animal or plant food, or as other industrial products. Includes instruction in the nutrient and industrial properties of various agricultural products; logistics and storage procedures; chemical and mechanical processing operations; packaging; safety and health requirements; and related technical and business principles. (Vocational)

#### **01.0507: Equestrian/Equine Studies**

A program that focuses on the horse, horsemanship, and related subjects and prepares individuals to care for horses and horse equipment; ride and drive horses for leisure, sport, show, and professional purposes; and manage the training of horses and riders. Includes instruction in horse breeding, nutrition, health, and safety; history of the horse and horsemanship; horse development and training; riding and equestrian technique; stable, paddock, and track management; and equipment maintenance and repair. (Vocational)

#### **01.0509: Farrier Science**

A program of study that prepares individuals to become specialists in equine hoof care (farriers). Includes instruction in equine science, equine health and first aid, general horseshoeing, corrective horseshoeing, gait analysis, and metal forging techniques using gas or coal. (Vocational)

#### **01.0601: Horticulture Operations, General**

A program that focuses on the general production and processing of domesticated plants, shrubs, flowers, foliage, trees, groundcovers, and related plant materials; the management of technical and business operations connected with horticultural services; and the basic scientific principles needed to understand plants and their management and care. (Vocational)

#### **01.0603: Ornamental Horticulture**

A program that focuses on domesticated plants and plant materials used for decorative and recreational applications and prepares individuals to breed, grow, and utilize domesticated ornamental plant varieties for decorative and recreational applications for commercial and aesthetic purposes. Includes instruction in applicable plant science subjects, the environmental design and artistic aspects of horticultural product usage, and the management of horticultural operations. (Vocational)

#### **01.0604: Greenhouse Operations and Management**

A program that prepares individuals to produce, store, and deliver plant species in controlled indoor environments for wholesale, commercial, research, or other purposes. Includes instruction in applicable principles of plant science; climate, irrigation, and nutrition control equipment operation and maintenance; facilities management; inventory control; safety procedures; and personnel supervision. (Vocational)

### **01.0605: Landscaping and Groundskeeping**

A program that prepares individuals to manage and maintain indoor and/or outdoor ornamental and recreational plants and groundcovers and related conceptual designs established by landscape architects, interior designers, enterprise owners or managers, and individual clients. Includes instruction in applicable principles of horticulture, gardening, plant and soil irrigation and nutrition, turf maintenance, plant maintenance, equipment operation and maintenance, personnel supervision, and purchasing. (Vocational)

### **01.0606: Plant Nursery Operations and Management**

A program that prepares individuals to operate and manage outdoor plant farms, tree and shrub nurseries, and related facilities that develop domesticated plant products for propagation, harvesting, and transplantation. Includes instruction in applicable principles of plant science; farm and business management; nursery operations; equipment operation and maintenance; safety procedures; and personnel supervision. (Vocational)

### **01.0607: Turf and Turfgrass Management**

A program that focuses on turfgrasses and related groundcover plants and prepares individuals to develop ornamental or recreational grasses and related products; plant, transplant, and manage grassed areas; and to produce and store turf used for transplantation. Includes instruction in applicable plant sciences, genetics of grasses, turf science, use analysis, turf management, and related economics. (Vocational)

### **01.0608: Floriculture/Floristry Operations and Management**

A program that prepares individuals to operate and manage commercial and contract florist enterprises, supply and delivery services, and flower catering services. Includes instruction in the applicable principles of plant science; purchasing, storage, and delivery systems; floral design and arranging; and principles of business management. (Vocational)

### **01.0901: Animal Sciences, General**

A general program that focuses on the scientific principles that underlie the breeding and husbandry of agricultural animals, and the production, processing, and distribution of agricultural animal products. Includes instruction in the animal sciences, animal husbandry and production, and agricultural and food products processing. (Academic)

### **01.0905: Dairy Science**

A program that focuses on the application of biological and chemical principles to the production and management of dairy animals and the production and handling of dairy products. Includes instruction in animal sciences, nutrition sciences, food sciences and technology, biochemistry, and related aspects of human and animal health and safety. (Academic)

### **01.1001: Food Science**

A program that focuses on the application of biological, chemical, and physical principles to the study of converting raw agricultural products into processed forms suitable for direct human consumption, and the storage of such products. Includes instruction in applicable aspects of the agricultural sciences, human physiology and nutrition, food chemistry, agricultural products processing, food

additives, food preparation and packaging, food storage and shipment, and related aspects of human health and safety including toxicology and pathology. (Academic and Vocational)

#### **01.1002: Food Technology and Processing**

A program that focuses on the application of chemical, physical, and engineering principles to the development and implementation of manufacturing, packaging, storage, and distribution technologies and processes for food products. Includes instruction in food engineering, food preservation and handling, food preparation, food packaging and display, food storage and shipment, and related equipment and facilities design, operation, and maintenance. (Academic and Vocational)

#### **01.1004: Viticulture and Enology (moved from 01.0309)**

A program that focuses on the application of scientific and agribusiness principles to the production of grapes, the making of wine, and the wine business. Includes instruction in grapes and wines of the world; grape production; winemaking technology; plant biology; chemistry; food science, safety, and packaging; soil science; pest management; and marketing and business management. ((Vocational)

#### **01.1005: Zymology/Fermentation Science**

A program that focuses on the business, science, and technology of fermented food production. Includes instruction in biology, biochemistry, brewing, entrepreneurship, fermentation, marketing, microbiology, quality control, and sanitation. ((Vocational)

#### **01.1102: Agronomy and Crop Science**

A program that focuses on the chemical, physical, and biological relationships of crops and the soils nurturing them. Includes instruction in the growth and behavior of agricultural crops, the development of new plant varieties, and the scientific management of soils and nutrients for maximum plant nutrition, health, and productivity. (Academic)

#### **01.1103: Horticulture Science**

A program that focuses on the scientific principles involved in the cultivation of garden and ornamental plants, including fruits, vegetables, flowers, landscape, and nursery crops. Includes instruction in specific types of plants, such as citrus; breeding horticultural varieties; physiology of horticultural species; and the scientific management of horticultural plant development and production throughout the plant life cycle. (Academic)

#### **01.1201: Soil Sciences and Agronomy, General**

A program that generally focuses on the scientific classification and study of soils, soil properties, and their relationship to agricultural crops. Includes instruction in soil chemistry, soil physics, soil biology, soil fertility, morphogenesis, mineralogy, hydrology, agronomy, and soil conservation and management. (Vocational)

#### **01.8301: Veterinary Animal Health Technology/Technician and Veterinary Assistant. (moved from 51.0808)**

A program that prepares individuals, under the supervision of veterinarians, laboratory animal specialists, and zoological professionals, to provide patient management, care, and clinical procedures assistance as well as owner communication. Includes instruction in animal nursing care,



animal health and nutrition, animal handling, clinical pathology, radiology, anesthesiology, dental prophylaxis, surgical assisting, clinical laboratory procedures, office administration skills, patient and owner management, and applicable standards and regulations. (Vocational)

### **03. CONSERVATION AND RENEWABLE NATURAL RESOURCES**

*Instructional programs that focus on the various natural resources and conservation fields and prepare individuals for related occupations.*

#### **03.0101: Natural Resources/Conservation, General**

A general program that focuses on the studies and activities relating to the natural environment and its conservation, use, and improvement. Includes instruction in subjects such as climate, air, soil, water, land, fish and wildlife, and plant resources; in the basic principles of environmental science and natural resources management; and the recreational and economic uses of renewable and nonrenewable natural resources. (Vocational)

#### **03.0103: Environmental Studies**

A program that focuses on environment-related issues using scientific, social scientific, or humanistic approaches or a combination. Includes instruction in the basic principles of ecology and environmental science and related subjects such as policy, politics, law, economics, social aspects, planning, pollution control, natural resources, and the interactions of human beings and nature. (Academic)

#### **03.0104: Environmental Science**

A program that focuses on the application of biological, chemical, and physical principles to the study of the physical environment and the solution of environmental problems, including subjects such as abating or controlling environmental pollution and degradation; the interaction between human society and the natural environment; and natural resources management. Includes instruction in biology, chemistry, physics, geosciences, climatology, statistics, and mathematical modeling. (Vocational)

#### **03.0201: Environmental/Natural Resources Management and Policy, General**

A program that prepares individuals to plan, develop, manage, and evaluate programs designed to protect and regulate natural habitats and renewable natural resources. Includes instruction in the principles of wildlife and conservation biology, environmental science, animal population surveying, natural resource economics, management techniques for various habitats, applicable law and policy, administrative and communication skills, and public relations. (Academic)

#### **03.0205: Water, Wetlands and Marine Resources Management**

A program that prepares individuals to apply the principles of marine/aquatic biology, oceanography, natural resource economics, and natural resources management to the development, conservation, and management of freshwater and saltwater environments. Includes instruction in subjects such as wetlands, riverine, lacustrine, coastal, and oceanic water resources; water conservation and use; flood control; pollution control; water supply logistics; wastewater management; aquatic and marine ecology; and marine life conservation; and the economic and recreational uses of water resources. (Vocational)

### **03.0207: Environmental/Natural Resource Recreation and Tourism**

A program that prepares individuals to plan, develop, and manage tourism in a natural resource setting, with an emphasis on applying environmentally sound, culturally sensitive, and economically sustainable principles. Includes instruction in environmental studies; natural resource management and interpretation; tourism planning, management, and policies; public land use management and policies; communications; marketing; and public relations. (Vocational)

### **03.0208: Environmental/Natural Resources Law Enforcement and Protective Services**

A program that prepares individuals to enforce natural resource and environmental protection regulations and laws; and to perform emergency duties to protect human life, property and natural resources, including fire prevention and control measures, and emergency and rescue procedures. Includes instruction in natural and physical sciences, natural resource management, outdoor field skills, firearms and outdoor equipment and vehicle operation, evidence collection and environmental sampling and monitoring, natural resource legislation, environmental compliance techniques, patrol procedures, investigation and report writing, interpersonal skills and crisis intervention, community liaison, public safety, public education, and public relations. (Vocational)

### **03.0301: Fishing and Fisheries Sciences and Management**

A program that focuses on the husbandry and production of nondomesticated fish populations for recreational, and commercial purposes and the management of fishing and marine/aquatic product processing to ensure adequate conservation and efficient utilization. Includes instruction in the principles of aquatic and marine/aquatic biology, freshwater and saltwater ecosystems, water resources, fishing production operations and management, fishing policy and regulations, and the management of recreational and commercial fishing activities. (Vocational)

### **03.0501: Forestry, General**

A program that generally prepares individuals to manage and develop forest areas for economic, recreational, and ecological purposes. Includes instruction in forest-related sciences, mapping, statistics, harvesting and production technology, resource protection, management and economics, ecology and biology, administration, and public relations. (Vocational)

### **03.0508: Urban Forestry**

A program that prepares individuals to apply the principles of forestry and related sciences to the development, care, and maintenance of individual trees and forested areas within or close to areas of dense human habitation. Includes instruction in urban environments; effects of pollution on tree species; environmental design and landscaping; urban pest infestation; urban forest management; and applicable policies and regulations. (Vocational)

### **03.0509: Wood Science and Wood Products/Pulp and Paper Technology/Technician**

A program that focuses on the application of chemical, physical, and engineering principles to the analysis of the properties and behavior of wood and wood products and the development of processes for converting wood into paper and other products. Includes instruction in wood classification and testing, product development, manufacturing and processing technologies, and the design and development of related equipment and systems. (Vocational)

### **03.0510: Forest Resources Production and Management**

A program that focuses on the application of forestry principles to the production, harvesting, and processing of forest resources and that prepares individuals to perform associated technical and managerial functions. Includes instruction in forest production and utilization, industrial forestry, agroforestry, transplantation, timber harvesting, selection and identification of trees, processing technologies and systems, equipment operations and maintenance, and related management skills. (Academic)

### **03.0511: Forest Technology**

A program that prepares individuals to assist foresters in the management and production of forest resources. Includes instruction in woods and field skills, tree identification, timber measurement, logging and timber harvesting, forest propagation and regeneration, forest firefighting, resource management, equipment operation and maintenance, record-keeping, sales and purchasing operations, and personnel supervision. (Vocational)

### **03.0601: Wildlife, Fish and Wildlands Science and Management**

A program that prepares individuals to conserve and manage wilderness areas and the flora, marine and aquatic life therein, and manage wildlife reservations and zoological/aquarium facilities for recreational, commercial, and ecological purposes. Includes instruction in wildlife biology, marine/aquatic biology, environmental science, freshwater and saltwater ecosystems, natural resources management and policy, outdoor recreation and parks management, the design and operation of natural and artificial wildlife habitats, applicable law and regulations, and related administrative and communication skills. (Vocational)

## **04. ARCHITECTURE AND RELATED PROGRAMS**

*Instructional programs that prepare individuals for professional practice in the various architecture-related fields and focus on the study of related aesthetic and socioeconomic aspects of the built environment.*

### **04.0301: City/Urban, Community and Regional Planning**

An instructional program that prepares individuals to apply principles of planning and analysis in the development and improvement of urban areas or surrounding regions, and to function as professional planners. Includes instruction in principles of architecture; master plan development; service, communications, and transportation systems design; community and commercial development; zoning; land use planning; applied economics; policy analysis; applicable laws and regulations; and professional responsibilities and managerial duties. (Academic and Vocational)

#### **04.0401: Environmental Design/Architecture**

A program that prepares individuals to design of public and private spaces, indoor and outdoor, for leisure, recreational, commercial, and living purposes, and for professional practice as environmental designers and architects. Includes instruction in the design and planning of public and private open spaces and their relationship to buildings or other aspects of the built environment; facilities management; related aspects of interior design and architecture, landscape architecture, and urban planning; and professional responsibilities and standards. (Academic)

#### **04.0601: Landscape Architecture**

A program that prepares individuals for the independent professional practice of landscape architecture and research in various aspects of the field. Includes instruction in geology and hydrology; soils, groundcovers, and horticultural elements; project and site planning; landscape design, history, and theory; environmental design; applicable law and regulations; and professional responsibilities and standards. (Academic)

#### **04.0901: Architectural Technology**

A program that prepares individuals to assist architects in developing plans and related documentation used in performing architectural office services. Includes instruction in architectural drafting, computer-assisted drafting and design, construction methods and materials, environmental systems, building codes and standards, structural principles, cost estimation, planning documentation, visual communication skills, display production, and architectural office management. (Academic)

### **05. AREA, ETHNIC, CULTURAL, GENDER, AND GROUP STUDIES**

*Instructional programs that focus on the defined areas, regions, and countries of the world; defined minority groups within and across societies; and issues relevant to collective gender experience and group experience.*

#### **05.0101: African Studies**

A program that focuses on the history, society, politics, culture, and economics of one or more of the peoples of the African Continent, usually with an emphasis on Africa south of the Sahara, and including the African diaspora overseas. (Academic)

#### **05.0103: Asian Studies/Civilization**

A program that focuses on the history, society, politics, culture, and economics of one or more of the peoples of the Asian Continent, including the study of the Asian diasporas overseas. (Academic)

### **05.0107: Latin American Studies**

A program that focuses on the history, society, politics, culture, and economics of one or more of the Hispanic peoples of the North and South American Continents outside Canada and the United States, including the study of the Pre-Columbian period and the flow of immigrants from other societies. (Academic)

### **05.0115: Canadian Studies**

A program that focuses on the history, society, politics, culture, and economics of one or more of the peoples of Canada and its Pre-Columbian, colonial, and pre-federation predecessors, including immigrant flows and related borderlands and island groups. (Academic)

### **05.0200: Ethnic Studies**

A program that focuses on the interdisciplinary and comparative study of the history, sociology, politics, culture, and economics of North American racial and ethnic groups, including African Americans, American Indians/Native Americans, Hispanic Americans, and Asian Americans. (Academic)

### **05.0201: African-American/Black Studies**

A program that focuses on the history, sociology, politics, culture, and economics of the North American peoples descended from the African diaspora; focusing on the United States, Canada, and the Caribbean, but also including reference to Latin American elements of the diaspora. (Academic)

### **05.0202: American Indian/Native American Studies**

A program that focuses on the history, sociology, politics, culture, and economics of one or more of the American Indian, Aleut, Inuit, Hawaiian and other native peoples of the Americas from earliest times until the present, with particular emphasis on U.S. and Canada populations and their problems but including reference to Caribbean and Latin American native peoples. (Academic)

### **05.0203: Hispanic-American, Puerto Rican, and Mexican-American/Chicano Studies**

A program that focuses on the history, sociology, politics, culture, and economics of one or more of the Hispanic American immigrant populations within the U.S. and Canada, including Mexican-Americans, Puerto Ricans, Cuban-Americans, and others. (Academic)

### **05.0206: Asian-American Studies**

A program that focuses on the history, sociology, politics, culture, and economics of Asian population groups who have immigrated to the United States and Canada, or sought refugee asylum, from the colonial period to the present, and including Chinese-Americans, Japanese-Americans, Korean-Americans, Vietnamese-Americans, Cambodian-Americans, and others. (Academic)

### **05.0207: Women's Studies**

A program that focuses on the history, sociology, politics, culture, and economics of women, and the development of modern feminism in relation to the roles played by women in different periods and locations in North America and the world. Programs may focus on literature, philosophy, and the arts as much as on social studies and policy. (Academic)

### **05.0208: Gay/Lesbian Studies**

A program that focuses on homosexuality in history, society, politics, and cultural life; usually with an emphasis on the modern emergence of gays and lesbians as a sociocultural minority movement, the identification of social, literary, and artistic themes and the definition of, and public policy and legal issues surrounding, the gay and lesbian community. (Academic)

### **05.0211: Deaf Studies**

A program that focuses on the sociological, historical and linguistic aspects of the deaf and hearing impaired, and that prepares individuals to work with the deaf and hearing impaired. Includes instruction in American Sign Language, deaf studies, American deaf culture, structure of American Sign Language, history of the American deaf community, and civil rights of deaf people. (Academic)

## **09. COMMUNICATIONS**

*Instructional programs that focus on how messages in various media are produced, used, and interpreted within and across different contexts, channels, and cultures, and that prepare individuals to apply communications knowledge and skills professionally.*

### **09.0100: Communications, General**

A program that focuses on the comprehensive study of communication, and that spans the study of mass communication/media studies, old and new media technologies, social and political applications, and speech communication and rhetoric. Includes instruction in interpersonal, group, organizational, and intercultural communication; theories of communication; critical thinking, argumentation, and persuasion; written communication; printed, electronic, and digital media; rhetorical tradition and criticism; media, society, and culture; consequences and effects of mass media; media social science and criticism; and quantitative and qualitative methods of inquiry. (Academic)

### **09.0101: Speech Communication and Rhetoric**

A program that focuses on the scientific, humanistic, and critical study of human communication in a variety of formats, media, and contexts. Includes instruction in the theory and practice of interpersonal, group, organizational, professional, and intercultural communication; speaking and listening; verbal and nonverbal interaction; rhetorical theory and criticism; performance studies; argumentation and persuasion; technologically mediated communication; popular culture; and various contextual applications. (Academic)

### **09.0102: Mass Communications/Media Studies**

A program that focuses on the analysis and criticism of media institutions and media texts, how people experience and understand media content, and the roles of media in producing and transforming culture. Includes instruction in communications regulation, law, and policy; media history; media aesthetics, interpretation, and criticism; the social and cultural effects of mass media; cultural studies; the economics of media industries; visual and media literacy; and the psychology and behavioral aspects of media messages, interpretation, and utilization. (Academic)

#### **09.0401: Journalism**

A program that focuses on the theory and practice of gathering, processing, and delivering news and that prepares individuals to be professional print journalists, news editors, and news managers. Includes instruction in news writing and editing; reporting; photojournalism; layout and graphic design; journalism law and policy; professional standards and ethics; research methods; and journalism history and research. (Vocational)

#### **09.0404: Photojournalism**

A program that focuses on the use of still and motion photography in journalism and prepares individuals to function as news photographers and photographic editors. Includes instruction in photography, journalism, studio procedures and techniques, camera and equipment operation and technique, news editing, print and film editing, news scene composition, subject surveillance, media law and policy, news team field operations, and professional standards and ethics. (Academic and Vocational)

#### **09.0701: Radio and Television**

A program that focuses on the theories, methods and techniques used to plan, produce, and distribute audio and video programs and messages, and that prepares individuals to function as staff, producers, directors, and managers of radio and television shows and media organizations. Includes instruction in media aesthetics; planning, scheduling, and production; writing and editing; performing and directing; personnel and facilities management; marketing and distribution; media regulations, law, and policy; and principles of broadcast technology. (Academic)

#### **09.0702: Digital Communication and Media/Multimedia**

A program that focuses on the development, use, critical evaluation, and regulation of new electronic communication technologies using computer applications; and that prepares individuals to function as developers and managers of digital communications media. Includes instruction in computer and telecommunications technologies and processes; design and development of digital communications; marketing and distribution; digital communications regulation, law, and policy; the study of human interaction with, and use of, digital media; and emerging trends and issues. (Academic)

#### **09.0900: Public Relations, Advertising, and Applied Communication**

A general program that focuses on organizational communication, public relations, and advertising; and that prepares individuals to function in a wide range of public and private sector positions requiring the skills of persuasive communication. Includes instruction in communications, public relations, and advertising theory; principles and techniques of persuasion; message/image design; marketing strategy; professional writing; public speaking and multi-media presentation skills; digital communications; and applied research. (Academic)

#### **09.0901: Organizational Communication, General**

A program that focuses on general communications processes and dynamics within organizations. Includes instruction in the development and maintenance of interpersonal group relations within organizations; decision-making and conflict management; the use of symbols to create and maintain organizational images, missions, and values; power and politics within organizations; human



interaction with computer technology; and how communications socializes and supports employees and team members. (Academic)

#### **09.0903: Advertising**

A program that focuses on the creation, execution, transmission, and evaluation of commercial messages in various media intended to promote and sell products, services, and brands; and that prepares individuals to function as advertising assistants, technicians, and managers. Includes instruction in advertising theory; marketing strategy; advertising design and production methods, campaign methods and techniques, media management, related principles of business management, and applicable technical and equipment skills. (Academic and Vocational)

#### **09.0907: International and Intercultural Communication**

A program that focuses on the specialized knowledge and skills needed for effective communication in the international community and among people of different cultures; and that prepares individuals to function at the national and international levels as journalists, public relations specialists, travel industry representatives, intercultural trainers, and/or foreign service officers. Includes instruction in journalism, communications, intercultural and international relations, marketing and public relations, and global communications policy. (Academic)

#### **09.0908: Technical and Scientific Communication**

A program that focuses on the communication of technical and scientific knowledge to a variety of audiences through print, video, and digital media; and that prepares individuals to function as technical writers and editors, documentation developers, web designers, and usability specialists. Includes instruction in scientific and technical writing and editing, graphic and information design, web design, audience analysis, document usability and field testing, publications management, and applications to specific technical fields. (Academic)

### **10. COMMUNICATION TECHNOLOGIES**

*Instructional programs that prepare individuals to function as equipment operators, support technicians, and operations managers in the film/video, recording, and graphic communications industries.*

#### **10.0105: Communications Technology**

A program that generally prepares individuals to function as workers and managers within communications industries. Includes instruction in business economics; basic management; principles of interpersonal and mediated communications; radio, television, and digital media production; and related aspects of technology and communications systems. (Vocational)

#### **10.0201: Photographic and Film/Video Technology/Technician**

A program that prepares individuals to apply technical knowledge and skills to the operation and maintenance of camera and lighting equipment and the production of finished still, video, and film products under the supervision of photographers, directors, and editors. Includes instruction in equipment setup and maintenance; lighting; power supplies; studio and film set tasks such as camera operator, grip, and best boy; plate and negative handling and development; laboratory procedures; and digital software applications. (Vocational)



### **10.0202: Radio and Television Broadcasting Technology/Technician**

A program that prepares individuals to apply technical knowledge and skills to the production of radio and television programs, and related operations, under the supervision of broadcast and studio managers, directors, editors, and producers. Includes instruction in sound, lighting, and camera operation and maintenance; power and feed control; studio operations; production preparation; broadcast engineering; related computer applications; and specialized applications such as news, entertainment, live talk, sports, commercials, and taping. (Vocational)

### **10.0203: Recording Arts Technology/Technician**

A program that prepares individuals to apply technical knowledge and skills to the production of sound recordings as finished products or as components of film/video, broadcast, live, or mixed media productions. Includes instruction in sound equipment operation and maintenance; music, dialogue, and sound effects recording; sound track editing; dubbing and mixing; sound engineering; tape, disk, and CD production; digital recording and transmission; amplification and modulation; and working with producers, editors, directors, artists, and production managers. (Vocational)

### **10.0303: Prepress/Desktop Publishing and Digital Imaging Design**

A program that prepares individuals to apply technical knowledge and skills to the layout, design, and typographic arrangement of printed and/or electronic graphic and textual products. Includes instruction in printing and lithographic equipment and operations; computer hardware and software; digital imaging; print preparation; page layout and design; desktop publishing; and applicable principles of graphic design and web page design. (Vocational)

### **10.0304: Animation, Interactive Technology, Video Graphics and Special Effects**

A program that prepares individuals to use computer applications and related visual and sound imaging techniques to manipulate images and information originating as film, video, still photographs, digital copy, soundtracks, and physical objects in order to communicate messages simulating real-world content. Includes instruction in specialized camerawork and equipment operation and maintenance, image capture, computer programming, dubbing, CAD applications, and applications to specific commercial, industrial, and entertainment needs. (Vocational)

### **10.0305: Graphic and Printing Equipment Operator, General Production**

A program that generally prepares individuals to apply technical knowledge and skills to plan, prepare, and execute a variety of commercial and industrial graphic communications jobs. Includes instruction in the operation and maintenance of mechanical, electronic, and digital graphic, printing, and finishing equipment; and related processes. (Vocational)

### **10.0306: Platemaker/Imager**

A program that prepares individuals to apply technical knowledge and skills to prepare film, digital data, and surfaces to reproduce printed or graphic images. Includes instruction in platemaking, stripping, camerawork, imposition, digital imaging, computer direct-to-plate and direct-to-press, and related processes. (Vocational)

### **10.0308: Computer Typography and Composition Equipment Operator**

A program that prepares individuals to apply technical knowledge and skills to design and execute page formats, layouts and text composition, and to make typographical selections using computer graphics and other computer-assisted design programs. (Vocational)

## **11. COMPUTER AND INFORMATION SCIENCES**

*Instructional programs that focus on the computer and information sciences and prepare individuals for various occupations in information technology and computer operations fields.*

### **11.0101: Computer and Information Sciences, General**

A general program that focuses on computing, computer science, and information science and systems. Such programs are undifferentiated as to title and content and are not to be confused with specific programs in computer science, information science, or related support services. (Academic)

### **11.0102: Artificial Intelligence**

A general program that focuses on computing, computer science, and information science and systems. Such programs are undifferentiated as to title and content and are not to be confused with specific programs in computer science, information science, or related support services. (Academic and Vocational)

### **11.0103: Information Technology**

A program that focuses on the design of technological information systems, including computing systems, as solutions to business and research data and communications support needs. Includes instruction in the principles of computer hardware and software components, algorithms, databases, telecommunications, user tactics, application testing, and human interface design. (Vocational)

### **11.0104: Informatics**

A program that focuses on computer systems from a user-centered perspective and studies the structure, behavior and interactions of natural and artificial systems that store, process and communicate information. Includes instruction in information sciences, human computer interaction, information system analysis and design, telecommunications structure and information architecture and management. (Academic)

### **11.0201: Computer Programming**

A program that focuses on the general writing and implementation of generic and customized programs to drive operating systems and that generally prepares individuals to apply the methods and procedures of software design and programming to software installation and maintenance. Includes instruction in software design, low- and high-level languages and program writing; program customization and linking; prototype testing; troubleshooting; and related aspects of operating systems and networks. (Academic and Vocational)

### **11.0202: Computer Programming, Specific Applications**

A program that prepares individuals to apply the knowledge and skills of general computer programming to the solution of specific operational problems and customization requirements

presented by individual software users and organizational users. Includes training in specific types of software and its installation and maintenance. (Vocational)

#### **11.0203: Computer Programming, Vendor/Product Certification**

A program that prepares individuals to fulfill the requirements set by vendors for professional qualifications as certified installation, customization, and maintenance engineers for specific software products and/or processes. Includes training in specific vendor supported software products and their installation and maintenance. (Vocational)

#### **11.0301: Data Processing**

A program that prepares individuals to master and use computer software programs and applications for inputting, verifying, organizing, storing, retrieving, transforming (changing, updating, and deleting), and extracting information. Includes instruction in using various operating system configurations and in types of data entry such as word processing, spreadsheets, calculators, management programs, design programs, database programs, and research programs. (Vocational)

#### **11.0401: Information Science**

A program that focuses on the theory, organization, and process of information collection, transmission, and utilization in traditional and electronic forms. Includes instruction in information classification and organization; information storage and processing; transmission, transfer, and signaling; communications and networking; systems planning and design; human interfacing and use analysis; database development; information policy analysis; and related aspects of hardware, software, economics, social factors, and capacity. (Academic)

#### **11.0501: Computer Systems Analysis**

A program that prepares individuals to apply computer programming and systems analysis principles to the selection, implementation, and troubleshooting of customized computer and software installations across the life cycle. Includes instruction in computer hardware and software; compilation, composition, execution, and operating systems; low- and high-level languages and language programming; programming and debugging techniques; installation and maintenance testing and documentation; process and data flow analysis; user needs analysis and documentation; cost-benefit analysis; and specification design. (Academic)

#### **11.0601: Microcomputer Applications, General**

A program that prepares individuals to use software applications using standard and customized software products. Includes instruction in keyboarding skills, personal computer and work station operation, reading draft texts and raw data forms, audio and tape dictation, and various software programs used for tasks such as word processing, spreadsheets, databases, and others. (Vocational)

#### **11.0602: Word Processing**

A program that prepares individuals to perform text typing, table construction, and document formatting tasks on personal computers at a high rate of accuracy and proficiency. Includes instruction in keyboarding skills, word processor operation, textual draft interpretation, audio and tape dictation, and specific word processing program software. (Vocational)

### **11.0701: Computer Science**

A program that focuses on computer theory, computing problems and solutions, and the design of computer systems and user interfaces from a scientific perspective. Includes instruction in the principles of computational science, computer development and programming, and applications to a variety of end-use situations. (Academic)

### **11.0801: Web Page, Digital/Multimedia and Information Resources Design**

A program that prepares individuals to apply HTML, XML, Javascript, graphics applications, and other authoring tools to the design, editing, and publishing (launching) of documents, images, graphics, sound, and multimedia products on the World Wide Web. Includes instruction in Internet theory; web page standards and policies; elements of web page design; user interfaces; vector tools; special effects; interactive and multimedia components; search engines; navigation; morphing; e-commerce tools; and emerging web technologies. (Vocational)

### **11.0802: Data Modeling/Warehousing and Database Administration**

A program that prepares individuals to design and manage the construction of databases and related software programs and applications, including the linking of individual data sets to create complex searchable databases (warehousing) and the use of analytical search tools (mining). Includes instruction in database machines; database management systems; data security; set theory and database design; data networks and related computer networking issues; and storage, retrieval, and searching systems. (Vocational)

### **11.0803: Computer Graphics**

A program that focuses on the software, hardware, and mathematical tools used to represent, display, and manipulate topological, two-, and three-dimensional objects on a computer screen and that prepares individuals to function as computer graphics specialists. Includes instruction in graphics software and systems; digital multimedia; graphic design; graphics devices, processors, and standards; attributes and transformations; projections; surface identification and rendering; color theory and application; and applicable geometry and algorithms. (Vocational)

### **11.0804: Modeling, Virtual Environments and Simulation**

A program focusing on the principles of applied visual simulation technology and the application of quantitative analyses to human-computer interaction. Includes instruction in object-oriented programming, artificial intelligence, computer communications and networks, computer graphics, virtual worlds and simulation systems, probability, statistics, stochastic modeling, data analysis, human-performance evaluation, and human-behavior modeling. (Vocational)

### **11.0901: Computer Systems Networking and Telecommunications**

A program that focuses on the design, implementation, and management of linked systems of computers, peripherals, and associated software to maximize efficiency and productivity, and that prepares individuals to function as network specialists and managers at various levels. Includes instruction in operating systems and applications; systems design and analysis; networking theory and solutions; types of networks; network management and control; network and flow optimization; security; configuring; and troubleshooting. (Vocational)

### **11.0902: Cloud Computing**

A program that prepares individuals to design and implement enterprise software systems that rely on distributed computing and service-oriented architecture, including databases, web services, cloud computing, and mobile apps. Includes instruction in data management, distributed and cloud computing, enterprise software architecture, enterprise and cloud security, mobile systems and applications, server administration, and web development. (Vocational)

### **11.1001: Network and System Administration**

A program that prepares individuals to manage the computer operations and control the system configurations emanating from a specific site or network hub. Includes instruction in computer hardware and software and applications; local area (LAN) and wide area (WAN) networking; principles of information systems security; disk space and traffic load monitoring; data backup; resource allocation; and setup and takedown procedures. (Vocational)

### **11.1002: System, Networking, and LAN/WAN Management**

A program that prepares individuals to oversee and regulate the computer system and performance requirements of an entire organization or network of satellite users. Includes instruction in performance balancing; redundancy; local area (LAN) and wide area (WAN) network management; system migration and upgrading; outage control; problem diagnosis and troubleshooting; and system maintenance budgeting and management. (Vocational)

### **11.1003: Computer and Information Systems Security/Auditing/Information Assurance**

A program that prepares individuals to assess the security needs of computer and network systems, recommend safeguard solutions, and manage the implementation, auditing, and maintenance of security devices, systems, and procedures. Includes instruction in computer architecture, programming, and systems analysis; networking; telecommunications; cryptography; security system auditing and design; applicable law and regulations; risk assessment and policy analysis; contingency planning; user access issues; investigation techniques; and troubleshooting. (Vocational)

### **11.1004: Web/Multimedia Management and Webmaster**

A program that prepares individuals to develop and maintain web servers and the hosted web pages at one or a group of web sites, and to function as designated webmasters. Includes instruction in computer systems and networks; server installation and maintenance; web page design and editing; information resources management; web policy and procedures; Internet applications of information systems security; user interfacing and usability research; and relevant management and communications skills. (Vocational)

### **11.1006: Computer Support Specialist**

A program that prepares individuals to provide technical assistance, support, and advice to computer users to help troubleshoot software and hardware problems. Includes instruction in computer concepts, information systems, networking, operating systems, computer hardware, the Internet, software applications, help desk concepts and problem solving, and principles of customer service. (Vocational)

## **12. CULINARY, ENTERTAINMENT, AND PERSONAL SERVICES**

*Instructional programs that prepare individuals to provide professional services related to cosmetology, funeral services, entertainment, and food preparation and service.*

### **12.0302: Funeral Direction/Service**

A program that prepares individuals for professional licensure as funeral directors and as managers of funeral homes, cemeteries, and related services. Includes instruction in the sociology of death and dying, psychology of grief and grief counseling, history of funeral service, funeral direction, business law, funeral service law, funeral home management, accounting and related computer operations, and funeral services marketing and merchandising. (Vocational)

### **12.0401: Cosmetology**

A program that generally prepares individuals to cut, trim, and style scalp, facial, and body hair; apply cosmetic preparations; perform manicures and pedicures; massage the head and extremities; and prepare for practice as licensed cosmetologist in specialized or full-service salons. Includes instruction in hair cutting and styling, manicuring, pedicuring, facial treatments, shampooing, chemical applications, esthetics, shop management, sanitation and safety, customer service, and applicable professional and labor laws and regulations. (Vocational)

### **12.0402: Barbering**

A program that prepares individuals to shave and trim facial/neck hair and beards, cut and dress hair, fit hairpieces, give facial and scalp massages, apply cosmetic treatments, and to prepare for licensure as professional barbers at various levels. Includes instruction in facial shaving; beard and mustache shaping and trimming; shampooing; hair cutting; hair styles and styling art; facial treatments and massage; chemical applications; hair and scalp anatomy and physiology; hairpiece and toupee fitting; equipment operation; health and safety; customer service; and shop business practices. (Vocational)

### **12.0407: Hair Styling/Stylist and Hair Design**

A program that prepares individuals to shampoo, cut, style, set, and dress the scalp hair of women and/or men, braid hair, apply hair cosmetics and wigs, and prepare for licensure as professional cosmetologists, hairdressers, and barbers at various levels. Includes instruction in hair design theory and concepts, hair cleaning and shampooing, hair coloring, chemical applications and permanent reconstructions, hair anatomy and physiology, scalp diseases and treatments, wig and hairpiece fitting, hair braiding, customer service, shop management, equipment operation, health and safety, and applicable laws and regulations. (Vocational)

### **12.0409: Aesthetician/Esthetician and Skin Care Specialist**

A program that prepares individuals to cleanse, depilate, massage, and beautify the human body and to function as licensed estheticians and skin care specialists. Includes instruction in skin anatomy, physiology, and health; principles of nutrition; decontamination and infection control; health and safety; facial and body massage; body wrapping and spa treatments; temporary hair removal including waxing and tweezing; color and skin analysis; client consultation and care; applicable laws and regulations; business practices; and sometimes related alternative healing regimens. (Vocational)



#### **12.0410: Nail Technician/Specialist and Manicurist**

A program that prepares individuals to shape fingernails and toenails, remove unwanted skin and blemishes, apply polish and cosmetics to nails, and function as licensed manicurists or nail technicians/specialists. Includes instruction in manicuring theory; skin anatomy; nail growth, irregularities, and diseases; sterilization and sanitation; equipment and table maintenance; cuticle, blemish, and rough skin removal; nail filing, shaping, and polishing; cream application and extremity massage; nail sculpture and design art; product storage and use; customer service; laws and regulations; and business practices. (Vocational)

#### **12.0412: Salon/Beauty Salon Management/Manager**

A program that prepares cosmetologists, hairstylists, and other personal grooming specialists to manage beauty parlors, shops, and full-service or specialized salons and to prepare for licensure as professional salon owners and operators. Includes instruction in cosmetic services marketing and retailing; advertising and promotion; salon management; the cosmetic and salon supply industries; hiring, supervision, and labor relations; applicable business and professional laws and regulations; professional standards and image; and customer service. (Vocational)

#### **12.0413: Cosmetology, Barber/Styling, and Nail Instructor**

A program that prepares cosmetologists, barbers, stylists, nail technicians, and other grooming specialists to teach their specializations in licensed and accredited schools of cosmetology and barbering, and to prepare for licensure as instructors. Includes instruction in cosmetology arts and sciences teaching principles; student learning styles; professional curricula development; instructional planning; instructional methods and aids; student counseling and career assistance; test development; and classroom/clinic management. (Vocational)

#### **12.0501: Baking and Pastry Arts/Baker/Pastry Chef**

A program that prepares individuals to serve as professional bakers and pastry specialists in restaurants or other commercial baking establishments. Includes instruction in bread and pastry making, bread and pastry handling and storage, cake and pastry decorating, baking industry operations, product packaging and marketing operations, and counter display and service. (Vocational)

#### **12.0503: Culinary Arts/Chef Training**

A program that prepares individuals to provide professional chef and related cooking services in restaurants and other commercial food establishments. Includes instruction in recipe and menu planning, preparing and cooking of foods, supervising and training kitchen assistants, the management of food supplies and kitchen resources, aesthetics of food presentation, and familiarity or mastery of a wide variety of cuisines and culinary techniques. (Vocational)

#### **12.0504: Restaurant, Culinary, and Catering Management**

A program that prepares individuals to plan, supervise, and manage food and beverage preparation and service operations, restaurant facilities, and catering services. Includes instruction in food/beverage industry operations, cost control, purchasing and storage, business administration, logistics, personnel management, culinary arts, restaurant and menu planning, executive chef

functions, event planning and management, health and safety, insurance, and applicable law and regulations. (Vocational)

#### **12.0505: Food Preparation/Professional Cooking/Kitchen Assistant**

A program that prepares individuals to serve under the supervision of chefs and other food service professionals as kitchen support staff and commercial food preparation workers. Includes instruction in kitchen organization and operations, sanitation, and quality control, basic food preparation and cooking skills, kitchen and kitchen equipment maintenance, and quantity food measurement and monitoring. (Vocational)

#### **12.0506: Meatcutter**

A program that prepares individuals to receive, cut, and package animal meat products in commercial establishments and to function as licensed meat cutters/butchers. Includes instruction in product recognition for beef, veal, lamb, pork, poultry, and fancy and smoked meats; retail and wholesale cutting and specialty cuts; packaging and counter display; shop safety; meat sanitation, storage, and rotation; quality control; meat handling laws and regulations; and customer service. (Vocational)

#### **12.0507: Waiter/Waitress and Dining Room Manager**

A program that prepares individuals to serve food to customers in formal or informal settings. Includes instruction in formal rules of serving etiquette, table and counter service, dining room operations and procedures, service personnel supervision and management, food and beverage preparation and presentation, communication skills, business math and procedures, and sanitation. (Vocational)

#### **12.0510: Wine Steward/Sommelier**

A program that prepares individuals to manage wine selection, purchasing, storage, sales, and service for a variety of establishments in the hospitality industry. Includes instruction in wine production, wine regions of the world, wine tasting, food and wine matching, service techniques, and wine program management. (Vocational)

### **13. EDUCATION**

*Instructional programs that focus on the theory and practice of learning and teaching, and related research, administrative, and support services.*

#### **13.0101: Education, General**

A program that focuses on the general theory and practice of learning and teaching; the basic principles of educational psychology; the art of teaching; the planning and administration of educational activities; and the social foundations of education. (Academic)

#### **13.0202: Multicultural Education**

A program that focuses on the design, and implementation of instructional and advising services for culturally diverse learning populations. Includes instruction in cultural diversity, at-risk populations, multilingual and ESL education, program and curriculum design, instructional technology, information resources, LEP and minority education strategies, counseling and communicating with



multicultural populations, law and regulations, and applications to specific cultural groups, educational services, and research issues. (Academic)

### **13.0301: Curriculum and Instruction**

A program that focuses on the curriculum and related instructional processes and tools, and that may prepare individuals to serve as professional curriculum specialists. Includes instruction in curriculum theory, curriculum design and planning, instructional material design and evaluation, curriculum evaluation, and applications to specific subject matter, programs or educational levels. (Academic)

### **13.0501: Educational/Instructional Technology**

A program that focuses on integrating technology into educational curricula. Includes instruction in foundations of educational technology, computer applications, utilizing technology for assessment, multimedia instruction, web-based instruction, distance education, and designing and producing educational software and materials. (Vocational)

### **13.1001: Special Education and Teaching, General**

A general program that focuses on the design and provision of teaching and other educational services to children or adults with special learning needs or disabilities, and that may prepare individuals to function as special education teachers. Includes instruction in diagnosing learning disabilities, developing individual education plans, teaching and supervising special education students, special education counseling, and applicable laws and policies. (Academic)

### **13.1015: Education/Teaching of Individuals in Early Childhood Special Education Programs**

A program that focuses on the design and provision of teaching and other educational services to infant and pre-school age children with special learning needs or disabilities, and that prepares individuals to teach such students. Includes instruction in diagnosing learning disabilities, developing individual education plans, teaching and supervising special education students, special education counseling, and applicable laws and policies. (Academic)

### **13.1201: Adult and Continuing Education and Teaching**

A program that prepares individuals to teach adult students in various settings, including basic and remedial education programs, continuing education programs, and program designed to develop or upgrade specific employment-related knowledge and skills. (Vocational)

### **13.1202: Elementary Education and Teaching**

A program that prepares individuals to teach students in the elementary grades, which may include kindergarten through grade eight, depending on the school system or state regulations. Includes preparation to teach all elementary education subject matter. (Academic)

### **13.1210: Early Childhood Education and Teaching**

A program that prepares individuals to teach students ranging in age from infancy through eight years (grade three), depending on the school system or state regulations. Includes preparation to teach all relevant subject matter. (Vocational)

**13.1311: Mathematics Teacher Education**

A program that prepares individuals to teach mathematics programs at various educational levels. (Academic)

**13.1314: Physical Education Teaching and Coaching**

A program that focuses on teaching physical education programs and/or coaching sports at various educational levels. (Academic)

**13.1316: Science Teacher Education/General Science Teacher Education**

A program that prepares individuals to teach general science programs, or a combination of the biological and physical science subject matter areas, at various educational levels. (Academic)

**13.1319: Professional-Technical Teacher Education**

A program that prepares individuals to teach specific vocational technical education programs at various educational levels. (Vocational)

**13.1320: Trade and Industrial Teacher Education**

A program that prepares individuals to teach specific vocational trades and industries programs at various educational levels. (Vocational)

**13.1322: Biology Teacher Education**

A program that prepares individuals to teach biology programs at various educational levels. (Academic)

**13.1323: Chemistry Teacher Education**

A program that prepares individuals to teach chemistry programs at various educational levels. (Academic)

**13.1329: Physics Teacher Education**

A program that prepares individuals to teach earth science programs at various educational levels. (Academic)

**13.1337: Earth Science Teacher Education**

A program that prepares individuals to teach physics programs at various educational levels. (Academic)

**13.1399: Teacher Education and Professional Development, Specific Subject Areas, Other**

Any instructional program in teacher education, specific academic and vocational programs not listed above. (Academic)

**13.1401: Teaching English as a Second/Foreign Language**

A program that focuses on the principles and practice of teaching English to students who are not proficient in it or who do not speak, read, and write English, and that may prepare individuals to function as teachers and administrators in such programs. (Academic)

### **13.1501: Teacher Assistant/Aide**

A program that prepares individuals to assist a teacher in regular classroom settings or in providing instruction and supervision to special student populations, such as bilingual/bicultural students, special education students, adult learners, and students learning English. Includes instruction in techniques of general classroom supervision, maintaining order, assisting with lessons and carrying out related assignments. (Vocational)

### **13.1502: Adult Literacy Tutor/Instructor**

A program that prepares individuals to serve as instructors and mentors for adults in basic or functional literacy programs in school, institutional, community, and private settings. (Vocational)

## **14. ENGINEERING**

*Instructional programs that prepare individuals to apply mathematical and scientific principles to the solution of practical problems for the benefit of society.*

### **14.0101: Engineering, General**

A program that generally prepares individuals to apply mathematical and scientific principles to solve a wide variety of practical problems in industry, social organization, public works, and commerce. Includes instruction in undifferentiated and individualized programs in engineering. (Academic)

### **14.0102: Pre-Engineering**

A program that prepares individuals for admission or transfer to a baccalaureate-level program in any of the fields of engineering. (Academic)

### **14.0501: Biomedical/Medical Engineering**

A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of biomedical and health systems and products such as integrated biomedical systems, instrumentation, medical information systems, artificial organs and prostheses, and health management and care delivery systems. (only approved for FA Prep Coursework plans)

### **14.0701: Chemical Engineering, General**

A program that prepares individuals to apply mathematical and scientific principles to the design, development, and operational evaluation of systems employing chemical processes, such as chemical reactors, kinetic systems, electrochemical systems, energy conservation processes, heat and mass transfer systems, and separation processes; the applied analysis of chemical problems such as corrosion, particle abrasion, energy loss, pollution, and fluid mechanics. (Academic)

#### **14.0801: Civil Engineering, General**

A program that generally prepares individuals to apply mathematical and scientific principles of design, development, and operational evaluation of structural, load-bearing, material moving, transportation, water resource, and material control systems; and environmental safety measures. (Academic)

#### **14.0901: Computer Engineering, General**

A program that generally prepares individuals to apply mathematical and scientific principles to the design, development, and operational evaluation of computer hardware and software systems and related equipment and facilities; and the analysis of specific problems of computer applications to various tasks. (Academic)

#### **14.1001: Electrical and Electronics Engineering**

A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of electrical and electronic systems and their components, including electrical power generation systems; and the analysis of problems such as superconductor, wave propagation, energy storage and retrieval, and reception and amplification. (Academic)

#### **14.1101: Engineering Mechanics**

A program with a general focus on the application of the mathematical and scientific principles of classical mechanics to the analysis and evaluation of the behavior of structures, forces and materials in engineering problems. Includes instruction in statics, kinetics, dynamics, kinematics, celestial mechanics, stress and failure, and electromagnetism. (Academic)

#### **14.1401: Environmental Health Engineering**

A program that prepares individuals to apply mathematical and scientific principles of design, development, and operational evaluation of systems for controlling contained living environments and for monitoring and controlling factors in the external natural environment, including pollution control, waste and hazardous material disposal, health and safety protection, conservation, life support, and requirements for protection of special materials and related work environments. (Academic)

#### **14.1801: Materials Engineering**

A program that prepares individuals to apply mathematical and materials science principles to the design, development and operational evaluation of materials and related processes used in manufacturing in a wide variety of settings; the synthesis of new industrial materials, including marrying and bonding composites; analysis of materials requirements and specifications; and related problems of system design dependent on materials factors. (Academic)

#### **14.1901: Mechanical Engineering**

A program that prepares individuals to apply mathematical and scientific principles of design, development and operational evaluation of physical systems used in manufacturing and end-product systems used for specific uses, including machine tools, jigs and other manufacturing equipment; stationary power units and appliances; engines; self-propelled vehicles; housings and containers;

hydraulic and electric systems for controlling movement; and the integration of computers and remote control with operating systems. (Academic)

## **15. ENGINEERING/ENGINEERING-RELATED TECHNOLOGIES/TECHNICIANS**

*Instructional programs that prepare individuals to apply basic engineering principles and technical skills in support of engineering and related projects or to prepare for engineering-related fields.*

### **15.0000: Engineering Technologies/Technicians, General**

A program that generally prepares individuals to apply basic engineering principles and technical skills in support of engineers engaged in a wide variety of projects. Includes instruction in various engineering support functions for research, production, and operations, and applications to specific engineering specialties, including civil, mechanical, electronic, architectural, chemical, and petroleum engineering. (Vocational)

### **15.0101: Architectural Engineering Technologies/Technicians**

A program that prepares individuals to apply basic engineering principles and technical skills in support of architects, engineers and planners engaged in designing and developing buildings, urban complexes, and related systems. Includes instruction in design testing procedures, building site analysis, model building and computer graphics, engineering drawing, structural systems testing, analysis of prototype mechanical and interior systems, test equipment operation and maintenance, and report preparation. (Vocational)

### **15.0201: Civil Engineering Technologies/Technicians**

A program that prepares individuals to apply basic engineering principles and technical skills in support of civil engineers engaged in designing and executing public works projects such as highways, dams, bridges, tunnels and other facilities. Includes instruction in site analysis, structural testing procedures, field and laboratory testing procedures, plan and specification preparation, test equipment operation and maintenance, and report preparation. (Vocational)

### **15.0303: Electrical, Electronic, and Communications Engineering Technology/Technician**

A program that prepares individuals to apply basic engineering principles and technical skills in support of electrical, electronics, and communications engineers. Includes instruction in electrical circuitry; prototype development and testing; systems analysis and testing, system maintenance, instrument calibration, and report preparation. (Vocational)

### **15.0304: Laser and Optical Technology/Technician**

A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing and using lasers and other optical for commercial or research purposes. Includes instruction in laser and optical principles, testing and maintenance procedures, safety precautions, specific applications to various tasks, and report preparation. (Vocational)

### **15.0305: Telecommunications Technology/Technician**

A program that prepares individuals to apply basic engineering principles and technical skills to help design and implement telecommunications systems. Includes instruction in communications

protocol, data networking, digital compression algorithms, digital signal processing, Internet access, object-oriented and relational databases, and programming languages. (Vocational)

#### **15.0401: Biomedical Technology**

A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers engaged in developing biological or medical systems and products. Includes instruction in instrumentation calibration, design and installation testing, system safety and maintenance procedures, procurement and installation procedures, and report preparation. (Vocational)

#### **15.0403: Electromechanical/Electromechanical Engineering Technology/Technician**

A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers engaged in developing and testing automated, servomechanical, and other electromechanical systems. Includes instruction in prototype testing, manufacturing and operational testing, systems analysis and maintenance procedures, and report preparation. (Vocational)

#### **15.0404: Instrumentation Technology**

A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers engaged in developing control and measurement systems and procedures. Includes instruction in instrumentation design and maintenance, calibration, design and production testing, and scheduling, automated equipment functions, applications to specific industrial tasks, and report preparation. (Vocational)

#### **15.0405: Robotics Technology**

A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing and using robots. Includes instruction in the principles of robotics, design and operational testing, system maintenance and repair procedures, robot computer systems and control language, specific system types and applications to specific industrial tasks, and report preparation. (Vocational)

#### **15.0406: Automation Engineer Technology/Technician**

A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing, installing, calibrating, modifying and maintaining automated systems. Includes instruction in computer systems; electronics and instrumentation; programmable logic controllers (PLCs); electric, hydraulic and pneumatic control systems; actuator and sensor systems; process control; robotics; applications to specific industrial tasks; and report preparation. (Vocational)

#### **15.0506: Water Quality and Wastewater Treatment Management and Recycling Technology**

A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing and using water storage, waterpower, and wastewater treatment systems. Includes instruction in water storage, power and/or treatment systems and equipment; testing and inspection procedures; system maintenance procedures; and report preparation. (Vocational)

#### **15.0507: Environmental Engineering Technology**

A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing and using indoor and outdoor environmental pollution control systems. Includes instruction in environmental safety principles, testing and sampling procedures, laboratory techniques, instrumentation calibration, safety and protection procedures, equipment maintenance, and report preparation. (Vocational)

#### **15.0508: Hazardous Materials Management and Waste Technology**

A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in identifying and disposing of hazardous materials. Includes instruction in environmental safety principles, biohazard identification, testing and sampling procedures, laboratory techniques, instrumentation calibration, hazardous waste disposal procedures and systems, safety and protection procedures, equipment maintenance, and report preparation. (Vocational)

#### **15.0607: Plastics and Polymer Engineering Technology**

A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing and using industrial polymers. Includes instruction in the principles of macromolecular chemistry, polymerization and plastic manufacturing processes and equipment, design and operational testing procedures, equipment maintenance and repair procedures, safety procedures, applications to specific products, and report preparation. (Vocational)

#### **15.0611: Metallurgical Technology**

A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and metallurgists engaged in developing and using industrial metals and manufacturing processes. Includes instruction in principles of metallurgy, related manufacturing systems, laboratory techniques, testing and inspection procedures, instrument calibration, system and equipment maintenance and repair, applications to specific processes, and report preparation. (Vocational)

#### **15.0612: Industrial Technology**

A program that prepares individuals to apply basic engineering principles and technical skills in support of industrial engineers and managers. Includes instruction in optimization theory, human factors, organizational behavior, industrial processes, industrial planning procedures, computer applications, and report and presentation preparation. (Vocational)

#### **15.0613: Manufacturing Engineering Technology**

A program that prepares individuals to apply basic engineering principles and technical skills to the identification and resolution of production problems in the manufacture of products. Includes instruction in machine operations, production line operations, engineering analysis, systems analysis, instrumentation, physical controls, automation, computer-aided manufacturing (CAM), manufacturing planning, quality control, and informational infrastructure. (Vocational)



### **15.0617: Composite Materials Technology/Technician**

A program of study that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in the development, manufacture, and use of composite materials in aircraft technology, automotive technology, boats, medical prostheses, and wind turbines. Includes instruction in computer-aided design and drafting, composite materials and processes, composite maintenance, composite manufacturing, composite repair, material science, and mold manufacturing and production. (Vocational)

### **15.0701: Occupational Safety and Health Technology**

A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in maintaining job-related health and safety standards. Includes instruction in safety engineering principles, inspection and monitoring procedures, testing and sampling procedures, laboratory techniques, applications to specific work environments, and report preparation. (Vocational)

### **15.0702: Quality Control Technology**

A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in maintaining consistent manufacturing and construction standards. Includes instruction in quality control systems management principles, technical standards applicable to specific engineering and manufacturing projects, testing procedures, inspection procedures, related instrumentation and equipment operation and maintenance, and report preparation. (Vocational)

### **15.0703: Industrial Safety Technology**

A program that prepares individuals to apply basic engineering principles and technical skills to assist engineers and other professionals in implementing and enforcing industrial safety standards. Includes instruction in industrial processes, industrial hygiene, injury prevention, toxicology, ergonomics, risk analysis, system and process safety, safety performance measurement, human factors, human behavior, and applicable laws and regulations. (Vocational)

### **15.0805: Mechanical Engineering Technology**

A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers engaged in the design and development phases of a wide variety of projects involving mechanical systems. Includes instruction in principles of mechanics, applications to specific engineering systems, design testing procedures, prototype and operational testing and inspection procedures, manufacturing system testing procedures, test equipment operation and maintenance, and report preparation. (Vocational)

### **15.1001: Construction Engineering Technology**

A program that prepares individuals to apply basic engineering principles and technical skills in support of engineering, engineering contractors, and other professionals engaged in the construction of buildings and related structures. Includes instruction in basic structural engineering principles and construction techniques, building site inspection, site supervision, construction personnel supervision, plan and specification interpretation, supply logistics and procurement, applicable building codes, and report preparation. (Vocational)



### **15.1102: Surveying Technology**

A program that prepares individuals to apply mathematical and scientific principles to the delineation, determination, planning, and positioning of land tracts, land and water boundaries, land contours and features; and the preparation of related maps, charts, and reports. Includes instruction in applied geodesy, computer graphics, photo-interpretation, plane and geodetic surveying, mensuration, traversing, survey equipment operation and maintenance, instrument calibration, and basic cartography. (Vocational)

### **15.1103: Hydraulics and Fluid Power Technology**

A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing and using fluid power and transportation systems. Includes instruction in fluid mechanics and hydraulics principles, fluid power systems, pipeline and pumping systems, design and operational testing, inspection and maintenance procedures, related instrumentation, and report preparation. (Vocational)

### **15.1201: Computer Engineering Technology**

A program that prepares individuals to apply basic engineering principles and technical skills in support of computer engineers engaged in designing and developing computer systems and installations. Includes instruction in computer electronics and programming, prototype development and testing, systems installation and testing, solid state and microminiature circuitry, peripheral equipment, and report preparation. (Vocational)

### **15.1202: Computer Technology/Computer Systems Technology**

A program that prepares individuals to apply basic engineering principles and technical skills in support of professionals who use computer systems. Includes instruction in basic computer design and architecture, programming, problems of specific computer applications, component and system maintenance and inspection procedures, hardware and software problem diagnosis and repair, and report preparation. (Vocational)

### **15.1203: Computer Hardware Technology**

A program that prepares individuals to apply basic engineering principles and technical skills to support to support engineers in designing computer hardware and peripheral systems. Includes instruction in computer system design, computer architecture, computer electronics, processors, peripherals, testing equipment, and computer manufacturing processes. (Vocational)

### **15.1204: Computer Software Technology**

A program that prepares individuals to apply basic engineering principles and technical skills to support engineers in developing, implementing, and evaluating computer software and program applications. Includes instruction in computer programming, programming languages, databases, user interfaces, networking and warehousing, encryption and security, software testing and evaluation, and customization. (Vocational)

### **15.1301: Drafting and Design Technology, General**

A program that prepares individuals to generally apply technical skills to create working drawings and computer simulations for a variety of applications. Includes instruction in specification

interpretation, dimensioning techniques, drafting calculations, material estimation, technical communications, computer applications, and interpersonal communications. (Vocational)

#### **15.1302: CAD/CADD Drafting and/or Design Technology**

A program that prepares individuals to apply technical skills and advanced computer software and hardware to the creation of graphic representations and simulations in support of engineering projects. Includes instruction in engineering graphics, two-dimensional and three-dimensional engineering design, solids modeling, engineering animation, computer-aided drafting (CAD), computer-aided design (CADD), and auto-CAD techniques. (Vocational)

#### **15.1303: Architectural Drafting and Architectural CAD/CADD**

A program that prepares individuals to apply technical knowledge and skills to develop working drawings and electronic simulations for architectural and related construction projects. Includes instruction in basic construction and structural design, architectural rendering, architectural-aided drafting (CAD), layout and designs, architectural blueprint interpretation, building materials, and basic structural wiring diagramming. (Vocational)

#### **15.1304: Civil Drafting and Civil Engineering CAD/CADD**

A program that prepares individuals to apply technical knowledge and skills to develop working drawing and electronic simulations in support of civil engineers, geological engineers, and related professionals. Includes instruction in basic civil engineering principles, geological and seismographic mapping, machine drafting, computer-aided drafting (CAD), pipe drafting, survey interpretation, and blueprint reading. (Vocational)

#### **15.1305: Electrical/Electronics Drafting and Electrical/Electronics CAD/CADD**

A program that prepares individuals to apply technical knowledge and skills to develop working schematics and representations in support of electrical/electronic engineers, computer engineers, and related professionals. Includes instruction in basic electronics, electrical systems and computer layouts; electrode-mechanical drafting; manufacturing circuitry; computer-aided drafting (CAD); and electrical systems specification interpretation. (Vocational)

#### **15.1306: Mechanical Drafting and Mechanical Drafting CAD/CADD**

A program that prepares individuals to apply technical knowledge and skills to develop working drawings and electronic simulations in support of mechanical and industrial engineers, and related professionals. Includes instruction in manufacturing materials and processes, mechanical drafting, electrode-mechanical drafting, basic metallurgy, geometric dimensioning and tolerancing, blueprint reading and technical communication. (Vocational)

#### **15.1401: Nuclear Engineering Technology**

A program that prepares individuals to apply basic engineering, knowledge, and technical skills in support of engineers and other professionals operating nuclear facilities and engaged in nuclear applications and safety procedures. Includes instruction in physics, nuclear science, nuclear systems, nuclear plant and systems design, radiological safety, radiological applications, and applicable laws and regulations. (Vocational)

### **15.1601: Nanotechnology**

A program that prepares individuals to apply mathematical, scientific, and engineering principles and technical skills to manipulate matter at the atomic and molecular level (in the range of 1-100 nanometers) and to design, fabricate, and integrate nanoscale structures, devices, and systems. Includes instruction in materials science, thermodynamics, nanomaterials, nanoelectronics, and nano/micro device fabrication and testing. (Vocational)

### **15.1701: Energy Systems Technology/Technician (moved from 15.0503)**

A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing energy-efficient systems or monitoring energy use. Includes instruction in principles of energy conservation, instrumentation calibration, monitoring systems and test procedures, energy loss inspection procedures, energy conservation techniques, and report preparation. (Vocational)

### **15.1703: Solar Energy Technology/Technician**

A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing solar-powered energy systems. Includes instruction in solar energy principles, energy storage and transfer technologies, testing and inspection procedures, system maintenance procedures, and report preparation. (Vocational)

## **16. FOREIGN LANGUAGES AND LITERATURES**

*Instructional programs that focus on foreign languages and literatures, the humanistic and scientific study of linguistics, and the provision of professional interpretation and translation services.*

### **16.0101: Foreign Languages and Literatures, General**

A general program that focuses on one or more modern foreign languages that is not specific as to the name of the language(s) studied; that is otherwise undifferentiated; or that introduces students to language studies at the basic/elementary level. (Academic)

### **16.0102: Linguistics**

A program that focuses on language, language development, and relationships among languages and language groups from a humanistic and/or scientific perspective. Includes instruction in subjects such as psycholinguistics, behavioral linguistics, language acquisition, sociolinguistics, mathematical and computational linguistics, grammatical theory and theoretical linguistics, philosophical linguistics, philology and historical linguistics, comparative linguistics, phonetics, phonemics, dialectology, semantics, functional grammar and linguistics, language typology, lexicography, morphology and syntax, orthography, stylistics, structuralism, rhetoric, and applications to artificial intelligence. (Academic)

### **16.0103: Language Interpretation and Translation**

A program that prepares individuals to be professional interpreters and/or translators of documents and data files, either from English or (Canadian) French into another language or languages or vice versa. Includes intensive instruction in one or more foreign languages plus instruction in subjects such as single- and multiple-language interpretation, one- or two-way interpretation, simultaneous

interpretation, general and literary translation, business translation, technical translation, and other specific applications of linguistic skills. (Vocational)

#### **16.0104: Comparative Literature**

A program that focuses on two or more literary traditions in the original languages or in translations. Includes instruction in comparative linguistics; applicable foreign languages; English/French language and literature; literary criticism; and applications genre, period, national and textual studies as well as literary forms such as poetry, prose, and drama. (Academic)

#### **16.0201: African Languages, Literatures, and Linguistics**

A program that focuses on one or more of the languages native to the African continent, including, but not limited to, Bantu languages, Nilo-Saharan languages, Niger-Congo languages, Khoisan languages, and the Chadic and Ethiopic languages of the Hamito-Semitic language family. Includes instruction in philology, dialects, and oral and written literatures. (Academic)

#### **16.0301: Chinese Language and Literature**

A program that focuses on the Chinese language and its associated dialects and literature. Includes instruction in Chinese philology, Archaic and Classical Chinese, Modern Standard Chinese, Mandarin, Cantonese, Taiwanese, Wu, Min, Hunanese, Hakka, other dialects and pidgins, and applications to business, science/technology, and other settings. (Academic)

#### **16.0302: Japanese Language and Literature**

A program focuses on the Japanese language. Includes instruction in Japanese philology; Ancient, Medieval, and Modern Japanese; Japanese dialects; and applications to business, science/technology, and other settings. (Academic)

#### **16.0303: Korean Language and Literature**

A program focuses on the Korean language. Includes instruction in Korean philology; Pre-Modern and Modern Korean; Korean dialects; and applications to business, science/technology; and other settings. (Academic)

#### **16.0399: East Asian Languages, Literatures, and Linguistics, Other**

Any instructional program in East Asian languages, literatures, and linguistics not listed above, including such languages as Tibetan, Formosan, Miao, Yuan, Manchu, Ainu, and others. (Academic)

#### **16.0401: Baltic Languages, Literatures, and Linguistics**

A program that focuses on the languages of the Baltic peoples, including, but not limited to, the modern languages of Latvian and Lithuanian, and extinct languages such as Old Prussian and Curonian. Includes instruction in philology; literature; and applications to business, science/technology, and other settings. (Academic)

#### **16.0402: Russian Language and Literature**

A program that focuses on the Russian philology, Old Russian, Modern Russian and dialects, literature, and applications to business, science/technology, and other settings. (Academic)

**16.0499: Slavic, Baltic, and Albanian Languages, Literatures, and Linguistics, Other**

A program that focuses on the Slavic languages, literatures, and linguistics not listed above, including such languages as Albanian, Bulgarian, Czech, Polish, Serbian, Slovak, Ukrainian, Lusatian, Kashubian, Macedonian, Slovenian, Belarussina, Old Church Slavonic, and others. (Academic)

**16.0501: German Language and Literature**

A program that focuses on the German language and related dialects. Includes instruction in philology; dialects; and applications to business, science/technology, and other settings. (Academic)

**16.0502: Scandinavian Languages, Literatures, and Linguistics**

A program that focuses on one or more of the languages, literatures, and linguistics of the peoples of Scandinavia and associated Northern European island groups. Programs may involve multiple languages and language families, not be specific as to the name of the language(s) studied, or be otherwise undifferentiated. (Academic)

**16.0599: Germanic Languages, Literatures, and Linguistics, Other**

Any instructional program in Germanic languages, literatures, and linguistics not described above, including languages such as Danish, Dutch/Flemish, Norwegian, Swedish, Old Saxon, Gothic, Frisian, Luxembourgish, Yiddish, Afrikaans, Icelandic, Old Norse, and Faeroese. (Academic)

**16.0601: Modern Greek Language and Literature**

A program that focuses on the development and use of the Greek language in the period dating from the late 15th century to the present. Includes instruction in modern Greek language, current Greek dialects, and applications to business, science/technology, and other settings. (Academic)

**16.0799: South Asian Languages, Literatures, and Linguistics**

Any instructional program in South Asian languages, literatures, and linguistics, including such languages as Hindi, Sanskrit and classical Indian languages, Bengali, Punjabi, Tamil, Urdu, Bihari, Marathi, Gujarati, Rajasthani, Oriya, Nepalese, Singhalese, Assamese, Sindhi, Romany, Telugu, Kannada, Malayalam, and others; and applications of these languages in business, science/technology, and other settings. (Academic)

**16.0801: Iranian Languages, Literatures, and Linguistics**

A program that focuses on the languages used in ancient, medieval, and modern Iran and its border regions, including modern Persian, Avestan/Old Persian, and related modern and extinct languages. Includes instruction in applications of modern Persian and other languages in business, science/technology, and other settings. (Academic)

**16.0901: French Language and Literature**

A program that focuses on the French language and related dialects and Creoles. Includes instruction in French philology, Metropolitan French, Canadian French, African and Caribbean Creoles, French regional dialects, and applications in business, science/technology, and other settings. (Academic)

**16.0902: Italian Language and Literature**

A program that focuses on the Italian language and related dialects. Includes instruction in Italian philology, Modern Italian, Italian regional dialects, and applications in business, science/technology, and other settings. (Academic)

**16.0905: Spanish Language and Literature**

A program that focuses on Spanish language and related dialects. Includes instruction in Spanish philology, Modern Castilian, various Latin American dialects, regional Spanish dialects, and applications in business, science/technology, and other settings. (Academic)

**16.0908: Hispanic and Latin American Language, Literature, and Linguistics**

A program that focuses on the languages and literatures of the Spanish- and Portuguese-speaking areas of the world, including the Iberian, Latin American, and Lusophone worlds. Includes instruction in Spanish and Portuguese language and linguistics; regional and Latin American dialects; and Spanish, Portuguese, Spanish American, Luso-Brazilian, and Chicano literature. (Academic)

**16.0999: Romance Languages, Literatures, and Linguistics, Other**

Any instructional program in Romance languages, literatures, and linguistics not described above, such as Portuguese, Romanian, Catalan, Rhaeto-Romansch, Friulian, Galician, Sardinian, Provençal/Langue d'Oc, and others. (Academic)

**16.1001: American Indian/Native American Languages, Literatures, and Linguistics**

A program that focuses on one or more of the languages native to the Western Hemisphere, with an emphasis on American Indian languages, but including other Native American languages. Includes instruction in philology; oral and written literatures; Inuit and Aleut languages; Hawaiian; North American language families, including, but not limited to, Algonkian, Athabaskan, Siouan, Muskogean, Iroquoian, Yuman, Mayan, Zapotecan, and Uto-Aztecan; South American language families, including, but not limited to, Andean-Equatorial, Ge-Pano-Carib, and Macro-Chibchan; and other minor languages. (Academic)

**16.1101: Arabic Language and Literature**

A program that focuses on the Arabic language. Includes instruction in philology; Classical Arabic; Modern Standard Arabic; dialects; and applications to business, science/technology, and other settings. (Academic)

**16.1102: Hebrew Language and Literature**

A program that focuses on the Hebrew language. Includes instruction in philology; Biblical Hebrew (including Pre- and Post-Exilic scripts); Modern Hebrew; dialects; and applications to business, science/technology, and other settings. (Academic)

**16.1199: Middle/Near Eastern and Semitic Languages, Literatures, and Linguistics, Other**

Any instructional program Middle/Near Eastern and Semitic languages, literatures, and linguistics not listed above, including such languages as Maltese, the Berber languages, Modern Assyrian, and the Cushitic languages. (Academic)



### **16.1200: Classics and Classical Languages, Literatures, and Linguistics, General**

A general program that focuses on the literary culture of the ancient Greco-Roman world and the Greek and Latin languages and literatures and their development prior to the fall of the Roman Empire. (Academic)

### **16.1301: Celtic Languages, Literatures, and Linguistics**

A program that focuses on the historical and modern languages spoken by the Celtic peoples of the British Isles, Continental Europe, and Asia Minor, including, but not limited to, modern languages such as Irish, Scots Gaelic, Welsh, and Breton; and extinct or revived languages such as Cornish, Manx, Galatian, and others. Includes instruction in philology; linguistics; dialects and pidgins; literature; and applications to business, science/technology, and other settings. (Academic)

### **16.1400: Southeast Asian Languages, Literatures, and Linguistics, General**

A general program that focuses on one or more of the modern languages spoken in mainland Southeast Asia and the Indonesian and Philippines Archipelagoes, including, but not limited to, members of the Thai, Tibeto-Burman, and Malayo-Polynesian language families. (Academic)

### **16.1599: Turkic, Ural-Altaic, Caucasian, and Central Asian Languages, Literatures, and Linguistics**

Any instructional program in the Turkic, Caucasian, and Central Asian languages, literatures, and linguistics including languages such as Turkish, Finnish, Hungarian/Magyar, Mongolian, Altaic, Armenian, Avaric, Azeri, Chechen-Ingushetian, Bashkir, Georgian, Kazakh, Kirghiz, Tatar, Turkmen, Uighur, Uzbek, and others; and applications to business, science/technology, and other settings. (Academic)

### **16.1601: American Sign Language (ASL)**

A program that focuses on American Sign Language as a visual and motor medium of communication and discourse for deaf individuals and deaf culture. Includes instruction in the development of ASL, ASL morphology and syntax, signing techniques, English translation of ASL, formal and colloquial ASL, and ASL transcription. (Academic)

### **16.1603: Sign Language Interpretation and Translation**

A program that prepares individuals to function as simultaneous interpreters of American Sign Language (ASL) and other sign language systems employed to assist the hearing impaired, both one-way and two-way. Includes instruction in American Sign Language (ASL), alternative sign languages, finger spelling, vocabulary and expressive nuances, oral and physical translation skills, cross-cultural communications, slang and colloquialisms, and technical interpretation. (Vocational)

### **16.1701: English as a Second Language (Academic)**

A program that focuses on the development of proficiency in reading, writing, and speaking English for those for whom English is not their mother tongue. Includes instruction in the use of basic communication skills to develop and transmit ideas and thoughts in English as well as specialized programs that focus on the development of proficiency in English sufficient to meet specific occupational or academic demands. Note: These programs are for academic credit towards a postsecondary credential. (Academic)

## **16.9999: Foreign Languages, Literature, and Linguistics, Other**

Any instructional program in foreign languages, literatures, and linguistics not listed above.  
(Vocational)

## **19. FAMILY AND CONSUMER SCIENCES/HUMAN SCIENCES**

*Instructional programs that focus on the human interface with the physical, social, emotional, and intellectual environments and the developmental stages and needs of individuals in the interrelated spheres of family, workplace, and community.*

### **19.0101: Family and Consumer Sciences/Human Sciences, General**

A general program, at the college and university level, that focuses on family and consumer sciences, including how individuals develop and function in family, work, and community settings and how they relate to their physical, social, emotional, and intellectual environments. (Academic)

### **19.0201: Business Family and Consumer Sciences/Human Sciences**

A program that focuses on the relationship between the economy and the consuming individual and family. Includes instruction in consumption theory and practice, the production and distribution of retail goods and services, and the management of business enterprises. (Academic)

### **19.0401: Family Resource Management Studies, General**

A general program that focuses on the design and implementation of policies and processes contributing to successful individual and family resource management. Includes instruction in financial goal-setting and strategies; household income, assets, and debt management; preventing and resolving financial difficulties; and the use of relevant public resources. (Academic)

### **19.0501: Foods, Nutrition, and Wellness Studies, General**

A general program that focuses on the study of the role of food and nutrition in human health and wellness. Includes instruction in nutritional care and education, the planning and provision of food services, the development of consumable food products, life-span nutrition and wellness, the principles of nutritional assessment, and food safety and food composition. (Academic)

### **19.0601: Housing and Human Environments, General**

A general program that focuses on the behavioral, social, economic, functional, and aesthetic aspects of housing, interiors, and other built environments. Includes instruction in analyzing, planning, designing, furnishing, and equipping residential, work, and leisure spaces to meet user needs and the study of related public policies. (Academic)

### **19.0701: Human Development and Family Studies, General**

A general program that focuses on basic human developmental and behavioral characteristics of the individual within the context of the family. Includes instruction in the conditions that influence human growth and development; strategies that promote growth and development across the life span; and the study of family systems and stages. (Vocational)



### **19.0706: Child Development**

A program that focuses on the intellectual, social, emotional, and biological development of children and the planning and design of related human services. Includes instruction in parent-child relations; parenting practices; special needs of children; parental and environmental influences on child development; external support services; and related public policy issues. (Vocational)

### **19.0707: Family and Community Services**

A program that focuses on the development and implementation of public, private, and voluntary support services for individuals, families, and localities and that prepares individuals to function in a variety of occupations promoting family life, and family/community development. Includes instruction in family systems, human development, social services, community social and economic development, social policy, voluntary sector activities, and outreach and community education. (Vocational)

### **19.0708: Child Care and Support Services Management**

A program that focuses on the provision and management of child care services and that prepares individuals to plan, design, and manage child care facilities and programs that meet children's developmental needs and interests and that provide safe and healthy environments. Includes instruction in child development and psychology; home- and institution-based child care; identification of diseases, injuries, and psychological trauma and applicable referrals; parent relations; personnel and business management principles; and related laws and policies. (Academic)

### **19.0709: Child Care Provider/Assistant**

A program that prepares individuals to be primary providers of home, family, residential, or institutional-based child care services. Includes instruction in child growth and development; nutrition; recreation; planning and supervision of play and learning activities; child abuse and neglect prevention; parent-child relationships; and applicable legal and administrative requirements. (Vocational)

### **19.0901: Apparel and Textiles**

A program that focuses on the design, development, and production of textile products and related processes and systems. Includes instruction in functional and aesthetic design, human factors research, production planning, manufacturing processes, quality assessment, and distribution systems. (Academic)

### **19.0902: Apparel and Textile Manufacture**

A general program that focuses on the development of textile products and their distribution and use in terms of psychological, social, economic, and physical needs of consumers. Includes instruction in the production, distribution, marketing, and end use of various apparel and textile products. (Vocational)

### **19.0905: Apparel and Textile Marketing Management**

A program that focuses on marketing research and management as applied to the products and services of the apparel and textile industries. Includes instruction in applicable principles of textile and apparel design and manufacturing, sales and distribution systems, domestic and international

market research, profitability, consumer research, and the design and implementation of marketing campaigns. (Vocational)

### **19.1001: Work and Family Studies (moved from 19.0000)**

An introductory program that focuses on family and consumer science concepts and principles at the basic and vocational levels, and the various potential career paths open to interested students. Includes instruction in career, community, and family connections; family and family/consumer resources; human development; interpersonal relationships; nutrition and wellness; parenting; and career possibilities in various related areas. (Academic)

## **22. LAW AND LEGAL STUDIES**

*Instructional programs that prepare individuals for the legal profession, for related support professions and professional legal research, and focus on the study of legal issues in non-professional programs.*

### **22.0301: Legal Administrative Assistant/Secretary**

A program that prepares individuals to serve as legal office managers, special assistants, and legal secretaries. Includes instruction in office management, secretarial science, principles of U.S. law, legal terminology and documentation, legal research, legal software applications, law office procedures, record-keeping, billing, applicable policies and regulations, and professional standards and ethics. (Vocational)

### **22.0302: Legal Assistant/Paralegal**

A program that prepares individuals to perform research, drafting, investigatory, record-keeping and related administrative functions under the supervision of an attorney or court. Includes instruction in legal research, drafting legal documents, appraising, pleading, courthouse procedures and legal specializations. (Vocational)

### **22.0303: Court Reporting and Captioning/Court Reporter**

A program that prepares individuals to record and transcribe examinations, testimony, judicial orders and instructions, legal opinions, and other formal proceedings via print or electronic methods. Includes instruction in legal terminology, legal transcription, shorthand, verbatim recording, equipment operation and procedures, applicable regulations, and professional standards and ethics. (Vocational)

## **23. ENGLISH LANGUAGE AND LITERATURE/LETTERS**

*Instructional programs that focus on the structure and use of the English language and dialects, speech, writing, and various aspects of the literatures and cultures of the English-speaking peoples.*

### **23.0101: English Language and Literature, General**

A general program that focuses on the English language, including its history, structure and related communications skills; and the literature and culture of English-speaking peoples. (Academic)

### **23.1301: Writing, General**

A program that focuses on writing for applied and liberal arts purposes. Includes instruction in writing and document design in multiple genres, modes, and media; writing technologies; research, evaluation, and use of information; editing and publishing; theories and processes of composing; rhetorical theories, traditions, and analysis; communication across audiences, contexts, and cultures; and practical applications for professional, technical, organizational, academic, and public settings. (Academic)

### **23.1302: Creative Writing**

A program that focuses on the process and techniques of original composition in various literary forms such as the short story, poetry, the novel, and others. Includes instruction in technical and editorial skills, criticism, and the marketing of finished manuscripts. (Academic)

### **23.1303: Professional, Technical, Business, and Scientific Writing**

A program that focuses on professional, technical, business, and scientific writing; and that prepares individuals for academic positions or for professional careers as writers, editors, researchers, and related careers in business, government, non-profits, and the professions. Includes instruction in theories of rhetoric, writing, and digital literacy; document design, production, and management; visual rhetoric and multimedia composition; documentation development; usability testing; web writing; and publishing in print and electronic media. (Academic and Vocational)

### **23.1401: General Literature**

A program that focuses on literature from one or more genres, cultures or traditions. Includes instruction in period and genre studies, author studies, literary criticism, and studies of various types of literary text. (Academic)

### **23.1402: American Literature (United States)**

A program that focuses on the literature and literary development, both formal and folkloric, of the United States from the Colonial Era to the present. Includes instruction in period and genre studies, author studies, literary criticism, and regional and oral traditions. (Academic)

### **23.1404: English Literature (British and Commonwealth)**

A program that focuses on the literatures and literary developments of the English-speaking peoples of the British Isles and the British Commonwealth, from the origins of the English language to the present. Includes instruction in period and genre studies, author studies, country and regional specializations, literary criticism, and the study of folkloric traditions. (Academic)

## **24. LIBERAL ARTS AND SCIENCES, GENERAL STUDIES AND HUMANITIES**

*A group of general instructional programs and independent or individualized studies in the liberal arts subjects, the humanities disciplines, and the general curriculum.*

### **24.0101: Liberal Arts and Sciences/Liberal Studies**

A program that is a structured combination of the arts, biological and physical sciences, social sciences, and humanities, emphasizing breadth of study. Includes instruction in independently designed, individualized, or regular programs. (Academic)

### **24.0102: General Studies**

An undifferentiated program in traditional and/or continuing/distance education formats for adult or traditional postsecondary students, including general arts, general science, or unstructured studies. (Academic)

### **24.0103: Humanities/Humanistic Studies**

A program that focuses on combined studies and research in the humanities subjects as distinguished from the social and physical sciences, emphasizing languages, literatures, art, music, philosophy and religion. (Academic)

## **25. LIBRARY SCIENCE**

*Instructional programs that focus on the knowledge and skills required for managing and/or maintaining libraries and related information and record systems, collections, and facilities for research and general use.*

### **25.0101: Library and Information Science**

A program that focuses on the knowledge and skills required to develop, organize, store, retrieve, administer, and facilitate the use of local, remote, and networked collections of information in print, audiovisual, and electronic formats and that prepares individuals for professional service as librarians and information consultants. (Academic)

### **25.0103: Archives/Archival Administration**

A program that prepares individuals to identify, manage, preserve, and make available records with long-term value for documentation, legal, research, and other purposes. Includes instruction in appraisal and collection development, information and records management, archival preservation, access systems, management of electronic records, archival outreach, and legal and ethical issues. (Vocational)

### **25.0301: Library Assistant and Archives Assisting**

A program that prepares individuals to assist professional librarians and archivists. Includes instruction in principles, systems, processes, and procedures of library and archive operation; library resources and services; processes of acquisition, cataloging, storage, and display systems; discovery and retrieval of requested materials; and management of books, periodicals, and other documents and records. (Vocational)

## **26. BIOLOGICAL SCIENCES/LIFE SCIENCES**

*Instructional programs that focus on the biological sciences and the non-clinical biomedical sciences, and that prepare individuals for research and professional careers as biologists and biomedical scientists.*

### **26.0101: Biology, General**

A general program of biology at the introductory, basic level or a program in biology or the biological sciences that is undifferentiated as to title or content. Includes instruction in general biology and programs covering a variety of biological specializations. (Academic)

### **26.0102: Biomedical Sciences, General**

A general program of biology at the introductory, basic level or a program in biology or the biological sciences that is undifferentiated as to title or content. Includes instruction in general biology and programs covering a variety of biological specializations. (only approved for FA Prep Coursework plans)

### **26.0210: Biochemistry and Molecular Biology**

A program of study that combines the biological sub-disciplines of biochemistry and molecular biology. Includes instruction in general biology, general and organic chemistry, physics, biochemistry, molecular biology, immunology, microbiology, genetics, and cellular biology. (Vocational)

### **26.0301: Botany/Plant Biology**

A program that focuses on the scientific study of plants, related microbial organisms, and plant habitats and ecosystem relations. Includes instruction in plant anatomy and structure, phytochemistry, cytology, plant genetics, plant morphology and physiology, plant ecology, plant taxonomy and systematics, paleobotany, and applications of biophysics and molecular biology. (Academic)

### **26.0401: Cell/Cellular Biology and Histology**

A program that focuses on the scientific study of the structure, function, and regulation of cells as individual units and as components of larger systems. Includes instruction in cell chemistry, cellular dynamics, cellular replication and reproduction, cell anatomy, membrane function, organelles, cell adhesion and extracellular matrices, cell dynamics and motility, meiosis and mitosis, signal transduction, regulation, recognition and defense mechanisms, the cell cycle, cell metabolism and respiration, gene expression, and studies of cell types and characteristics. (Academic)

### **26.0403: Anatomy**

A program that focuses on the scientific study of organ systems, tissue structures, and whole bodies together with their cellular and structural components and dynamics. Includes instruction in cell biology and histology, structural biology, molecular mechanics, regional and gross anatomy, embryology, neuroanatomy, endocrinology and secretory dynamics, and application of such topics as aging and disease conditions. (Academic)

### **26.0503: Medical Microbiology and Bacteriology**

A program that focuses on the scientific study of pathogenic bacteria that are significant factors in causing or facilitating human disease. Includes instruction in the pathogenesis of bacterial diseases, bacterial genetics and physiology, bacterial anatomy and structure, antigens, bacterial reproduction, bacterial adhesion, phagocytes, and the identification of new or mutated bacteria and bacterial agents. (Academic)

### **26.0701: Zoology/Animal Biology**

A program that focuses on the scientific study of the biology of animal species and phyla, with reference to their molecular and cellular systems, anatomy, physiology, and behavior. Includes instruction in molecular and cell biology, microbiology, anatomy and physiology, ecology and behavior, evolutionary biology, and applications to specific species and phyla. (Academic)

### **26.0804: Animal Genetics**

A program that focuses on the scientific study of the genetics of multicellular animal life forms from the experimental, comparative, and clinical (veterinary and medical) viewpoints. Includes instruction in molecular genetics, gene expression, gene regulation, genomics, epigenetic phenomena, DNA recombination and repair, genetic interactions at the microbial and higher levels, and molecular evolution. (Academic)

### **26.0805: Plant Genetics**

A program that focuses on the scientific study of the genetics of multicellular plants and fungi as related to botanical research as well as to applications in comparative genetics, ecology and evolutionary studies, clinical studies, and industrial research. Includes instruction in molecular genetics, gene expression, gene regulation, genomics, epigenetic phenomena, DNA recombination and repair, genetic interactions at the microbial and higher levels, and molecular evolution. (Academic)

### **26.1301: Ecology**

A program that focuses on the scientific study of the relationships and interactions of small-scale biological systems, such as organisms, to each other, to complex and whole systems, and to the physical and other non-biological aspects of their environments. Includes instruction in biogeochemistry; landscape and/or marine/aquatic dynamics; decomposition; global and regional elemental budgets; biotic and abiotic regulation of nutrient cycles; ecophysiology; ecosystem resilience, disturbance, and succession; community and habitat dynamics; organismal interactions (co-evolution, competition, predation); paleoecology, and evolutionary ecology. (Academic)

### **26.1302: Marine Biology and Biological Oceanography**

A program that focuses on the scientific study of the ecology and behavior of microbes, plants, and animals inhabiting oceans, coastal waters, and saltwater wetlands and their interactions with the physical environment. Includes instruction in chemical, physical, and geological oceanography; molecular, cellular, and biochemical studies; marine microbiology; marine botany; ichthyology; mammalogy; marine population dynamics and biodiversity; reproductive biology; studies of specific species, phyla, habitats, and ecosystems; marine paleoecology and paleontology; and applications to fields such as fisheries science and biotechnology. (Academic)

### **26.1399: Ecology, Evolution, Systematics and Population Biology, Other**

Any instructional program in ecology, evolution, and systematics not listed above. (Academic)

## **27. MATHEMATICS**

*Instructional programs that focus on the systematic study of logical symbolic language and its applications.*

### **27.0101: Mathematics, General**

A program that focuses on the rigorous analysis of quantities, magnitudes, forms, and their relationships, using symbolic logic and language. Includes instruction in algebra, calculus, functional analysis, geometry, number theory, logic, topology and other mathematical specializations. (Academic)

### **27.0102: Algebra and Number Theory**

A program that focuses on the expression of quantities and their relationships by means of symbols, vectors, matrices, and equations, and the properties of integers. Includes instruction in algebraic structures, quadratic and automorphic forms, combinatorics, linear algebra, and algebraic geometry. This code applies to college-level algebra. Use CIP 33.0101 for all pre-college level math courses. (Academic)

### **27.0103: Analysis and Functional Analysis**

A program that focuses on the properties and behavior of equations, multivariate solutions, functions, and dynamic systems. Includes instruction in differential equations, variation, and approximations, complex variables, integrals, harmonic analysis and wavelet theory, dynamic systems, and applications to mathematical physics. (Academic)

### **27.0104: Geometry/Geometric Analysis**

A program that focuses on the properties, measurements, and relationships pertaining to points, lines, angles, surfaces, and solids. Includes instruction in global analysis, differential geometry, Euclidian and non-Euclidian geometry, set theory, manifolds, integral geometry, and applications to algebra and other topics. (Academic)

### **27.0105: Topology and Foundations**

A program that focuses on the properties of unaltered geometric configurations under conditions of continuous, multi-directional transformations. Includes instruction in mathematical logic, proof theory, model theory, set theory, combinatorics, continua, homotopy, links, and transformation actions. (Academic)

### **27.0301: Applied Mathematics, General**

A program that focuses on the application of mathematics and statistics to the solution of functional problems in fields such as engineering and the applied sciences. Includes instruction in natural phenomena modeling continuum mechanics, reaction-diffusion, wave propagation, dynamic systems, numerical analysis, controlled theory, asymptotic methods, variation, optimization theory, inverse problems, and applications to specific scientific and industrial topics. (Academic)

### **27.0303: Computational Mathematics**

A program that focuses on the application of mathematics to the theory, architecture, and design of computers, computational techniques, and algorithms. Includes instruction in computer theory, cybernetics, numerical analysis, algorithm development, binary structures, combinatorics, advanced statistics, and related topics. (Academic)

### **27.0304: Computational and Applied Mathematics**

A program that focuses on the application of a broad range of mathematical and computational methods to modeling, analysis, algorithm development, and simulation for the solution of complex scientific and engineering problems. Includes instruction in numerical analysis, discrete mathematics, operations research, optimization, differential equations, statistics, scientific computation, and applications to specific scientific and industrial topics. (Academic)



### **27.0305: Financial Mathematics**

A program that focuses on the application of mathematics and statistics to the finance industry, including the development, critique, and use of various financial models. Includes instruction in probability theory, statistical analysis, numerical methods, computation and simulation methods, stochastic processes, economics, and financial markets and applications. (Academic)

### **27.0399: Applied Mathematics, Other**

Any instructional program in applied mathematics not listed above. . (Academic and Vocational)

### **27.0501: Statistics, General**

A program that focuses on the relationships between groups of measurements, and similarities and differences, using probability theory and techniques derived from it. Includes instruction in the principles of probability theory, binomial distribution, regression analysis, standard deviation, stochastic processes, Monte Carlo method, Bayesian statistics, non-parametric statistics, sampling theory, and statistical techniques. (Academic)

### **27.0503: Mathematics and Statistics**

A program with a general synthesis of mathematics and statistics or a specialization which draws from mathematics and statistics. Includes instruction in calculus, linear algebra, numerical analysis and partial differential equations, discrete mathematics, probability theory, statistics, computing, and other related topics. (Academic)

## **30. MULTI/INTERDISCIPLINARY STUDIES**

*Instructional programs that derive from two or more distinct programs to provide a cross-cutting focus on a specific subject concentration that is not subsumed under a single discipline or occupational field.*

### **30.0001: Comprehensive Transition and Postsecondary (CTP) Program**

A comprehensive transition and postsecondary (CTP) program that provides students with intellectual disabilities with academic enrichment, socialization, independent living skills, self-advocacy skills, and integrated work experiences and career skills that lead to gainful employment. (Vocational, and approved CTP programs only)

### **30.0101: Biological and Physical Sciences**

A program that is either a general synthesis of one or more biological and physical sciences, or a specialization which draws from the biological and physical sciences. (Academic)

### **30.1101: Gerontology**

A program that focuses on the human aging process and aged human populations, using the knowledge and methodologies of the social sciences, psychology and the biological and health sciences. (Vocational)

### **30.1501: Science, Technology, and Society**

A program that focuses on the contemporary social and public policy ramifications of science and technology, the interrelationship of science and engineering with the public policy process, and the social and ethical dimensions of scientific and technological enterprises. (Academic)

### **30.1801: Natural Sciences**

A program with a combined or undifferentiated focus on one or more of the physical and biological sciences. (Academic)

### **30.2301: Intercultural/Multicultural and Diversity Studies**

A program that focuses on the dynamic social relations between and among majority and minority groups and different minority groups, and ways to promote mutual tolerance, inter-group cooperation, and the leadership and management of diverse groups and diversity issues in family, educational, recreational, and work settings. Includes instruction in ethnic and cultural studies, group psychology, sociology, anthropology, conflict resolution, human services and resources, and applications to various functional environments. (Academic)

### **30.2701: Human Biology**

An interdisciplinary program that focuses on understanding the human being from the biological, social science, and humanities perspectives and that addresses contemporary issues related to biology and society, such as global health and disease, environmental policy, bioethics, and biotechnology. (Academic)

### **30.3301: Sustainability Studies**

A program that focuses on the concept of sustainability from an interdisciplinary perspective. Includes instruction in sustainable development, environmental policies, ethics, ecology, landscape architecture, city and regional planning, economics, natural resources, sociology, and anthropology. (Academic)

### **30.7101: Data Analytics, General**

A program that prepares individuals to apply data science to generate insights from data and identify and predict trends. Includes instruction in computer databases, computer programming, inference, machine learning, optimization, probability and stochastic models, statistics, strategy, uncertainty quantification, and visual analytics. (Vocational)

### **30.7102: Business Analytics**

A program that prepares individuals to apply data science to solve business challenges. Includes instruction in machine learning, optimization methods, computer algorithms, probability and stochastic models, information economics, logistics, strategy, consumer behavior, marketing, and visual analytics. (Vocational)

### **30.9999: Multi-/Interdisciplinary Studies, Other**

Any instructional program in multi/interdisciplinary studies not listed above. (Vocational)

## **31. PARKS, RECREATION, LEISURE, FITNESS AND KINESIOLOGY**

*Instructional programs that focus on the principles and practices of managing parks and other recreational and fitness facilities; providing recreational, leisure, and fitness services; and the study of human kinesiology and fitness.*

### **31.0101: Parks, Recreation, and Leisure Studies**

A program that focuses on the principles underlying recreational and leisure activities, and the practices involved in providing indoor and outdoor recreational facilities and services for the general public. (Academic)

### **31.0301: Parks, Recreation and Leisure Facilities Management**

A program that prepares individuals to develop and manage park facilities and other indoor and outdoor recreation and leisure facilities. Includes instruction in supervising support personnel, health and safety standards, public relations, and basic business and marketing principles. (Vocational)

### **31.0302: Golf Course Operation and Grounds Management**

A program that prepares individuals to manage the operation of golf courses. Includes instruction in turf grass science and management, golf course design and construction, grounds equipment and operation, pest control, and grounds management. (Vocational)

### **31.0501: Sports, Kinesiology, and Physical Education/Fitness, General**

A program that focuses on activities and principles that promote physical fitness, achieve and maintain athletic prowess, and accomplish related research and service goals. Includes instruction in human movement studies, motivation studies, rules and practice of specific sports, exercise and fitness principles and techniques, basic athletic injury prevention and treatment, and organizing and leading fitness and sports programs. (Academic)

### **31.0504: Sport and Fitness Management**

A program that prepares individuals to apply business, coaching and physical education principles to the organization, administration and management of athletic programs and teams, fitness/rehabilitation facilities and health clubs, sport recreation services, and related services. Includes instruction in program planning and development; business and financial management principles; sales, marketing and recruitment; event promotion, scheduling and management; facilities management; public relations; legal aspects of sports; and applicable health and safety standards. (Vocational)

### **31.0505: Exercise Science and Kinesiology**

A scientific program that focuses on the anatomy, physiology, biochemistry, and biophysics of human movement, and applications to exercise and therapeutic rehabilitation. Includes instruction in biomechanics, motor behavior, motor development and coordination, motor neurophysiology, performance research, rehabilitative theories, the development of diagnostic and rehabilitative methods and equipment, and related analytical methods and procedures in applied exercise and therapeutic rehabilitation. (Vocational)

### **31.0507: Physical Fitness Technician**

A program that prepares individuals for employment in health and fitness clubs, wellness centers, public and private recreation facilities, hospitals and corporate fitness programs where they will perform a variety of instructional and administrative duties. Includes instruction in human anatomy and physiology, fitness techniques, exercise science, personal training, nutrition, and customer service. (Vocational)

### **31.0601: Outdoor Education**

A program that prepares individuals to work as an educator, instructor or facilitator in parks, recreational facilities, camps and other outdoor settings. Includes instruction in leadership skills, wilderness survival skills, first aid, group processes, counseling techniques, environmental studies and instruction in recreational activities such as rock climbing, ropes courses, backpacking, kayaking and canoeing. (Vocational)

## **32. BASIC SKILLS**

### **32.0201: Educational Interviewing**

Variable course for adult and family literacy students in all competency levels. A Maximum of 4 credits per learner per year for course outcomes that include orientation to the program, its resources, and services; current student abilities, characteristics, styles, and readiness to learn; student's personal, educational, and employment background and interests; student's skill gaps, learning deficiencies, and difficulties; barrier identification with strategies, recommendations, and interventions for improvement; student's long-term and short-term goals; identification of the skills needed to reach those goals; and a plan of action for the student to achieve the goals (personal learning/action plan). Additionally, no credit limit for course outcomes that include portfolio development for assessment of competency that integrates basic skills instruction in reading, writing, listening, speaking, and/or math.

### **32.0203: ABE 5 “formerly ASE Level 1” (Basic Adult Secondary Education)**

Non-transfer credit courses (ABE funded) for adult education students with a goal of improving their speaking, listening, and/or academic skills to earn a high school diploma (including HS 21+), earn a High School Equivalency Certificate (GED®), and/or transition to higher education who, at intake, have credits placing them at 9th or 10th grade and/or score 236-245 on a CASAS test.

### **32.0204: ABE 6 “formerly ASE Level 2” (Advanced Adult Secondary Education)**

Non-transfer credit courses (ABE funded) for adult education students with a goal of improving their speaking, listening, and/or academic skills to earn a high school diploma (including HS 21+), earn a High School Equivalency Certificate (GED®), and/or transition to higher education who, at intake, have credits placing them at 11th or 12th grade and/or score 246-255 on a CASAS test.

### **32.0205: Basic High School Completion**

Contracted non-transfer traditional high school credit courses that meet the state high school graduation requirements (includes all high school courses, such as English, Math, U.S. and Washington Histories, Contemporary World Problems, PE/Health, Science, Occupational Education, Fine/Visual/Performing Arts, electives, etc.) for students whose goals include earning a high school diploma and who, at intake, score 236-245 on a CASAS test. (This would include contract courses with the school district, such as Open Doors, Youth Re-engagement, etc. It does not include WorkFirst or Correctional Education.)

### **32.0208: Advanced High School Completion**

Contracted non-transfer traditional high school credit courses that meet the state high school graduation requirements (includes all high school courses, such as English, Math, U.S. and

Washington Histories, Contemporary World Problems, PE/Health, Science, Occupational Education, Fine/Visual/Performing Arts, electives, etc.) for students whose goals include earning a high school diploma and who, at intake, score 246-255 on a CASAS test. (This would include contract courses with the school district, such as Open Doors, Youth Re-engagement, etc. It does not include WorkFirst or Correctional Education.)

### **32.0210: ABE Level 1 (Beginning ABE Literacy)**

Non-transfer credit instructional courses designed to teach reading, writing, and computational skills to individuals who have a goal to improve basic skills (including HS 21+) and, at intake, score less than 201 on a CASAS test.

### **32.0220: ABE Level 2 (Beginning Basic Education)**

Non-transfer credit instructional courses designed to teach reading, writing, and computational skills to individuals who have a goal to improve basic skills (including HS 21+) and, at intake, score 201-210 on a CASAS test.

### **32.0230: ABE Level 3 (Low Intermediate Basic Education)**

Non-transfer credit instructional courses designed to teach reading, writing, and computational skills to individuals who have a goal to improve basic skills (including HS 21+) and, at intake, score 211-220 on a CASAS test.

### **32.0240: ABE Level 4 (High Intermediate Basic Education)**

Non-transfer credit instructional courses designed to teach reading, writing, and computational skills to individuals who have a goal to improve basic skills (including HS 21+) and, at intake, score 221-235 on a CASAS test.

### **32.0301: ESL Level 1 (Beginning ESL Literacy)**

Non-transfer credit courses in listening, speaking, reading, and writing for limited English-proficient adults with a goal to improve their English literacy (including HS 21+) who, at intake, score less than 181 on a CASAS test.

### **32.0302: ESL Level 2 (Low Beginning ESL)**

Non-transfer credit courses in listening, speaking, reading, and writing for limited English-proficient adults with a goal to improve their English literacy (including HS 21+) who, at intake, score 181-190 on a CASAS test.

### **32.0303: ESL Level 3 (High Beginning ESL)**

Non-transfer credit courses in listening, speaking, reading, and writing for limited English-proficient adults with a goal to improve their English literacy (including HS 21+) who, at intake, score 191-200 on a CASAS test.

### **32.0304: ESL Level 4 (Low Intermediate ESL)**

Non-transfer credit courses in listening, speaking, reading, and writing for limited English-proficient adults with a goal to improve their English literacy (including HS 21+) who, at intake, score 201-210 on a CASAS test.

### **32.0305: ESL Level 5 (High Intermediate ESL)**

Non-transfer credit courses in listening, speaking, reading, and writing for limited English-proficient adults with a goal to improve their English literacy (including HS 21+) who, at intake, score 211-220 on a CASAS test.

### **32.0306: ESL Level 6 (Low Advanced ESL)**

Non-transfer credit courses in listening, speaking, reading, and writing for limited English-proficient adults with a goal to improve their English literacy (including HS 21+) who, at intake, score 221-235 on a CASAS test.

### **32.0401: Special Non-State Funded Adult Education**

Contracted non-BEdA funded courses for students who have a goal of earning a high school equivalency credential that are required as part of a contract with another program or agency. (This would include contract courses with the school district, such as CAP, Open Doors – HSE only, Gravity, etc. It does not include WorkFirst.)

### **32.0501: Adult Education I-BEST Support**

Non-transfer credit instructional courses designed to support students currently enrolled in an approved I-BEST course with program specific contextualized instruction in reading, writing, computational, and digital literacy skills.

### **32.0601: Integrated Education and Training**

Integrated Education and Training (IET) means a service approach that provides adult education and literacy activities concurrently and contextually with workforce preparation activities and workforce training for a specific occupation or occupational cluster for the purpose of educational and career advancement. *WIOA section 203(11)*

### **32.0701: Workplace Literacy**

Workplace Literacy (a.k.a. *workplace adult education and literacy activities*) program means adult education and literacy activities offered by an eligible provider in collaboration with an employer or employee organization at a workplace or an off-site location that is designed to improve the productivity of the workforce. *WIOA section 203(16)*

### **32.9997: ABE funded Basic HSC**

Non-transfer traditional high school credit courses (ABE funded) that meet the state high school graduation requirements (includes all high school courses, such as English, Math, U.S. and Washington Histories, Contemporary World Problems, PE/Health, Science, Occupational Education, Fine/Visual/Performing Arts, electives, etc.) for students whose goals include earning a high school diploma and who, at intake, score 236-245 on a CASAS test. Not to be used for HS 21+.

### **32.9998: ABE funded Advanced HSC**

Non-transfer traditional high school credit courses (ABE funded) that meet the state high school graduation requirements (includes all high school courses, such as English, Math, U.S. and Washington Histories, Contemporary World Problems, PE/Health, Science, Occupational Education, Fine/Visual/Performing Arts, electives, etc.) for students whose goals include earning a high school diploma and who, at intake, score 246-255 on a CASAS test. Not to be used for HS 21+.



## **33. DEVELOPMENTAL STUDIES**

### **33.0101: Developmental Computational Skills**

Non-transferable credit courses that describe the development of pre-college mathematical skills that are needed to perform day-to-day tasks and to form the basis for later learning and achievement.

### **33.0102: Developmental Education/Reading**

Non-transferable credit courses designed for the development of reading skills needed to form the basis for later learning and achievement.

### **33.0103: Developmental Education/Writing**

Non-transferable credit courses designed for the development of grammar and writing skills needed to form the basis for later learning and achievement.

### **33.0104: Developmental Education/Coordinated Studies in Reading and Writing**

Non-transferable credit courses designed for the integrated development of reading and writing skills needed to perform day-to-day tasks and to form the basis for later learning and achievement. Approximately equal amounts of time are devoted to the development of each of these subject areas.

### **33.0105: Developmental Education Career Exploration**

Non-transferable credit courses in career exploration.

### **33.0106: Workplace Basics 2**

Developmental education level courses (non-transferable credit) including applied academics that prepare individuals to re-enter, transition, or enhance employment opportunities. Instruction includes course work in reading, writing, and computation at a level of ninth grade or above. Included in the course work are career planning, job search, personal and interpersonal skills that will enhance the individual's ability to be successful in life and work.

### **33.0108: Developmental Education/ESL**

Non-transferable credit courses in English as a second language at any pre-college level.

### **33.0109: Developmental Education/Other**

Non-transferable credit courses in developmental education not described above. Examples include study skills, vocabulary, spelling, and pre-college speech and any other pre-vocational or academic course that is at a non-transfer level.

## **34. HEALTH-RELATED KNOWLEDGE AND SKILLS**

*A group of instructional programs that focus on the promotion of personal and family health.*

### **34.0103: Personal Health Improvement and Maintenance**

A program that focuses on the principles, techniques, and methods by which individuals can maintain or improve their overall physical and emotional well-being, as well as work on specific areas of personal health. (Academic)



## 36. LEISURE AND RECREATIONAL ACTIVITIES

*Instructional programs that focus on the development of an appreciation for and competency in recreational and leisure-related activities.*

### **36.0102: Handicrafts and Model-Making**

A program that focuses on the fashioning of objects of decoration, utility, or representation from various materials, including related matters of research, tool use, and appreciation.

### **36.0103: Board, Card, and Role-Playing Games**

A program that focuses on the rules and techniques of participation and skill-building in competitive activities of skill or chance, such as board games, card games, or role-playing activities.

### **36.0105: Home Maintenance and Improvement**

A program that focuses on the knowledge and skills associated with maintaining living space and related equipment and furnishings, as well as do-it-yourself repairs and improvement projects of varying complexity.

### **36.0106: Nature Appreciation**

A program that focuses on how to increase one's understanding and knowledge of the natural environment in which we live, as well as techniques of wildlife observation and management.

### **36.0107: Pet Ownership and Care**

An instructional program that focuses on how to increase one's ability to care for domesticated animals kept for pleasure or work.

### **36.0108: Sports and Exercise**

A program that focuses on the rules and techniques of participation and skill-building in competitive physical activities, as well as non-competitive physical fitness programs.

### **36.0109: Travel and Exploration**

A program that focuses on a particular geographic areas or phenomena, and provides opportunities for organizes trips or tours, including related knowledge and skills.

### **36.0110: Art**

A program that focuses on the techniques and methods of creative self-expression in visual or plastic media, such as painting or sculpture.

### **36.0111: Collecting**

A program that focuses on the knowledge and techniques necessary for acquiring and maintaining personal collections of objects, such as autographs, stamps, models, specimens, vehicles, and antiques.

### **36.0112: Cooking and Other Domestic Skills**

A program that focuses on the knowledge and skills related to food buying and preparation, home decoration, sewing and other domestic activities, either as hobbies or as routine tasks.

### **36.0113: Computer Games and Programming Skills**

A program that focuses on the knowledge and skills associated with creating and maintaining computer programs, as well as playing computer-based games.

### **36.0114: Dancing**

A program that focuses on the knowledge and skills related to recreational dance, such as square dance, ballroom dancing, classical or modern dance.

### **36.0115: Music**

A program that focuses on the knowledge and skills associated with personal music appreciation, the playing of a musical instrument, singing, or recreational composition.

### **36.0116: Reading**

A program that focuses on the activity of reading for pleasure, either alone or as part of a group experience.

### **36.0117: Theater**

A program that focuses on the knowledge and skills associated with participation in amateur theatrical productions, drama appreciation, and writing amateur plays.

### **36.0118: Writing**

A program that focuses on the knowledge and skills related to creative writing and poetry composition for pleasure or profit, including methods of publication.

### **36.0199: Hobbies, Leisure and Recreational Activities, Other**

Any instructional program in leisure and recreational activities not listed above.

## **37. PERSONAL AWARENESS AND SELF-IMPROVEMENT**

*Instructional programs that focus on the development of improved self-awareness, avoidance of stressful behavior, and improved decision-making skills.*

### **37.0102: Stress Management and Coping Skills**

A program that focuses on the knowledge and skills useful in avoiding stressful situations and managing them when they occur, including dealing with complex and long-term stressful relationships. (Academic)

### **37.0103: Personal Decision-making Skills**

A program that prepares individuals to assess decisions affecting their lives and to make life choices consistent with needs and beliefs. Seminar courses in cooperative education covering multi-disciplines should be coded in this area. (Vocational)

### **37.0104: Self-Esteem, Study Skills, and Values Clarification**

A program that focuses on the development of personal philosophies and ideas of self-worth, and how to apply such knowledge and skills in everyday circumstances. Includes all college-level study skill, instruction, and speed-reading techniques. (Academic)

## 38. PHILOSOPHY AND RELIGION

*Instructional programs that focus on logical inquiry, philosophical analysis, and the academic study of organized systems of belief and religious practices.*

### 38.0101: Philosophy

A program that focuses on ideas and their logical structure, including arguments and investigations about abstract and real phenomena. Includes instruction in logic, ethics, aesthetics, epistemology, metaphysics, symbolism, history of philosophy, and applications to the theoretical foundations and methods of other disciplines. (Academic)

## 40. PHYSICAL SCIENCES

*Instructional programs that focus on the scientific study of inanimate objects, processes of matter and energy, and associated phenomena.*

### 40.0101: Physical Sciences, General

A program that focuses on the major topics, concepts, processes, and interrelationships of physical phenomena as studied in any combination of physical science disciplines. (Academic)

### 40.0201: Astronomy

A general program that focuses on the planetary, galactic, and stellar phenomena occurring in outer space. Includes instruction in celestial mechanics, cosmology, stellar physics, galactic evolution, quasars, stellar distribution and motion, interstellar medium, atomic and molecular constituents of astronomical phenomena, planetary science, solar system evolution, and specific methodologies such as optical astronomy, radioastronomy, and theoretical astronomy. (Academic)

### 40.0203: Planetary Astronomy and Science

A program that focuses on the scientific study of planets, small objects, and related gravitational systems. Includes instruction in the structure and composition of planetary surfaces and interiors, planetary atmospheres, satellites, orbital mechanics, asteroids and comets, solar system evolution and dynamics, planetary evolution, gravitational physics, and radiation physics. (Academic)

### 40.0401: Atmospheric Sciences and Meteorology

A general program that focuses on the scientific study of the composition and behavior of the atmospheric envelopes surrounding the earth, the effect of earth's atmosphere on terrestrial weather, and related problems of environment and climate. Includes instruction in atmospheric chemistry and physics, atmospheric dynamics, climatology and climate change, weather simulation, weather forecasting, climate modeling and mathematical theory; and studies of specific phenomena such as clouds, weather systems, storms, and precipitation patterns. (Academic)

### 40.0501: Chemistry, General

A general program that focuses on the scientific study of the composition and behavior of matter, including its micro- and macro-structure, the processes of chemical change, and the theoretical description and laboratory simulation of these phenomena. (Academic)

#### **40.0502: Analytical Chemistry**

A program that focuses on the scientific study of techniques for analyzing and describing matter, including its precise composition and the interrelationships of constituent elements and compounds. Includes instruction in spectroscopy, chromatography, atomic absorption, photometry, chemical modeling, mathematical analysis, laboratory analysis procedures and equipment maintenance, and applications to specific research, industrial and health problems. (Academic)

#### **40.0503: Inorganic Chemistry**

A program that focuses on the scientific study of the elements and their compounds, other than the hydrocarbons and their derivatives. Includes instruction in the characterization and synthesis of non-carbon molecules, including their structure and their bonding, conductivity, and reactive properties; research techniques such as spectroscopy, x-ray diffraction, and photoelectron analysis; and the study of specific compounds, such as transition metals, and compounds composed of inorganic and organic molecules. (Academic)

#### **40.0504: Organic Chemistry**

A program that focuses on the scientific study of the properties and behavior of hydrocarbon compounds and their derivatives. Includes instruction in molecular conversion and synthesis, molecular synthesis and design, the molecular structure of living cells and systems, the mutual reactivity of organic and inorganic compounds in combination, the spectroscopic analysis of hydrocarbon compounds, and applications to specific problems in research, industry, and health. (Academic)

#### **40.0506: Physical Chemistry**

A program that focuses on the scientific study of understanding and predicting the behavior of chemical systems ranging from nuclear particles to atoms, molecules, clusters, biological materials and macroscopic assemblies. Includes instruction in quantum mechanics, spectroscopy, thermodynamics, statistical mechanics, reaction dynamics, group theory, collision theory, and polymer science. (Academic)

#### **40.0601: Geology/Earth Science, General**

A program that focuses on the scientific study of the earth; the forces acting upon it; and the behavior of the solids, liquids and gases comprising it. Includes instruction in historical geology, geomorphology, sedimentology, the chemistry of rocks and soils, stratigraphy, mineralogy, petrology, geostatistics, volcanology, glaciology, geophysical principles, and applications to research and industrial problems. (Academic)

#### **40.0607: Oceanography, Chemical and Physical**

A program that focuses on the scientific study of the chemical components, mechanisms, structure, and movement of ocean waters and their interaction with terrestrial and atmospheric phenomena. Includes instruction in material inputs and outputs, chemical and biochemical transformations in marine systems, equilibria studies, inorganic and organic ocean chemistry, oceanographic processes, sediment transport, zone processes, circulation, mixing, tidal movements, wave properties, and seawater properties. (Academic)

#### **40.0801: Physics, General**

A program that focuses on the scientific study of matter and energy, and the formulation and testing of the laws governing the behavior of the matter-energy continuum. Includes instruction in classical and modern physics, electricity and magnetism, thermodynamics, mechanics, wave properties, nuclear processes, relativity and quantum theory, quantitative methods, and laboratory methods. (Academic)

#### **40.0802: Atomic/Molecular Physics**

A program that focuses on the scientific study of the behavior of matter-energy phenomena at the level of atoms and molecules. Includes instruction in chemical physics, atomic forces and structure, molecular orbital theory, magnetic resonance, molecular bonding, phase equilibria, quantum theory of solids, and applications to the study of specific elements and higher compounds. (Academic)

#### **40.1001: Materials Science**

A program that focuses on the general application of mathematical and scientific principles to the analysis and evaluation of the characteristics and behavior of solids, including internal structure, chemical properties, transport and energy flow properties, thermodynamics of solids, stress and failure factors, chemical transformation states and processes, compound materials, and research on industrial applications of specific materials. (Academic)

### **41. SCIENCE TECHNOLOGIES**

*Instructional programs that prepare individuals to apply scientific principles and technical skills in support of scientific research and development.*

#### **41.0101: Biology/Biotechnology Technology/Technician**

A program that prepares individuals to apply scientific principles and technical skills in support of biologists and biotechnologists in research, industrial, and government settings. Includes instruction in fermentation technology, cell culturing, protein purification, biologic synthesis, assaying and testing, quality control, industrial microbiology, bioprocessing, chromatography and bioseparation, genetic technology, laboratory and hazardous materials safety, and computer applications. (Vocational)

#### **41.0205: Nuclear/Nuclear Power Technology**

A program that prepares individuals to apply scientific principles and technical skills in support of research scientists and operating engineers engaged in the running of nuclear reactors, and in nuclear materials processing and disposal. Includes instruction in basic nuclear physics and nuclear engineering, monitoring and safety procedures, radioactive materials handling and disposal, equipment maintenance and operation, and record-keeping. (Vocational)

### **41.0301: Chemical Technology**

A program that prepares individuals to apply scientific principles and technical skills in support of chemical and biochemical research and industrial operations. Includes instruction in principles of chemistry and biochemistry, technical mathematics, computer applications, radiochemistry, industrial biochemistry, chemical instrumentation, physical chemistry, laboratory research methods, industrial processing methods and equipment, and test equipment operation and maintenance. (Vocational)

## **42. PSYCHOLOGY**

*Instructional programs that focus on the scientific study of the behavior of individuals, independently or collectively, and the physical and environmental bases of mental, emotional, and neurological activity.*

### **42.0101: Psychology, General**

A general program that focuses on the scientific study of individual and collective behavior, the physical and environmental bases of behavior, and the analysis and treatment of behavior problems and disorders. Includes instruction in the principles of the various subfields of psychology, research methods, and psychological assessment and testing methods. (Academic)

### **42.2703: Developmental and Child Psychology**

A program that focuses on the scientific study of the unique stages of psychological growth and development of individuals from infancy through childhood. Includes instruction in cognitive and perceptual development, emotional development, personality development, the effects of biological maturation on behavior, theories of cognitive growth and related research methods, testing and assessment methods for different age levels, research on child and adolescent behavior therapy, and the psychology of aging. (Academic)

### **42.2704: Experimental Psychology**

A program that focuses on the scientific study of behavior under experimental conditions and the analysis of controlled behavioral responses. Includes instruction in learning theory, research design and experimental methods, psychological measurement, statistical design and methods, analysis of cognitive and behavioral variables, and the conduct of specialized and large-scale studies. (Academic)

### **42.2707: Social Psychology**

A program that focuses on the scientific study of individual behavior in group contexts, group behavior, and associated phenomena. Includes instruction in social learning theory, group theory and dynamics, sex roles, social cognition and inference, attribution theory, attitude formation, criminal behavior and other social pathologies, altruistic behavior, social development, and social ecology. (Academic)

### **42.2801: Clinical Psychology**

A program that prepares individuals for the independent professional practice of clinical psychology, involving the analysis, diagnosis, and clinical treatment of psychological disorders and behavioral pathologies. Includes instruction in clinical assessment and diagnosis, personality appraisal,

psychopathology, clinical psychopharmacology, behavior modification, therapeutic intervention skills, patient interviewing, personalized and group therapy, child and adolescent therapy, cognitive and behavioral therapy, supervised clinical practice, ethical standards, and applicable regulations. (Academic)

#### **42.2803: Counseling Psychology**

A program that prepares individuals for the independent professional practice of psychological counseling, involving the rendering of therapeutic services to individuals and groups experiencing psychological problems and exhibiting distress symptoms. Includes instruction in counseling theory, therapeutic intervention strategies, patient/counselor relationships, testing and assessment methods and procedures, group therapy, marital and family therapy, child and adolescent therapy, supervised counseling practice, ethical standards, and applicable regulations. (Academic)

#### **42.2804: Industrial and Organizational Psychology**

A program that focuses on the scientific study of individual and group behavior in institutional settings, applications to related problems of organization and industry, and that may prepare individuals to apply such principles in industrial and organizational settings. Includes instruction in group behavior theory, organizational theory, reward/punishment structures, human-machine and human-computer interactions, motivation dynamics, human stress studies, environmental and organizational influences on behavior, alienation and satisfaction, and job testing and assessment. (Academic)

### **43. HOMELAND SECURITY, LAW ENFORCEMENT, FIREFIGHTING AND RELATED PROTECTIVE SERVICES**

*Instructional programs that focus on the principles and procedures for providing homeland security, police, fire, and other safety services and for managing penal institutions.*

#### **43.0102: Corrections**

A program that prepares individuals to study the theories and principles of correctional science and to function as professional corrections officers and other workers in public and/or private incarceration facilities. (Vocational)

#### **43.0103: Criminal Justice/Law Enforcement Administration**

A program that prepares individuals to apply theories and practices of organization management and criminal justice to the administration of public law enforcement agencies and operations. Includes instruction in law enforcement history and theory, operational command leadership, administration of public police organizations, labor relations, incident response strategies, legal and regulatory responsibilities, budgeting, public relations, and organizational leadership. (Vocational)

#### **43.0104: Criminal Justice/Safety Studies**

A program that focuses on the criminal justice system, its organizational components and processes, and its legal and public policy contexts. Includes instruction in criminal law and policy, police and correctional systems organization, the administration of justice and the judiciary, and public attitudes regarding criminal justice issues. (Academic)



#### **43.0107: Criminal Justice/Police Science**

A program that prepares individuals to perform the duties of police and public security officers, including patrol and investigative activities, traffic control, crowd control and public relations, witness interviewing, evidence collection and management, basic crime prevention methods, weapon and equipment operation and maintenance, report preparation, and other routine law enforcement responsibilities. (Vocational)

#### **43.0109: Security and Loss Prevention Services**

A program that prepares individuals to perform routine inspection, patrol and crime prevention services for private clients. Includes instruction in the provision of personal protection as well as property security. (Vocational)

#### **43.0115: Law Enforcement Record-Keeping and Evidence Management**

A program focusing on the principles and procedures for managing records in police or other security offices, including storing and retrieving evidence and related data. Includes instruction in administrative law and procedures, office management, report preparation, organizational software, database software, physical and digital evidence properties, controlled storage and retrieval, investigative file inventories, case management, security systems, and communications skills. (Vocational)

#### **43.0120: Protective Services Operations**

A program focusing on the principles and techniques of providing physical security protection to clients in various environments and situations. Includes instruction in security intelligence and information resources, operations planning and surveying, operations security, weapons and explosives, defense and offense techniques, security and surveillance systems, communications systems, perimeter and access control, weapons of mass destruction, contingency planning, crowd control, cover and evacuation, combat and vehicle techniques, and applicable legal and administrative responsibilities. (Vocational)

#### **43.0202: Fire Services Administration**

A program focusing on the principles, theory, and practices associated with the management of fire operations, firefighting services, and community fire issues. Includes instruction in fire protection history and theory, incident command leadership, administration of public fire organizations, labor relations, emergency medical services management, fire emergency response strategies and mitigation, legal and regulatory responsibilities, budgeting, public relations, and organizational leadership. Provides the necessary preparation to meet requirements of Fire Officer 1 and 2. (Vocational)

#### **43.0203: Fire Science/Firefighting**

A program focusing on the theory and practice of fires and fire-fighting. Includes instruction in fire chemistry and physics, combustible materials, computer science, building construction, fire codes and related laws, fire hydraulics, fire command, fire prevention/inspection, fire protection systems, fire suppression systems, fire/arson investigation, occupational safety, equipment operation, emergency medicine and communications. (Vocational)

#### **43.0204: Fire Systems Technology**

A program focusing on the principles and practice of firefighting systems, building construction and related resources as applied to fire prevention, control, and mitigation. Includes instruction in fire hydraulics and dynamics, fire protection structures and systems design, fire behavior and combustion, fire protection hydraulics and water supply, fire protection equipment and systems, building construction for fire protection, and fire apparatus. (Vocational)

#### **43.0205: Fire/Arson Investigation and Prevention**

A program focusing on the theory and principles of fire combustion and behavior applied to the analysis of fires and their causes. Includes instruction in fire behavior and combustion, fire dynamics, hazardous materials chemistry, incendiary fire analysis, fire-related human behavior, forensic procedures, investigative techniques, case management and case preparation. (Vocational)

#### **43.0206: Wildland/Forest Firefighting and Investigation**

A program focusing on the application of fire science, firefighting and investigation to the prevention, control and mitigation of wildland fires and the analysis of causes. Includes instruction in fire science and behavior, wildland environments, meteorology, wildland fire hydraulics and dynamics, water and chemical supply systems, wildland firefighting operations, airborne firefighting, firebreak engineering, communications systems, wildland arson, forensic procedures, wildland fire prevention, investigation techniques, case management and preparation. (Vocational)

#### **43.0301: Homeland Security**

A program focusing on security policy, planning and operations dedicated to the protection of U.S. territory, assets, infrastructure, institutions and citizens from external threats. Includes instruction in national security policy, government relations, intelligence, law enforcement, security technology, communications and information technology, homeland security planning and operations, disaster planning and applications to specific threat scenarios. (Vocational)

#### **43.0302: Crisis/Emergency/Disaster Management**

A program focusing on the application of the incident command system model to formulating and implementing effective response to natural and man-made disasters. Includes instruction in contingency planning, hazard and risk assessment, joint operations, law and ethics, emergency response and recovery, event mitigation, emergency rescue and medical operations, incident command, terrorism and national security issues, law enforcement, relief administration, volunteer and citizen coordination, public relations and applications to specific types of incidents. (Vocational)

#### **43.0403: Cyber/Computer Forensics and Counterterrorism(moved from 43.0116)**

A program focusing on the principles and techniques used to identify, search, seize and analyze digital media and to conduct cyber investigations against criminal and terrorist activity. Includes instruction in computer boot processes and drives, jumper setting, file access and reconstruction, hacking, network systems, cryptography, programming, investigative techniques, forensic imagery, web-based investigation methods, cyberterrorism, and applicable laws and administrative procedures. (Vocational)

#### **43.0405: Financial Forensics and Fraud Investigation (moved from 43.0117)**

A program focusing on the principles and techniques of conducting investigations into financial crime, terrorist activity, and the analysis and use of accounting data as evidence. Includes instruction in the principles of accounting, investigative auditing, computer investigations, accounting system documents and software, business corruption, criminal and terrorist financial networks, international money markets and movement, net worth analysis, financial fraud, exposing concealed assets, records seizure, fraud and money laundering statutes, fraud case initiation, case management, and case presentation. (Vocational)

#### **43.0406: Forensic Science and Technology (moved from 43.0106)**

A program that focuses on the application of the physical, biomedical, and social sciences to the analysis and evaluation of physical evidence, human testimony and criminal suspects. Includes instruction in forensic medicine, forensic dentistry, anthropology, psychology, entomology, pathology, forensic laboratory technology and autopsy procedures, DNA and blood pattern analysis, crime scene analysis, crime scene photography, fingerprint technology, document analysis, witness and suspect examination procedures, applicable law and regulations, and professional standards and ethics. (Vocational)

#### **43.9999: Homeland Security, Law Enforcement, Firefighting and Related Protective Services, Other**

Any instructional program in homeland security, law enforcement, firefighting, and related protective services not listed above. (Vocational)

### **44. PUBLIC ADMINISTRATION AND SERVICES**

*Instructional programs that prepare individuals to analyze, manage, and deliver public programs and services.*

#### **44.0000: Human Services, General**

A program that focuses on the general study and provision of human and social services to individuals and communities and prepares individuals to work in public and private human services agencies and organizations. Includes instruction in the social sciences, psychology, principles of social service, human services policy, planning and evaluation, social services law and administration, and applications to particular issues, services, localities, and populations. (Vocational)

#### **44.0201: Community Organization and Advocacy**

A program that focuses on the theories, principles, and practice of providing services to communities. May prepare individuals to apply such knowledge and skills in community service positions. (Academic)

#### **44.0401: Public Administration**

A program that prepares individuals to serve as managers in the executive arm of local, state, and federal government; and that focuses on the systematic study of executive organization and management. Includes instruction in the roles, development, and principles of public administration; the management of public policy; executive-legislative relations; public budgetary processes and

financial management; administrative law; public personnel management; professional ethics; and research methods. (Vocational)

#### **44.0701: Social Work**

An instructional program that prepares individuals for the professional practice of social welfare administration and counseling, and that describes the study of organized means of providing basic support services for vulnerable individuals and groups. Includes instruction in social welfare policy; case work planning; social counseling and intervention strategies; administrative procedures and regulations; and specific applications in areas such as child welfare and family services, probation, employment services, and disability counseling. (Academic)

#### **44.0702: Youth Services/Administration**

A program that prepares individuals to plan, manage, and implement social services for children, youth, and families. Includes instruction in child development and psychology, adolescence, family studies, social work, social services administration, juvenile and family law, program and facilities planning, youth leadership, counseling, probation, casework, applicable procedures, and regulations, and professional standards and ethics. (Vocational)

### **45. SOCIAL SCIENCES**

*Instructional programs that focus on the systematic study of social systems, social institutions, and social behavior.*

#### **45.0101: Social Sciences, General**

A program that focuses on the general study of human social behavior and social institutions using any of the methodologies common to the social sciences and/or history, or an undifferentiated program of study in the social sciences. (Academic)

#### **45.0102: Research Methodology and Quantitative Methods**

A program that focuses on the design of research studies, measurement of variables, data analysis, and formulation of models. Includes instruction in experimental, quasi-experimental, and case study methods; historical research; participant observation; questionnaire design; sampling theory; and statistical methods. (Academic)

#### **45.0201: Anthropology. General**

A program that focuses on the systematic study of human beings, their antecedents and related primates, and their cultural behavior and institutions, in comparative perspective. Includes instruction in biological/physical anthropology, primatology, human paleontology and prehistoric archeology, hominid evolution, anthropological linguistics, ethnography, ethnology, ethnohistory, socio-cultural anthropology, psychological anthropology, research methods, and applications to areas such as medicine, forensic pathology, museum studies, and international affairs. (Academic)

#### **45.0204: Cultural Anthropology**

A program that focuses on the study of culture and the relationship of culture to other aspects of social life. Includes instruction in cultural anthropology, anthropological theory, ethnography, linguistics, and quantitative and qualitative research methods. (Academic)

#### **45.0301: Archaeology**

A program that focuses on the systematic study of extinct societies, and the past of living societies, via the excavation, analysis and interpretation of their artifactual, human, and associated remains. Includes instruction in archeological theory, field methods, dating methods, conservation and museum studies, cultural and physical evolution, and the study of specific selected past cultures. (Academic)

#### **45.0401: Criminology**

A program that focuses on the systematic study of crime as a sociopathological phenomenon, the behavior of criminals, and the social institutions evolved to respond to crime. Includes instruction in the theory of crime, psychological and social bases of criminal behavior, social value systems and the theory of punishment, criminal law and criminal justice systems, penology, rehabilitation and recidivism, studies of specific types of crime, social attitudes and policy, and applications to specific issues in law enforcement administration and policy. (Academic)

#### **45.0501: Demography and Population Studies**

A program that focuses on the systematic study of population models and population phenomena, and related problems of social structure and behavior. Includes instruction in population growth, spatial distribution, mortality and fertility factors, migration, dynamic population modeling, population estimation and projection, mathematical and statistical analysis of population data, population policy studies, and applications to problems in economics and government planning. (Academic)

#### **45.0601: Economics, General**

A program that focuses on the systematic study of the production, conservation, and allocation of resources in conditions of scarcity, together with the organizational frameworks related to these processes. Includes instruction in economic theory, micro- and macro-economics, comparative economic systems, money and banking systems, international economics, quantitative analytical methods, and applications to specific industries and public policy issues. (Academic)

#### **45.0701: Geography**

A program that focuses on the systematic study of the spatial distribution and interrelationships of people, natural resources, plant and animal life. Includes instruction in historical and political geography, cultural geography, economic and physical geography, regional science, cartographic methods, remote sensing, spatial analysis, and applications to areas such as land-use planning, development studies, and analyses of specific countries, regions, and resources. (Academic)

#### **45.0702: Geographic Information Systems and Cartography**

A program that focuses on the systematic study of map-making and the application of mathematical, computer, and other techniques to the analysis of large amounts of geographic data and the science of mapping geographic information. Includes instruction in cartographic theory and map projections, computer-assisted cartography, geographic information systems, map design and layout, photogrammetry, air photo interpretation, remote sensing, spatial analysis, geodesy, cartographic editing, and applications to specific industrial, commercial, research, and governmental mapping problems. (Academic and Vocational)

#### **45.0901: International Relations and Affairs**

A program that focuses on the systematic study of international politics and institutions, and the conduct of diplomacy and foreign policy. Includes instruction in international relations theory, foreign policy analysis, international law and organization, the comparative study of specific countries and regions, and the theory and practice of diplomacy. (Academic)

#### **45.1001: Political Science and Government, General**

A program that focuses on the systematic study of political institutions and behavior. Includes instruction in political philosophy, political theory, comparative government and politics, political parties and interest groups, public opinion, political research methods, studies of the government and politics of specific countries, and studies of specific political institutions and processes. (Academic)

#### **45.1002: American Government and Politics (United States)**

A program that focuses on the systematic study of United States political institutions and behavior. Includes instruction in American political theory, political parties and interest groups, state and local governments, Constitutional law, federalism and national institutions, executive and legislative politics, judicial politics, popular attitudes and media influences, political research methods, and applications to the study of specific issues and institutions. (Academic)

#### **45.1101: Sociology, General**

A program that focuses on the systematic study of human social institutions and social relationships. Includes instruction in social theory, sociological research methods, social organization and structure, social stratification and hierarchies, dynamics of social change, family structures, social deviance and control, and applications to the study of specific social groups, social institutions, and social problems. (Academic)

#### **45.1201: Urban Studies/Affairs**

A program that focuses on the application of social science principles to the study of urban institutions and the forces influencing urban social and political life. Includes instruction in urban theory, the development and evolution of urban areas, urban sociology, principles of urban and social planning, and the politics and economics of urban government and services. (Academic)

#### **45.1301: Sociology and Anthropology**

A program that combines sociology and anthropology to study how society is organized, the origins and development of social institutions, social change, social organizations, race, class, gender and culture. (Academic)

### **46. CONSTRUCTION TRADES**

*Instructional programs that prepare individuals to apply technical knowledge and skills in the building, inspecting, and maintaining of structures and related properties.*

#### **46.0000: Construction Trades, General**

A program that generally prepares individuals to apply technical knowledge and skills in the building, inspecting, and maintaining of structures and related properties. May include instruction in masonry,



carpentry, electrical and power transmission installation, building/construction finishing, management, inspection and other construction-related applications. (Vocational)

#### **46.0101: Masonry/Mason**

A program that prepares individuals to apply technical knowledge and skills in the laying and/or setting of brick, concrete block, hard tile, marble and related materials, using trowels, levels, hammers, chisels, and other hand tools. Includes instruction in technical mathematics, blueprint reading, structural masonry, decorative masonry, foundations, reinforcement, mortar preparation, cutting and finishing, and applicable codes and standards. (Vocational)

#### **46.0201: Carpentry/Carpenter**

A program that prepares individuals to apply technical knowledge and skills to lay out, cut, fabricate, erect, install, and repair wooden structures and fixtures, using hand and power tools. Includes instruction in technical mathematics, framing, construction materials and selection, job estimating, blueprint reading, foundations and roughing-in, finish carpentry techniques, and applicable codes and standards. (Vocational)

#### **46.0301: Electrical/Power Transmission Installation**

A program that generally prepares individuals to apply technical knowledge and skills to install indoor and outdoor residential, commercial, and industrial electrical systems, and associated power transmission lines. Includes instruction in electricity, safety procedures, wiring, insulation and grounding, schematic blueprint interpretation, equipment operation and maintenance, and applicable codes and standards. (Vocational)

#### **46.0302: Electrician**

A program that prepares individuals to apply technical knowledge and skills to install, operate, maintain, and repair electric apparatus and systems such as residential, commercial, and industrial electric-power wiring; and DC and AC motors, controls, and electrical distribution panels. Includes instruction in the principles of electronics and electrical systems, wiring, power transmission, safety, industrial and household appliances, job estimation, electrical testing and inspection, and applicable codes and standards. (Vocational)

#### **46.0303: Lineworker**

A program that prepares individuals to apply technical knowledge and skills to install, operate, maintain and repair local, long-distance, and rural electric power cables and communication lines; erect and construct pole and tower lines; and install underground lines and cables. Includes instruction in cable installation and repair, fiber-optic technology, trenching, mobile equipment and crane operation, high-voltage installations, maintenance and inspection, safety, remote communications, and applicable codes and standards. (Vocational)

#### **46.0401: Building/Property Maintenance**

A program that prepares individuals to apply technical knowledge and skills to keep a building functioning, and to service a variety of structures including commercial and industrial buildings and mobile homes. Includes instruction in the basic maintenance and repair skills required to service building systems, such as air conditioning, heating, plumbing, electrical, major appliances, and other mechanical systems. (Vocational)



#### **46.0402: Concrete Finishing**

A program that prepares individuals to prepare, construct, and finish buildings, components, and related structures using compound masonry mixtures of stone, gravel, sand, cement, and water. Includes instruction in site preparation, applied mathematics, mixing formulas and applications, job estimation, concrete design, finishing techniques, mold preparation, reinforcement installation, site safety, and equipment operation and maintenance. (Vocational)

#### **46.0403: Building/Home/Construction Inspection**

A program that prepares individuals to apply industrial, labor, and governmental standards and laws to the oversight of construction projects and the maintenance of completed buildings and other structures. Includes instruction of completed buildings and other structures. Includes instruction in construction processes and techniques, materials analysis, occupational safety and health, industry standards, building codes and specifications, blueprint interpretation, testing equipment and procedures, communication skills, accident investigation, and documentation. (Vocational)

#### **46.0404: Drywall Installation**

A program that prepares individuals to apply technical knowledge and skills to install, tape, and plaster drywall installations in interior and exterior construction jobs. Includes instruction in drywall handling and transport, cutting and mounting, taping and spackling, finishing, job analysis and estimation, site safety, tool operation and maintenance, blueprint and specification interpretation, and applicable codes and standards. (Vocational)

#### **46.0406: Glazier**

A program that prepares individuals to apply technical knowledge and skills to install and repair fixtures, sheets, windows, and skylights made of glass, plexiglass, and other transparent materials. Includes instruction in site measurement, job analysis and estimation, material cutting and trimming, window and door installation, site safety, equipment operation and maintenance, specification interpretation, and applicable codes and standards. (Vocational)

#### **46.0408: Painter and Wall Coverer**

A program that prepares individuals to apply technical knowledge and skills to finish exterior and interior surfaces by applying protective or decorative coating materials, such as paint, lacquer, and wallpaper. Includes instruction in surface preparation; selecting, preparing, and applying paints and other coatings; hanging wallpaper; equipment operation and maintenance; finish selections; safety and clean-up; environmental effects on finishes; adhesion properties; and applicable codes and standards. (Vocational)

#### **46.0410: Roofer**

A program that prepares individuals to apply technical knowledge and skills to prepare, install, and maintain exterior roofing materials and roofs. Includes instruction in building materials, flashing, lag bolts, site safety, equipment operation and maintenance, layering, site preparation, basic internal structural design, finishing, waterproofing, and applicable codes and standards. (Vocational)

#### **46.0413: Carpet, Floor, and Tile Worker**

A program that prepares individuals to plan, prepare, install, and repair carpet; linoleum; vinyl; ceramic, marble, quarry, mosaic, and terrazzo tiles; and wood materials on floors, walls, and stairs.

Includes instruction in measuring, cutting, and installing materials; use of hand and power-operated equipment; estimation of material and labor costs; and safety training. (Vocational)

#### **46.0414: Insulator**

A program that prepares individuals to apply insulation materials to pipes, boilers, ducts, refrigeration systems, and related equipment to reduce the passage of heat, cold, sound, or fire. Includes instruction in insulation specifications, measuring and cutting insulating material, applying and securing insulation, installing vapor barriers, insulation system maintenance, asbestos removal and abatement, and safety training. (Vocational)

#### **46.0415: Building Construction Technology/Technician**

A program that prepares individuals to apply technical knowledge and skills to residential and commercial building construction and remodeling. Includes instruction in construction equipment and safety; site preparation and layout; construction estimating; blueprint reading; building codes; framing; masonry; heating, ventilation, and air conditioning; electrical and mechanical systems; interior and exterior finishing; and plumbing. (Vocational)

#### **46.0502: Pipefitting/Pipefitter and Sprinkler Fitter**

A program that prepares individuals to design, install, and test industrial and commercial piping systems and automatic fire and exposure protection systems. Includes instruction in water systems, steam systems, heating and cooling systems, lubricating systems, piping materials, installation tools operation and maintenance, valve installation and repair, technical mathematics, blueprint interpretation, and applicable codes and standards. (Vocational)

#### **46.0503: Plumbing Technology/Plumber**

A program that prepares individuals to practice as licensed plumbers by applying technical knowledge and skills to lay out, assemble, install, and maintain piping fixtures and systems for steam, natural gas, oil, hot water, heating, cooling, drainage, lubricating, sprinkling, and industrial processing systems in home and business environments. Includes instruction in source determination, water distribution, waste removal, pressure adjustment, basic physics, technical mathematics, blueprint reading, pipe installation, pumps, welding and soldering, plumbing inspection, and applicable codes and standards. (Vocational)

#### **46.0504: Well Drilling**

A program that prepares individuals to apply technical knowledge and skills to set up, maintain, repair, and operate well drilling equipment; locate, drill, construct, and develop water, gas, and oil wells; and test and monitor wells to ensure adequate flow. Includes geological formations, drilling machine maintenance, pumps, and Washington State water well rules and regulations. (Vocational)

### **47. MECHANICS AND REPAIRERS**

*Instructional programs that prepare individuals to apply technical knowledge and skills in the adjustment, maintenance, part replacement, and repair of tools, equipment, and machines.*

#### **47.0101: Electrical/Electronics Equipment Installation and Repair Technology/Technician, General**

A program that generally prepares individuals to apply technical knowledge and skills to operate, maintain, and repair electrical and electronic equipment. Includes instruction in electrical circuitry, simple gearing, linkages and lubrication of machines and appliances, and the use of testing equipment. (Vocational)

#### **47.0102: Business Machine Repair**

A program that prepares individuals to apply technical knowledge and skills to maintain and repair a variety of office machines, such as typewriters, word processing and dictation machines, calculators, data processing equipment, duplicating machines, and mailing machines. Includes instruction in diagnostic techniques, the use of testing equipment, and the principles of mechanics, electricity, and electronics as they relate to the repair of business machines. (Vocational)

#### **47.0103: Communication Systems Installation and Repair Technology/Technician**

A program that prepares individuals to apply technical knowledge and skills to assemble, install, operate, maintain, and repair one- and two-way communications equipment and systems, including television cable systems and mobile or stationary communication devices. Includes instruction in diagnostic techniques, the use of testing equipment and the principles of mechanics, electricity, and electronics as they relate to the repair of communications systems. (Vocational)

#### **47.0104: Computer Installation and Repair Technology**

A program that prepares individuals to apply technical knowledge and skills to assemble, install, operate, maintain, and repair computers and related instruments. Includes instruction in power supplies, number systems, memory structure, buffers and registers, microprocessor design, peripheral equipment, programming, and networking. (Vocational)

#### **47.0105: Industrial Electronics Technology**

A program that prepares individuals to apply technical knowledge and skills to assemble, install, operate, maintain, and repair electrical/electronic equipment used in industry and manufacturing. Includes instruction in installing, maintaining, and testing various types of equipment. (Vocational)

#### **47.0106: Appliance Installation and Repair Technology**

A program that prepares individuals to apply technical knowledge and skills to repair, install, and service major gas, electric, and microwave consumer appliances such as stoves, refrigerators, dryers, water heaters, washers, dishwashers, and commercial units such as ice makers and coffee makers. (Vocational)

#### **47.0110: Security System Installation, Repair, and Inspection Technology**

A program that prepares individuals to apply technical knowledge and skills to install and repair household, business, and industrial security systems, sensors, video and sound recording devices, identification systems, protective barriers, and related technologies. (Vocational)

#### **47.0201: Heating, Air Conditioning, Ventilation and Refrigeration Maintenance Technology**

A program that prepares individuals to apply technical knowledge and skills to repair, install, service and maintain the operating condition of heating, air conditioning, and refrigeration systems.

Includes instruction in diagnostic techniques, the use of testing equipment, and the principles of mechanics, electricity, and electronics as they relate to the repair of heating, air conditioning and refrigeration systems. (Vocational)

#### **47.0302: Heavy Equipment Maintenance Technology**

A program that prepares individuals to apply technical knowledge and skills in the field maintenance and repair of heavy equipment, and in the general maintenance and overhaul of such equipment. Includes instruction in inspection, maintenance, and repair of tracks, wheels, brakes, operating controls, pneumatic and hydraulic systems, electrical circuitry, engines, and in techniques of welding and brazing. (Vocational)

#### **47.0303: Industrial Mechanics and Maintenance Technology/Technician**

A program that prepares individuals to apply technical knowledge and skills to repair and maintain industrial machinery and equipment such as cranes, pumps, engines and motors, pneumatic tools, conveyor systems, production machinery, marine deck machinery, and steam propulsion, refinery, and pipeline-distribution system. (Vocational)

#### **47.0404: Musical Instrument Fabrication and Repair**

A program that prepares individuals to apply technical knowledge and skills to make, repair, maintain, and tune acoustic and electric musical instruments. Includes instruction in methods and equipment for making musical instruments, electronic instrument amplification systems, techniques of cleaning, and methods of tuning musical instruments. (Vocational)

#### **47.0408: Watchmaking and Jewelmaking**

A program that prepares individuals to apply technical knowledge and skills to make repairs and maintain timepieces, time-measuring devices, and jewelry items. Includes instruction in mechanical timekeeping systems, digital timekeeping systems, timesetting, casting, engraving, polishing, stonesetting, soldering, fine microscopic work, equipment and tool maintenance, redesign and restyling techniques, and customer relations. (Vocational)

#### **47.0603: Autobody/Collision and Repair Technology**

A program that prepares individuals to apply technical knowledge and skills to repair, reconstruct and finish automobile bodies, fenders, and external features. Includes instruction in structure analysis, damage repair, non-structural analysis, mechanical and electrical components, plastics and adhesives, painting and refinishing techniques, and damage analysis and estimating. (Vocational)

#### **47.0604: Automotive Mechanic/Technician**

A program that prepares individuals to apply technical knowledge and skills to repair, service, and maintain all types of automobiles. Includes instruction in brake systems, electrical systems, engine performance, engine repair, suspension and steering, automatic and manual transmissions and drive trains, and heating and air conditioning systems. (Vocational)

#### **47.0605: Diesel Mechanics/Technology**

A program that prepares individuals to apply technical knowledge and skills to repair, service, and maintain diesel engines in vehicles such as automobiles, buses, ships, trucks, railroad locomotives,

and construction equipment; as well as stationary diesel engines in electrical generators and related equipment. (Vocational)

#### **47.0606: Small Engine Mechanics and Repair Technology**

A program that prepares individuals to apply technical knowledge and skills to repair, service, and maintain small internal-combustion engines used on portable power equipment such as lawnmowers, chain saws, rotary tillers, and snowmobiles. (Vocational)

#### **47.0607: Aircraft Mechanics and Aircraft Maintenance Technology**

A program that prepares individuals to apply technical knowledge and skills to repair, service, and maintain all aircraft components other than engines, propellers, avionics, and instruments. Includes instruction in layout and fabrication of sheet metal, fabric, wood, and other materials into structural members, parts, and fittings, and replacement of damaged or worn parts such as control cables and hydraulic units. (Vocational)

#### **47.0608: Aircraft Powerplant Technology/Technician**

A program that prepares individuals to apply technical knowledge and skills to repair, service, and maintain all types of aircraft powerplants and related systems. Instruction includes engine inspection and maintenance, lubrication and cooling, electrical and ignition systems, carburetion, fuels and fuel systems, propeller and fan assemblies. This program is designed to meet the Federal Aviation Administration requirements for licensing as a power plant mechanic. (Vocational)

#### **47.0609: Avionics Maintenance and Technology**

A program that prepares individuals to apply technical knowledge and skills to repair, service, and maintain all types of aircraft operating, control, and electronic systems. Includes instruction in flight instrumentation, aircraft communications and homing systems, radar and other sensory systems, navigation aids, and specialized systems for various types of civilian and military aircraft. (Vocational)

#### **47.0611: Motorcycle Maintenance and Repair Technology**

A program that prepares individuals to repair, service, and maintain motorcycles and other similar powered vehicles. Includes instruction in lubrication and cooling systems, electrical and ignition systems, carburetion, fuel systems and adjustments of moving parts. (Vocational)

#### **47.0613: Medium/Heavy Vehicle and Truck Technology/Technician**

A program that prepares individuals to apply technical knowledge and skills to the specialized maintenance and repair of trucks, buses, and other commercial and industrial vehicles. Includes instruction in diesel engine mechanics, suspension and steering, brake systems, electrical and electronic systems, preventive maintenance inspections, drive trains, gasoline engine mechanics, HVAC systems, and auxiliary equipment installation and repair. (Vocational)

#### **47.0614: Alternative Fuel Vehicle Technology**

A program that prepares individuals to apply technical knowledge and skills to the maintenance of alternative fuel vehicles and the conversion of standard vehicles to AFV status. Includes instruction in electrical vehicles, liquefied petroleum gas (LPG) vehicles, compressed natural gas (CNG) vehicles, hybrid fuel technology, electrical and electronic systems, engine performance, diagnosis and repair, and conversion/installation. (Vocational)

#### **47.0615: Engine Machinist**

A program that prepares individuals to apply technical knowledge and skills to the building and reconstruction of automotive and commercial vehicle engines. Includes instruction in cylinder head and block, crack repair, crankshaft inspection and repair, connecting rods and pistons, balancing, block preparation, disassembly and repair, engine assembly, gas and diesel technology, and inspection and machining. (Vocational)

#### **47.0616: Marine Maintenance/Fitter and Ship Repair Technology**

A program that prepares individuals to apply technical knowledge and skills to repair outboard and inboard engines; test, maintain, and repair steering devices and electrical systems; repair metal, wood, and fiberglass hulls and vessel components; fabricate and maintain sails; and repair and balance propellers and drive shafts. (Vocational)

#### **47.0618: Recreation Vehicle (RV) Service Technician**

A program that prepares individuals to apply technical knowledge and skills to build, test, inspect, repair, service and maintain recreational vehicles, systems, and interior and exterior components. Includes instruction in brake, hydraulic, and towing systems; electrical systems; propane systems and propane and electric appliances; carpentry; plumbing; welding; and structural frames. (Vocational)

#### **47.0699: Vehicle Maintenance and Repair Technologies/Technicians, Other**

Any instructional program in vehicle maintenance and repair technologies not listed above. (Vocational)

#### **47.0701: Energy Systems Installation and Repair Technology/Technician**

A program that prepares individuals to apply technical knowledge and skills to assemble, install, operate, maintain, and repair energy systems. Includes instruction in installing, maintaining and testing various types of equipment. (Vocational)

### **48. PRECISION PRODUCTION TRADES**

*Instructional programs that prepare individuals to apply technical knowledge and skills to create products using techniques of precision craftsmanship or technical illustration.*

#### **48.0303: Upholstery**

A program that prepares individuals to apply technical knowledge and skills to install springs, filling, padding, covering and finishing on items such as furniture, automobile seats, caskets, mattresses, and bedsprings. (Vocational)

#### **48.0501: Machine Tool Technology**

A program that prepares individuals to apply technical knowledge and skills to plan, manufacture, assemble, test, and repair parts, mechanisms, machines, and structures in which materials are cast, formed, shaped, molded, heat treated, cut, twisted, pressed, fused, stamped, or worked. (Vocational)



#### **48.0503: Machine Shop Technology/Assistant**

A program that prepares individuals to apply technical knowledge and skills to fabricate and modify metal parts in support of other manufacturing, repair, or design activities, or as an independent business. (Vocational)

#### **48.0506: Sheet Metal Technology**

A program that prepares individuals to apply technical knowledge and skills to form, shape, bend and fold extruded metals, including the creation of new products, using hand tools and machines such as cornice brakes, forming rolls, and squaring shears. (Vocational)

#### **48.0507: Tool and Die Technology**

A program that prepares individuals to apply technical knowledge and skills to operate machine tools used in the forming of metal components, as well as the fabrication of special tools, dies, jigs and fixtures used in cutting, working, and finishing metal components. (Vocational)

#### **48.0508: Welding Technology**

A program that prepares individuals to apply technical knowledge and skills to join or cut metal surfaces. Includes instruction in arc welding, resistance welding, brazing and soldering, cutting, high-energy beam welding and cutting, solid state welding, ferrous and non-ferrous materials, oxidation-reduction reactions, welding, metallurgy, welding processes and heat treating, structural design, safety, and applicable codes and standards. (Vocational)

#### **48.0509: Ironworking**

A program that prepares individuals to make and install structural, ornamental, and reinforcing metal structures and supports. Includes instruction in drafting, technical mathematics, blueprint interpretation, welding, riveting, beam placement, ornamental design, structural reinforcement, crane operation, safety, and applicable codes and standards. (Vocational)

#### **48.0510: Computer Numerically Controlled (CNC) Machinist Technology/CNC Machinist**

A program that prepares individuals to apply technical knowledge and skills to operate computer numerically controlled (CNC) machine tools, such as lathes, mills, precision measuring tools, and related attachments and accessories, to perform machining functions, such as cutting, drilling, shaping, and finishing products and component parts. Includes instruction in CNC terminology, setup, programming, operations, and troubleshooting; blueprint reading; machining; lathe and mill operations; technical mathematics; computer literacy; CAD/CAM systems; shop and safety practices; equipment capabilities; and regulations and laws. (Vocational)

#### **48.0511: Metal Fabricator**

A program that prepares individuals to apply technical knowledge and skills to further process ferrous and/or non-ferrous metal plates or shapes, and to manufacture and/or install products as interpreted through technical drawings. Includes instruction in trade tools, shop equipment, reading and interpreting blueprints, material handling, welding, thermal cutting, metallurgy, template pattern development, plate and structural fabrication, destructive and non-destructive testing, inspection, shipment preparation and fabrication installation. (Vocational)



#### **48.0703: Cabinetmaking and Millwork**

A program that prepares individuals to apply technical knowledge and skills to set up, operate and repair industrial woodworking machinery, and to use such machinery to design and fabricate wooden components and complete articles. (Vocational)

#### **48.0801: Boilermaker**

A program that prepares individuals to apply technical knowledge and skills to fabricate and repair steam boiler components. Includes instruction in principles of steam power, material selection, welding, riveting, sealing materials, pressure testing, pipefitting, and applicable codes and standards. (Vocational)

### **49. TRANSPORTATION AND MATERIALS MOVING WORKERS**

*Instructional programs that prepare individuals to apply technical knowledge and skills to perform tasks and services that facilitate the movement of people or materials.*

#### **49.0101: Aeronautics/Aviation/Aerospace Science and Technology, General**

A program that focuses on the general study of aviation and the aviation industry, including in-flight and ground support operations. Includes instruction in the technical, business, and general aspects of air transportation systems. (Academic and Vocational)

#### **49.0102: Airline/Commercial/Professional Pilot and Flight Crew**

A program that prepares individuals to apply technical knowledge and skills to the flying and/or navigation of commercial passenger and cargo, agricultural, public service, corporate, and rescue fixed wing aircraft. Includes instruction in principles of aircraft design and performance; aircraft flight systems and controls; flight crew operations and procedures; radio communications; navigation procedures and systems; airways safety and traffic regulations; and governmental rules and regulations pertaining to piloting aircraft. Programs may qualify individuals to sit for the FAA commercial and airline aircrew examinations. (Vocational)

#### **49.0104: Aviation/Airway Management and Operations**

A program that prepares individuals to apply technical knowledge and skills to the management of aviation industry operations and services. Includes instruction in airport operations, ground traffic direction, ground support and flightline operations, passenger and cargo operations, flight safety and security operations, aviation industry regulations, and related business aspects of managing aviation enterprises. (Vocational)

#### **49.0105: Air Traffic Controller**

A program that prepares individuals to apply technical knowledge and skills to air-traffic management and control, usually with additional training at the FAA Flight Control Center in a cooperative education program. Includes instruction in flight control; the use of radar and electronic scanning device; plotting of flights; radio communication; interpretation of weather conditions affecting flights; flight instrumentation used by pilots; and maintenance of flight control center or control tower log books and reports. (Vocational)

#### **49.0199: Air Transportation, Other**

Any instructional program in aviation and air transportation services not listed above. (Vocational)

#### **49.0202: Construction/Heavy Equipment Operation**

A program that prepares individuals to apply technical knowledge and skills to operate and maintain a variety of heavy equipment, such as a crawler tractor, motor graders and scrapers, and shovels, including dragline, hoe, and cranes. Includes instruction in digging, ditching, sloping, stripping, grading, backfilling, clearing, and excavating. (Vocational)

#### **49.0205: Truck and Bus Driver/Commercial Vehicle Operator**

A program that prepares individuals to apply technical knowledge and skills to drive trucks and buses, delivery vehicles, for-hire vehicles and other commercial vehicles. Includes instruction in operating gas, diesel, or electrically-powered vehicles; loading and unloading cargo or passengers; reporting delays or accidents on the road; verifying load against shipping papers; arranging transportation for personnel; and keeping records of receipts and fares. (Vocational)

#### **49.0207: Flagging and Traffic Control**

A program that prepares individuals to control the movement of traffic through construction and maintenance zones and to protect the safety of work crews, drivers, and pedestrians. Includes instruction in flagging duties and responsibilities, the traffic control zone, flagging signals, pavement markers, freeway flagging, utility flagging, emergency response flagging, and night traffic control. (Vocational)

#### **49.0208: Railroad and Railway Transportation**

A program that prepares individuals to apply technical knowledge and skills to the operation of railroads and other aspects of the railway industry, including railroad and railyard service. Includes instruction in railway culture, operating skills, General Code of Operation rules, conductor service, signal systems, switching, transportation of hazardous materials, safety, and railway telecommunications systems. (Vocational)

#### **49.0209: Forklift Operation/Operator**

A program that prepares individuals to operate forklifts in a variety of work environments. Includes instruction in accident prevention, forklift operation, materials handling, and worksite safety. (Vocational)

#### **49.0304: Diver, Professional and Instructor**

A program that prepares individuals to apply technical knowledge and skills to function as professional deep-water or scuba divers, diving instructors, or diving support personnel. Includes instruction in the use of diving equipment and related specialized gear; diving safety procedures; operation and maintenance of underwater life-support systems; underwater communication systems; decompression systems; underwater salvage; exploration, rescue, and photography; and installation of underwater mechanical systems and their maintenance, repair or demolition. (Vocational)

#### **49.0309: Merchant Marine Officer**

A program that prepares individuals to serve as captains, executive officers, engineers and ranking mates on commercially licensed inland, coastal and ocean-going vessels. Includes instruction in maritime traditions and law; maritime policy; economics and management of commercial marine operations; basic naval architecture and engineering; shipboard power systems engineering; crew supervision; and administrative procedures. (Vocational)

### **50. VISUAL AND PERFORMING ARTS**

*Instructional programs that focus on the creation and interpretation of works and performances that use auditory, kinesthetic, and visual phenomena to express ideas and emotions in various forms, subject to aesthetic criteria.*

#### **50.0101: Visual and Performing Arts, General**

A general program that focuses on the introductory study and appreciation of the visual arts. Includes instruction in art, photography, and other visual communications media. (Academic)

#### **50.0102: Digital Arts**

A general, undifferentiated program that focuses on the use of computerized digital images as the primary medium of expression in the visual and performing arts, and that may prepare individuals for a wide variety of careers using new media, including graphic design, digital animation, motion graphics, 3D visualization, game and interactive media design, music and sound design, video production, web design, photography, and other fields. (Academic)

#### **50.0201: Crafts, Folk Art, and Artisanry**

A program that focuses on the aesthetics, techniques, and creative processes for designing and fashioning objects in one or more of the handcraft or folk art traditions, and that prepares individuals to create in any of these media. (Academic)

#### **50.0301: Dance**

A program that prepares individuals to express ideas, feelings, and/or inner visions through the performance of one or more of the dance disciplines, including but not limited to ballet, modern, jazz, ethnic, and folk dance, and that describes the study and analysis of dance as a cultural phenomenon. Includes instruction in technique, choreography, Laban notation, dance history and criticism, and dance production. (Academic)

#### **50.0401: Design and Visual Communications, General**

A program in the applied visual arts that focuses on the general principles and techniques for effectively communicating ideas and information, and packaging products, in digital or other formats to business and consumer audiences, and that may prepare individuals in any of the applied art media. (Academic and Vocational)

#### **50.0402: Commercial and Advertising Art**

A program in the applied visual arts that prepares individuals to use artistic techniques to effectively communicate ideas and information to business and consumer audiences via illustrations and other forms of printed media. Includes instruction in concept design, layout, paste-up, and techniques

such as engraving, etching, silkscreen, lithography, offset, drawing and cartooning, painting, collage, and computer graphics. (Vocational)

#### **50.0404: Industrial and Product Design**

A program in the applied visual arts that prepares individuals to use artistic techniques to effectively communicate ideas and information to business and consumer audiences via the creation of effective forms, shapes, and packaging for manufactured products. Includes instruction in designing in a wide variety of plastic and digital media, prototype construction, design development and refinement, principles of cost saving, and product structure and performance criteria relevant to aesthetic design parameters. (Vocational)

#### **50.0406: Commercial Photography**

A program in the applied visual arts that prepares individuals to use artistic techniques to effectively communicate ideas and information to business and consumer audiences, and recording events and people, via digital, film, still and video photography. Includes instruction in specialized camera and equipment operation and maintenance; applications to commercial and industrial needs; photography business operations. (Vocational)

#### **50.0407: Fashion/Apparel Design**

A program that prepares individuals to apply artistic principles and techniques to the professional design of commercial fashions, apparel, and accessories, and the management of fashion development projects. Includes instruction in apparel design; accessory design; the design of men's, women's, and children's wear; flat pattern design; computer-assisted design and manufacturing; concept planning; designing in specific materials; labor and cost analysis; history of fashion; fabric art and printing; and the principles of management and operations in the fashion industry. (Vocational)

#### **50.0408: Interior Design**

A program in the applied visual arts that prepares individuals to apply artistic principles and techniques to the professional planning, designing, equipping, and furnishing residential and commercial interior spaces. Includes instruction in drafting and graphic techniques; principles of interior lighting, acoustics, systems integration, and color coordination; furniture and furnishings; textiles and their finishing; the history of interior design and period styles; basic structural design; building codes and inspection regulations; and applications to office, hotel, factory, restaurant and housing design. (Academic and Vocational)

#### **50.0409: Graphic Design**

A program that prepares individuals to apply artistic and computer techniques to the interpretation of technical and commercial concepts. Includes instruction in computer-assisted art and design, printmaking, concepts sketching, technical drawing, color theory, imaging, studio technique, still and life modeling, multimedia applications, communication skills and commercial art business operations. (Vocational)

#### **50.0410: Illustration**

A program that prepares individuals to apply artistic techniques to develop and execute interpretations of the concepts of authors and designers to specifications. Includes instruction in

book illustration, fashion illustration, map illustration, rendering, exhibit preparation, textual layout, cartooning, and the use of various artistic techniques as requested by clients. (Vocational)

#### **50.0411: Games and Interactive Media Design**

A program that focuses on the design, development, and programming of interactive media entertainment, including computer and video games, virtual environments, Internet applications, and other interactive media. Includes instruction in theory of games, turn-based games, real-time games, visual and interactive design, story development, animation, simulation, and programming. (Academic and Vocational)

#### **50.0501: Drama/Theater Arts**

A program that focuses on the general study of dramatic works and their performance. Includes instruction in major works of dramatic literature, dramatic styles and types, and the principles of organizing and producing full live or filmed productions. (Academic)

#### **50.0509: Musical Theatre**

A program that focuses on the principles and techniques for integrating theatre, music, and dance into a unified production. Includes instruction in acting, dance, voice, technical theater, musical genres, piano, and history of musical theater. (Academic)

#### **50.0602: Cinematography and Film/Video Production**

A program that prepares individuals to communicate dramatic information, ideas, moods, and feelings through the making and producing of films and videos. Includes instruction in theory of film; film technology and equipment operation; film production; film directing; film editing; cinematographic art; film audio; techniques for making specific types of films and/or videos; and the planning and management of film/video operations. (Academic)

#### **50.0605: Photography**

A program that focuses on the principles and techniques of communicating information, ideas, moods, and feelings through the creation of images on photographic film, plates, digital images and that may prepare individuals to be professional photographic artists. Includes instruction in camera and equipment operation and maintenance, film and plate developing, light and composition, films and printing media, color and special effects, photographic art, photographic history, use of computer applications to record or enhance images and applications to the photography of various subjects. (Academic)

#### **50.0702: Fine/Studio Arts, General**

A program that prepares individuals to generally function as creative artists in the visual and plastic media. Includes instruction in the traditional fine arts media (drawing, painting, sculpture, printmaking, CAD/CAM) and/or modern media (ceramics, textiles, intermedia, photography, digital images), theory of art, color theory, composition and perspective, anatomy, the techniques and procedures for maintaining equipment and managing a studio, and art portfolio marketing. (Academic)

### **50.0703: Art History, Criticism, and Conversation**

A program that focuses on the study of the historical development of art as social and intellectual phenomenon, the analysis of works of art, and art conservation. Includes instruction in the theory of art, art history research methods, connoisseurship, the preservation and conservation of works of art, and the study of specific periods, cultures, styles, and themes. (Academic)

### **50.0705: Drawing**

A program that prepares individuals creatively and technically to express emotions, ideas, or inner visions through representation by lines made on a surface. Includes instruction in eye-hand coordination; line, value, shape, and perspective; figure and still life drawing; the use of media such as pen and ink, pencil, charcoal, pastel, and brush; and personal style development. (Academic)

### **50.0706: Intermedia/Multimedia**

A program that prepares individuals creatively and technically to express emotions, ideas, or inner visions in either two or three dimensions, through simultaneous use of a variety of materials and media. (Vocational)

### **50.0708: Painting**

A program that prepares individuals creatively and technically to express emotions, ideas, or inner visions by the application of paints and related chemical color substances to canvases or other materials. Includes instruction in color and color mixing; surface preparation; composition; oil and acrylic media; watercolor media; painting techniques; and personal style development. (Academic)

### **50.0709: Sculpture**

A program that prepares individuals creatively and technically to express emotions, ideas, or inner visions by creating three-dimensional art works. Includes instruction in the analysis of form in space; round and relief concepts; sculptural composition; modern and experimental methods; different media such as clay, plaster, wood, stone, and metal; techniques such as carving, molding, welding, casting, and modeling; and personal style development. (Academic)

### **50.0711: Ceramic Arts and Ceramics**

A program that prepares individuals creatively and technically to express emotions, ideas, or inner visions by producing art works out of clay and similar materials. Includes instruction in hand-built and wheel-thrown techniques; molding; slips and glazes; trimming and decorating; firing and kiln operation; oxidation; mixed media; ceramic murals; and personal style development. (Academic)

### **50.0713: Jewelry Arts**

A program that prepares individuals creatively and technically to express emotions, ideas, or inner visions by fashioning jewelry from gems, other stones, and precious metals. Includes instruction in design concepts, electroforming, enameling, gemology, lapidary technique and art, metal and non-metal casting and molding, metal coloring, metalsmithing and finishing, personal style development, photo etching, and stone cutting and polishing. (Vocational)

### **50.0901: Music, General**

A general program that focuses on the introductory study and appreciation of music and the performing arts. Includes instruction in music, dance, and other performing arts media. (Academic)



### **50.0902: Music History, Literature, and Theory**

A program that focuses on the study of the historical evolution of music as a social and intellectual phenomenon, the development of musical instruments and techniques, and the analysis and criticism of musical literature. Includes instruction in music history research methods, aesthetic analysis of musical compositions, history of musical writing and notation, the development of musical instruments, the development of music theory, and the study of specific periods, cultural traditions, styles, and themes. (Academic)

### **50.0903: Music Performance, General**

A program that generally prepares individuals to master musical instruments and performing art as solo and/or ensemble performers. Includes instruction on one or more specific instruments from various instrumental groupings. (Academic)

### **50.0904: Music Theory and Composition**

A program that focuses on the study of the principles of sound manipulation as applied to the creation of music, and the techniques of creating and arranging music. Includes instruction in aural theory, melody, counterpoint, complex harmony, modulation, chromaticism, improvisation, progressions, musical writing, instrumentation, orchestration, electronic and computer applications, studies of specific musical styles, and development of original creative ability. (Academic)

### **50.0907: Keyboard Instruments**

A program that prepares individuals to master the piano, organ, or related keyboard instruments and performing art as solo, ensemble, and/or accompanist performers. Includes instruction in piano and keyboard pedagogy, ensemble playing, accompanying, service playing, repertoire, keyboard and pedal skills, recital, and personal style development. (Academic)

### **50.0913: Music Technology**

A program that focuses on the creative aspects of the blending of music and technology; and that prepares individuals to apply technical knowledge and skills to the composition, recording, synthesis, and performance of music; audio-visual production; scoring for film and multimedia; and software and multimedia development. Includes instruction in music theory, music history, composition, acoustics, recording technology, computer composition, electronic music synthesis, technology-based performance, 3D sound and spatial audio, and music business and law. (Vocational)

### **50.0915: Wind Instruments**

A program that prepares individuals to master a woodwind instrument and performing art as solo, ensemble, and/or accompanist performers. Includes instruction in playing and personal style development. (Academic)

### **50.0999: Music, Other**

Any instructional program in music not listed above. (Vocational)

### **50.1001: Arts, Entertainment, and Media Management**

A program that prepares individuals to organize and manage various aspects of the visual arts, performing arts, and entertainment media industries. Includes instruction in business and financial



management, marketing and fund-raising, labor relations for the arts, event promotion and management, product and artist management, and applicable law. (Vocational)

#### **50.1002: Fine and Studio Arts Management**

A program that prepares individuals to organize and manage fine and studio art organizations, operations, and facilities. Includes instruction in business and financial management; marketing and fundraising; personnel management and labor relations; event promotion and management; public relations and arts advocacy; arts law; and applications to specific arts activities such as galleries, museums, studios, foundations, and community organizations. (Vocational)

#### **50.1003: Music Management**

A program that prepares individuals to organize and manage music organizations, operations, facilities, and personnel. Includes instruction in business and financial management; marketing and fundraising; personnel management and labor relations; event promotion and management; music products merchandising; artist agency and promotion; music law; and applications to specific activities such as managing theaters, recording studios and companies, bands and other ensembles, individual artists, and music organizations. (Vocational)

### **51. HEALTH PROFESSIONS AND RELATED SCIENCES**

*Instructional programs that prepare individuals to practice as licensed professionals and assistants in the health care professions and related clinical sciences and administrative and support services.*

#### **51.0000: Health Services/Allied Health/Health Sciences, General**

A general, introductory, undifferentiated, or joint program in health services occupations that prepare individuals for either entry into specialized training programs or for a variety of concentrations in the allied health area. Includes instruction in the basic sciences, research and clinical procedures, and aspects of the subject matter related to various health occupations. (Vocational)

#### **51.0001: Health and Wellness, General**

A program of study that prepares individuals to assume roles as health/wellness professionals in private business and industry, community organizations, and health care settings. Includes instruction in personal health, community health and welfare, nutrition, epidemiology, disease prevention, fitness and exercise, and health behaviors. (Vocational)

#### **51.0401: Dentistry**

A program that prepares individuals for the independent professional practice of dentistry/dental medicine, encompassing the evaluation, diagnosis, prevention, and treatment of diseases, disorders, and conditions of the oral cavity, maxillofacial area, and adjacent structures and their impact on the human body and health. Includes instruction in the basic biomedical sciences, occlusion, dental health and prevention, oral pathology, cariology, operative dentistry, oral radiology, principles of the various dental specialties, pain management, oral medicine, clinic and health care management, patient counseling, and professional standards and ethics. (only approved for FA Prep Coursework plans)

### **51.0601: Dental Assistant**

A program that prepares individuals to provide patient care, take dental radiographs (x-ray photographs), prepare patients and equipment for dental procedures, and discharge office administrative functions under the supervision of dentists and dental hygienists. Includes instruction in medical record-keeping, general office duties, reception and patient intake, scheduling, equipment maintenance and sterilization, basic radiography, pre- and post-operative patient care and instruction, chairside assisting, taking tooth and mouth impressions, and supervised practice. (Vocational)

### **51.0602: Dental Hygienist**

A program that prepares individuals to clean teeth and apply preventative materials; provide oral health education and treatment counseling to patients; identify oral pathologies and injuries; and manage dental hygiene practices. Includes instruction in dental anatomy, microbiology, and pathology; dental hygiene theory and techniques; cleaning equipment operation and maintenance; dental materials; radiology; patient education and counseling; office management; supervised clinical training; and professional standards. (Vocational)

### **51.0603: Dental Laboratory Technician**

A program that prepares individuals, under the supervision of dentists, to design and construct dental prostheses such as caps, crowns, bridges, dentures, splints, and orthodontic appliances. Includes instruction in dental anatomy, dental materials, ceramics technology, impressions, complete dentures, partial dentures, orthodontics, crowns and bridges, sculpture, bonding and assembly techniques, and equipment operation. (Vocational)

### **51.0699: Dental Services and Allied Professions, Other**

Any instructional program in dental services and allied professions not listed above. (Vocational)

### **51.0701: Health/Health Care Administration/Management**

A program that prepares individuals to develop, plan, and manage health care operations and services within health care facilities and across health care systems. Includes instruction in planning, business management, financial management, public relations, human resources management, health care systems operation and management, health care resource allocation and policy making, health law and regulations, and applications to specific types of health care services. (Vocational)

### **51.0702: Hospital and Health Care Facilities Administration**

A program that prepares individuals to apply the managerial principles to the administration of hospitals, clinics, nursing homes, and other health care facilities. Includes instruction in facilities planning, building and operations management, business management, financial management and insurance, fund-raising and marketing, public relations, human resources management and labor relations, health care facilities operations, principles of health care delivery, and applicable law and regulations. (Vocational)

### **51.0703: Health Unit Coordinator/Ward Clerk**

A program that prepares individuals, under the supervision of nurses or ward supervisors, to perform routine administrative and reception duties in a patient care unit within a hospital or other health

care facility. Includes instruction in receiving and directing visitors, transcribing medical and nursing orders, preparing requisition forms, scheduling patient appointments and procedures, monitoring patients and personnel, and interpersonal skills. (Vocational)

#### **51.0705: Medical Office Management**

A program that prepares individuals to manage the specialized business functions of a medical or clinical office. Includes instruction in business office operations, business and financial record-keeping, personnel supervision, medical and health care policy administration, conference planning, scheduling and coordination, public relations, and applicable law and regulations. (Vocational)

#### **51.0706: Health Information/Medical Records Administration**

A program that prepares individuals to plan, design, and manage systems, processes, and facilities used to collect, store, secure, retrieve, analyze, and transmit medical records and other health information used by clinical professionals and health care organizations. Includes instruction in the principles and basic content of the biomedical and clinical sciences, information technology and applications, data and database management, clinical research methodologies, health information resources and systems, office management, legal requirements, and professional standards. (Vocational)

#### **51.0707: Health Information/Medical Records Technology**

A program that prepares individuals, under the supervision of health information administrators and other professionals, to construct medical records and clinical databases, perform manipulations on retrieved data, control the security and quality of records, and supervise data entry and technical maintenance personnel. Includes instruction in clinical and biomedical science data and information requirements; database management; data coding and validation; information security; quality control; health information content and structure; medical business procedures; and legal requirements. (Vocational)

#### **51.0708: Medical Transcription**

A program that prepares individuals to execute verbatim medical conference minutes, medical reports, and medical orders. Includes instruction in dictation and simultaneous recording, analysis of notes or visual evidence, medical terminology, data processing applications and skills, formal medical report and correspondence formats, professional standards, and applicable laws and regulations. (Vocational)

#### **51.0710: Medical Office Assistant/Specialist**

A program that prepares individuals, under the supervision of office managers and other professionals, to perform routine administrative duties in the context of a medical, clinical, or health care facility/system office environment. Includes instruction in general office skills, data processing, office equipment operation, principles of medical record-keeping and business regulations, medical/clinical office procedures, and communications skills. (Vocational)

#### **51.0711: Medical/Health Management and Clinical Assistant**

A program that prepares individuals, under the supervision of physicians, nurses, or other health care professionals, to perform medical office or facilities management services and perform one or more clinical allied health specialties. Includes instruction in health care management; medical

office administration; medical law and regulations; training in one or more diagnostic, treatment, therapy, or laboratory specialties at the assistant level or above; and applicable professional standards and ethics. (Vocational)

#### **51.0712: Medical Receptionist**

A program that prepares individuals, under the supervision of office managers, nurses, or physicians, to provide customer service, visitor reception, and patient intake and discharge services. Includes instruction in medical office and health care facility procedures, medical terminology, interpersonal skills, record-keeping, customer service, telephone skills, data entry, interpersonal communications skills, and applicable policies and regulations. (Vocational)

#### **51.0713: Medical Insurance Coding Specialist**

A program that prepares individuals to perform specialized data entry, classification, and record-keeping procedures related to medical diagnostic, treatment, billing, and insurance documentation. Includes instruction in medical records and insurance software applications, basic anatomy and physiology, medical terminology, fundamentals of medical science and treatment procedures, data classification and coding, data entry skills, and regulations relating to Medicare and insurance documentation. (Vocational)

#### **51.0714: Medical Insurance Specialist/Medical Biller**

A program that prepares individuals to perform and manage the medical and health insurance operations in a medical office, health care facility, health maintenance organization, or insurance provider. Includes instruction in health and medical insurance processes; health insurance law, policy, and regulations; insurance records and paperwork administration; insurance office administration; health/medical insurance software applications; personnel supervision; business mathematics; billing and collection procedures; medical terminology; and communications skills. (Vocational)

#### **51.0716: Medical Administrative Assistant/Medical Secretary**

A program that prepares individuals to perform the duties of special assistants and personal secretaries for practicing physicians and nurses, health care facilities and services administrators, and other health care professionals. Includes instruction in business and medical communications, medical terminology, principles of health care operations, public relations and interpersonal communications, software applications, record-keeping and filing systems, scheduling and meeting planning, applicable policy and regulations, and professional standards and ethics. (Vocational)

#### **51.0801: Medical/Clinical Assistant**

A program that prepares individuals, under the supervision of physicians, to provide medical office administrative services and perform clinical duties including patient intake and care, routine diagnostic and recording procedures, pre-examination and examination assistance, and the administration of medications and first aid. Includes instruction in basic anatomy and physiology; medical terminology; medical law and ethics; patient psychology and communications; medical office procedures; and clinical diagnostic, examination, testing, and treatment procedures. (Vocational)

#### **51.0802: Clinical/Medical Laboratory Assistant**

A program that prepares individuals, under the supervision of physicians or laboratory scientists or technologists, to perform basic clinical testing procedures, operate equipment, and support laboratory teams engaged in a variety of studies. Includes instruction in clinical procedures, various laboratory tests, laboratory mathematics, computer technology, equipment operation and maintenance, sterilization and safety, communication skills, and interpersonal skills. (Vocational)

#### **51.0803: Occupational Therapy Assistant**

A program that prepares individuals, under the supervision of occupational therapists, to direct patient participation in skill-enhancing, learning, and motivational tasks; correct or diminish pathologies; and to provide direct health education and promotional services. Includes instruction in human life span development, occupational therapy principles and practice skills, treatment planning and implementation, record-keeping and documentation, patient education and intervention, activity and program direction, and assistive services management. (Vocational)

#### **51.0805: Pharmacy Technician**

A program that prepares individuals, under the supervision of pharmacists, to prepare medications, provide medications and related assistance to patients, and manage pharmacy clinical and business operations. Includes instruction in medical and pharmaceutical terminology; principles of pharmacology and pharmaceuticals; drug identification; pharmacy laboratory procedures; prescription interpretation; patient communication and education; safety procedures; record-keeping; measurement and testing techniques; pharmacy business operations; prescription preparation; logistics and dispensing operations; and applicable standards and regulations. (Vocational)

#### **51.0806: Physical Therapy Assistant**

A program that prepares individuals, under the supervision of a physical therapist, to implement physical therapy treatment care plans, train patients, conduct treatment interventions, use equipment, and observe and record patient progress. Includes instruction in applied anatomy and physiology, behavioral sciences, biomechanics, clinical documentation, clinical pathology, communications, exercise physiology, kinesiology, neuroscience, and professional standards and ethics. (Vocational)

#### **51.0809: Anesthesiologist Assistant**

A program that prepares individuals to assist anesthesiologists and nurse anesthetists in developing and implementing patient anesthesia care plans, including preoperative, surgical theater, recovery room, and postoperative/intensive care procedures. Includes instruction in patient data collection, catheter insertion, airway management and drug administration, assisting the administration and monitoring of regional and peripheral nerve blockades, support therapy, adjusting anesthetic levels during surgery, intraoperative monitoring, postoperative procedures, pain clinics and patient education, and administrative tasks. (Vocational)

#### **51.0810: Emergency Medical Technician (Ambulance)**

A program that prepares individuals to assist EMT Paramedics, under the supervision of a physician, to prepare and transport ill or injured patients, and to operate emergency vehicles and equipment such as life support units. Includes instruction in first aid and emergency medicine field techniques;

patient stabilization and care; medical field communications; equipment operation and maintenance; emergency vehicle operation; and applicable standards and regulations. (Vocational)

#### **51.0812: Respiratory Therapy Technician**

A program that prepares individuals to administer general respiratory care procedures under the supervision of respiratory therapists in a variety of clinical settings. Includes instruction in patient data collection and monitoring, airway management, installation of nebulizers and other respiratory assistance devices, application and monitoring of breathing gases, equipment operation and maintenance, safety and sanitation procedures, and applicable regulations. (Vocational)

#### **51.0813: Chiropractic Assistant**

A program that prepares individuals, under the supervision of a chiropractor, to provide patient management, examination, and treatment services. Includes instruction in the principles and procedures of chiropractic; radiographic x-ray procedures and techniques; x-ray film analysis and media studies; orthopedic and neurological testing; clinical laboratory procedures; patient management and education; office administrative skills; and applicable law and regulations. (Vocational)

#### **51.0814: Radiologist Assistant**

A program that prepares individuals, under the supervision of a physician, to perform patient assessment, patient management, selected imaging procedures and to make initial observations of diagnostic images. Includes instruction in radiologic procedures and techniques, cross sectional anatomy, pharmacology, pathophysiology, patient assessment, patient care and management, and radiation biology. (Vocational)

#### **51.0816: Speech-Language Pathology Assistant**

A program that prepares individuals, under the supervision of speech-language pathologists, to assist in the provision of speech-language pathology services to individuals of all ages, including screenings and assessments, following treatment plans or protocols, documenting and reporting patient performance, performing checks and maintenance of equipment, and providing support in research projects. Includes instruction in speech and language development, phonetics, childhood and adult communication disorders, speech and hearing screening, and clinical procedures in speech-language pathology. (Vocational)

#### **51.0901: Cardiovascular Technology**

A program that prepares individuals to perform invasive, noninvasive, and peripheral examinations of the cardiovascular system at the request of physicians to aid in diagnoses and therapeutic treatments. Include instruction in reviewing and recording patient histories and clinical data; patient care; investigative and examination procedures; diagnostic procedures; data analysis and documentation; physician consultation; equipment operation and monitoring; and professional standards and ethics. (Vocational)

#### **51.0902: Electrocardiograph Technology**

A program that prepares individuals, under the supervision of physicians and nurses, to administer EKG and ECG diagnostic examinations and report results to the treatment team. Includes instruction in basic anatomy and physiology, the cardiovascular system, medical terminology, cardiovascular



medications and effects, patient care, EKG and ECG administration, equipment operation and maintenance, interpretation of cardiac rhythm, patient record management, and professional standards and ethics. (Vocational)

#### **51.0903: Electroencephalographic Technology/Technologist**

A program that prepares individuals, under the supervision of a physician, to study and record electrical activity in the brain and nervous system for purposes of patient monitoring and supporting diagnoses. Includes instruction in patient communication and care; taking and abstracting patient histories; application of recording electrodes; EEG, EP, and PSG equipment operation and procedural techniques; and data recording and documentation. (Vocational)

#### **51.0904: Emergency Medical Technician (Paramedic)**

A program that prepares individuals, under the remote supervision of physicians, to recognize, assess, and manage medical emergencies in prehospital settings and to supervise EMT Ambulance personnel. Includes instruction in basic and advanced first aid procedures; emergency surgical procedures; medical triage; rescue operations; crisis scene management and personnel supervision; equipment operation and maintenance; patient stabilization, monitoring, and care; drug administration; identification and preliminary diagnosis of diseases and injuries; communication and computer operations; basic anatomy, physiology, pathology, and toxicology; and professional standards and regulations. (Vocational)

#### **51.0905: Nuclear Medical Technology**

A program that prepares individuals, under the supervision of physicians, to employ radioactive and stable nuclides in diagnostic evaluations and therapeutic applications while monitoring for patient health and safety. Includes instruction in nuclear physics, health physics, instrumentation and statistics, biochemistry, immunology, radiopharmacology, radiation biology, clinical nuclear medicine, radionuclide therapy, computer applications, safety regulations, equipment operation, quality control, laboratory procedures, taking patient histories, patient evaluation and monitoring, emergency first aid, administration and record-keeping, and personnel supervision. (Vocational)

#### **51.0906: Perfusion Technology/Perfusionist**

A program that prepares individuals, under the supervision of physicians and nurses, to operate extra corporeal circulation and auto transfusion equipment during medical procedures and surgeries where the support or temporary replacement of a patient's own respiratory or circulatory system is required. Includes instruction in equipment selection and operation; physician and medical team consultation; patient condition monitoring; procedural techniques; and principles of respiratory and circulatory physiology. (Vocational)

#### **51.0907: Medical Radiologic Technology (Radiation Therapist)**

A program that prepares individuals to administer prescribed courses of radiation treatment, manage patients undergoing radiation therapy, and maintain pertinent records. Includes instruction in applied anatomy and physiology, oncologic pathology, radiation biology, radiation oncology procedures and techniques, radiation dosimetry, tumor localization, treatment planning, patient communication and management, data collection, record-keeping, and applicable standards and regulations. (Vocational)



#### **51.0908: Respiratory Care Therapy/Therapist**

A program that prepares individuals, under the supervision of physicians, to assist in developing respiratory care plans, administer respiratory care procedures, supervise personnel and equipment operation, maintain records, and consult with other health care team members. Includes instruction in the applied basic biomedical sciences; anatomy, physiology, and pathology of the respiratory system; clinical medicine; therapeutic procedures; clinical expressions; data collection and record-keeping; patient communication; equipment operation and maintenance; personnel supervision; and procedures for special population groups. (Vocational)

#### **51.0909: Surgical Technology**

A program that prepares individuals, under the supervision of physicians and surgical nurses, to maintain, monitor, and enforce the sterile field and adherence to aseptic technique by preoperative, surgical team, and postoperative personnel. Includes instruction in instrument and equipment sterilization and handling; surgical supplies management; wound exposure and closure; surgical computer and robot operation and monitoring; maintenance of hemostasis; and patient and team scrubbing. (Vocational)

#### **51.0910: Diagnostic Medical Sonography/Ultrasound Technician**

A program that prepares individuals, under the supervision of physicians, to utilize medical ultrasound techniques to gather sonographic data used to diagnose a variety of conditions and diseases. Includes instruction in obtaining, reviewing, and integrating patient histories and data; patient instruction and care; anatomic, physiologic and pathologic data recording; sonographic data processing; sonography equipment operation; and professional standards and ethics. (Vocational)

#### **51.0911: Radiologic Technology – Radiographer**

A program that prepares individuals, under the supervision of physicians, to provide medical imaging services to patients and attending health care professionals. Includes instruction in applied anatomy and physiology, patient positioning, radiographic technique, radiation biology, safety and emergency procedures, equipment operation and maintenance, quality assurance, patient education, and medical imaging/radiologic services management. (Vocational)

#### **51.0912: Physician Associate/Assistant**

A program that prepares individuals to practice medicine, including diagnoses and treatment therapies, under the supervision of a physician. Includes instruction in the basic medical and clinical sciences and specialized preparation in fields such as family medicine, pediatrics, obstetrics, gynecology, general surgery, psychiatry, and behavioral medicine; the delivery of health care services to homebound patients, rural populations, and underserved populations; and community health services. (only approved for FA Prep Coursework plans)

#### **51.0915: Cardiopulmonary Technology/Technologist**

A program that prepares individuals, under the supervision of physicians and nurses, to perform both cardiovascular and pulmonary diagnostic and therapeutic procedures. Includes instruction in cardiopulmonary pharmacology; anatomy and physiology of the heart, peripheral vascular system, and lungs; pulmonary and cardiovascular disease and dysfunction; peripheral vascular Doppler procedures; invasive and non-invasive cardiology; pulmonary function tests; blood gas analysis;

echocardiograph procedures; bronchoscopy; patient management; patient history taking and record-keeping; applications to clinical research; and emergency procedures. (Vocational)

#### **51.0916: Radiation Protection/Health Physics Technician**

A program that prepares individuals, under the supervision of health physicists, occupational safety and health specialists, and public health officials, to monitor and control radiation exposure and implement preventive measures in health care, work, and natural environments. Includes instruction in radiation physics, environmental radioactivity, radiological instrumentation, electronics of radiation detection equipment, radioactive waste management and control, safety and handling procedures, decontamination procedures, radioactivity testing and analysis, and communications skills. (Vocational)

#### **51.0917: Polysomnography**

A program that prepares individuals to work under the supervision of a physician to provide comprehensive evaluation and treatment of sleep disorders. Includes instruction in human anatomy and physiology, polysomnographic technology, polysomnography scoring, neuroanatomy and neurophysiology of sleep, sleep disorders, and medical terminology. (Vocational)

#### **51.0918: Hearing Instrument Specialist**

A program that prepares individuals to test the hearing of, and to select, fit and dispense appropriate hearing aids for, patients. Includes instruction in acoustics, anatomy and physiology of the ear, hearing testing, hearing aid fitting and technology, health promotion and rehabilitation, counseling and communication, business management, and professional ethics. (Vocational)

#### **51.0919: Mammography Technology/Technician**

A program that prepares registered radiographers to become registered mammographers. Includes instruction in anatomy and physiology, mammography instrumentation, mammography positioning, principles and procedures of mammography, and quality assurance. (Vocational)

#### **51.0920: Magnetic Resonance Imaging (MRI) Technician**

A program that prepares individuals who are AART-certified radiological technicians to utilize MRI technology to obtain still and moving images of various vascular structures in the human body that aid the physician in the diagnosis or treatment of disease and injury. Includes instruction in MRI imaging, sectional anatomy and pathology, MRI technology, MRI techniques and procedures, MRI physics, and clinical training. (Vocational)

#### **51.0999: Allied Health Diagnostic, Intervention, and Treatment Professions, Other**

Any instructional program in allied health diagnostic, intervention, and treatment professions not listed above. (Vocational)

#### **51.1004: Clinical/Medical Laboratory Technician**

A program that prepares individuals, under the supervision of clinical laboratory scientists/medical technologists, to perform routine medical laboratory procedures and tests and to apply preset strategies to record and analyze data. Includes instruction in general laboratory procedures and skills; laboratory mathematics; medical computer applications; interpersonal and communications

skills; and the basic principles of hematology, medical microbiology, immunohematology, immunology, clinical chemistry, and urinalysis. (Vocational)

#### **51.1008: Histologic Technician**

A program that prepares individuals, under the supervision of histotechnologists and other clinical laboratory scientists, to prepare and process tissue samples and perform routine histologic procedures and tests. Includes instruction in fixation, dehydration, embedding, sectioning, decalcification, microincineration, mounting, routine and special steaming, laboratory mathematics, laboratory procedures and safety, instrumentation and microscopy, computer applications, preparation of museum specimens, and recording and administrative procedures. (Vocational)

#### **51.1009: Phlebotomy Technician**

A program that prepares individuals, under the supervision of physicians and other health care professionals, to draw blood samples from patients using a variety of intrusive procedures. Includes instruction in basic vascular anatomy and physiology, blood physiology, skin puncture techniques, venipuncture, venous specimen collection and handling, safety and sanitation procedures, and applicable standards and regulations. (Vocational)

#### **51.1011: Renal/Dialysis Technician**

A program that prepares individuals to administer hemodialysis treatments to patients with renal failure under the supervision of a nurse or physician. Includes instruction in basic anatomy and physiology, dialysis prescription interpretation, dialysate preparation, extracorporeal circuit and dialyzer set-up and maintenance, equipment monitoring, patient preparation, taking vital signs, documentation and communication, venipuncture and local anesthesia administration, emergency intervention, safety and sanitation, and professional standards and ethics. (Vocational)

#### **51.1012: Sterile Processing Technology/Technician**

A program that prepares individuals to clean, sterilize, and assemble surgical instruments, equipment, and supplies for use in operating rooms and other medical and surgical facilities. Includes instruction in sterilization; infection control; decontamination; and surgical instrumentation processing, distribution, and record-keeping. (Vocational)

#### **51.1201: Medicine**

A program that prepares individuals for the independent professional practice of medicine, involving the prevention, diagnosis, and treatment of illnesses, injuries, and other disorders of the human body. Includes instruction in the basic medical sciences, clinical medicine, examination and diagnosis, patient communications, medical ethics and law, professional standards, and rotations in specialties such as internal medicine, surgery, pediatrics, obstetrics and gynecology, orthopedics, neurology, ophthalmology, radiology, clinical pathology, anesthesiology, family medicine, and psychiatry. (only approved for FA Prep Coursework plans)

#### **51.1202: Osteopathic Medicine/Osteopathy**

A program that prepares individuals for the independent professional practice of osteopathic medicine, involving a combination of medical principles and procedures and osteopathic principles of holistic medicine and the relationship of the musculoskeletal system to general health. Includes instruction in the basic medical sciences, preventive medicine, family and community medicine,

medical informatics, disease systems, organ and physiologic systems, osteopathic principles and practice, osteopathic manipulative treatment, musculoskeletal and skin systems, clinical specialty rotations, medical ethics, and professional standards and practice management. (only approved for FA Prep Coursework plans)

#### **51.1501: Substance Abuse/Addiction**

A program that prepares individuals to help prevent substance abuse, counsel individuals and families with drug and alcohol problems, and perform intervention and therapeutic services for persons suffering from addiction. Includes instruction in individual and group counseling skills, psychology of addiction, sociology, crisis intervention, substance abuse identification methodologies, substance abuse treatment modalities, substance abuse prevention and treatment resources, pharmacology and behavioral aspects of abused substances, treatment evaluation, patient observation and education, group dynamics, professional standards and ethics, and applicable law and regulations. (Vocational)

#### **51.1502: Mental Health Services Technician**

A program that prepares individuals, under the supervision of psychiatrists, psychologists, nurses, and other mental health care professionals, to provide direct patient care services, assist in developing and implementing treatment plans, administer medications, and perform related administrative functions. Includes instruction in mental health theory, applied psychopathology, patient communication and management, crisis intervention, psychotropic medication, mental health treatment procedures, substance abuse, record-keeping, clinical administrative skills, and applicable standards and regulations. (Vocational)

#### **51.1503: Clinical/Medical Social Work**

A program that prepares individuals for the specialized professional practice of social work, in collaboration with other health care professionals, in hospitals and other health care facilities and organizations. Includes instruction in social work, psychiatric case work, clinical interviewing techniques, therapeutic intervention strategies, patient testing and evaluation, patient and family counseling, social rehabilitation, patient care planning, record-keeping, and support services liaison. (Vocational)

#### **51.1504: Community Health Services/Liaison**

A program that prepares individuals to serve as facilitators, advocates, and referral professionals linking health care and related social services with affected recipient communities. Includes instruction in public and community health, human and social services, health services administration, group counseling, health education, group advocacy, cross-cultural and multilingual communication, and applicable laws and policies. (Vocational)

#### **51.1508: Mental Health Counseling/Counselor**

A program that prepares individuals to provide evaluations, referrals, and short-term counseling services to help people prevent or remediate personal problems, conflicts, and emotional crises. Includes instruction in human development, psychopathology, individual and group counseling, personality theory, career assessment, patient screening and referral, observation and testing

techniques, interviewing skills, professional standards and ethics, and applicable laws and regulations. (Vocational)

#### **51.1599: Mental and Social Health Services and Allied Professions, Other**

Any instructional program in mental and social health services and allied professions not listed above. (Vocational)

#### **51.1801: Opticianry/Ophthalmic Dispensing Optician**

A program that prepares individuals to adapt and fit corrective eyewear, including eyeglasses and contact lenses, as prescribed by ophthalmologists or optometrists; to assist patients in selecting appropriate frames; and to prepare work orders for ophthalmic laboratory technicians. Includes instruction in geometrical optics; ophthalmic optics; anatomy of the eye; optical instrumentation; use and maintenance of adjustment and cleaning tools; prescription interpretation; contact lens adaptation and fitting; prosthesis fitting; facial and eye measuring; pathology identification; record-keeping; and patient and business administrative tasks. (Vocational)

#### **51.1802: Optometric Assistant**

A program that prepares individuals to assist optometrists in providing patient care, administering examinations and treatments, and performing office administrative functions. Includes instruction in applied anatomy and physiology of the eye, visual testing, patient communication, patient preparation, medications and administration, dispensing and fitting of eyeglasses and contact lenses, record-keeping, and office management skills. (Vocational)

#### **51.1803: Ophthalmic Technician/Technologist**

A program that prepares individuals to assist ophthalmologists and optometrists in examining and treating patients with vision problems, vision disorders, and eye diseases. Includes instruction in taking patient histories, administering directed treatments and topical medications, diagnostic test procedures and equipment operation, anatomical and functional ocular measurements, patient care and instruction, ophthalmic and surgical equipment maintenance, safety and sterilization procedures and office administrative procedures. (Vocational)

#### **51.2001: Pharmacy**

A program that prepares individuals for the independent or employed practice of preparing and dispensing drugs and medications in consultation with prescribing physicians and other health care professionals, and for managing pharmacy practices and counseling patients. Includes instruction in mathematics, physics, chemistry, biochemistry, anatomy, physiology, pharmacology, pharmaceutical chemistry, pharmacognosy, pharmacy practice, pharmacy administration, applicable regulations, and professional standards and ethics. (only approved for FA Prep Coursework plans)

#### **51.2201: Public Health, General**

A program that generally prepares individuals to plan, manage, and evaluate public health care services; to function as public health professionals in public agencies, the private sector, and other settings; and to provide leadership in the field of public health. Includes instruction in epidemiology, biostatistics, public health principles, preventive medicine, health policy and regulations, health care services and related administrative functions, public health law enforcement, health economics and budgeting, public communications, and professional standards and ethics. (Vocational)

### **51.2306: Occupational Therapy/Therapist**

A program that prepares individuals to assist patients limited by physical, cognitive, psychosocial, mental, developmental, and learning disabilities, as well as adverse environmental conditions, to maximize their independence and maintain optimum health through a planned mix of acquired skills, performance motivation, environmental adaptations, assistive technologies, and physical agents. Includes instruction in the basic medical sciences, psychology, sociology, patient assessment and evaluation, standardized and non-standardized tests and measurements, assistive and rehabilitative technologies, ergonomics, environmental health, special education, vocational counseling, health education and promotion, and professional standards and ethics. (only approved for FA Prep Coursework plans)

### **51.2307: Orthotics/Prosthetics**

A program that prepares individuals, in consultation with physicians and other therapists, to design and fit orthoses for patients with disabling conditions of the limbs and/or spine, and prostheses for patients who have partial or total absence of a limb or significant superficial deformity. Includes instruction in biomechanics, gait analysis, pathomechanics, kinesiology, pathology, neuroanatomy, materials science, diagnostic imaging, patient analysis and measurement, impression taking, model rectification, assistive/restorative technology and engineering applications, product finishing, diagnostic and definitive fitting and alignment, power devices, postoperative management, and patient counseling and follow-up. (Vocational)

### **51.2308: Physical Therapy/Therapist**

A program that prepares individuals, in consultation with physicians and other therapists, to design and fit orthoses for patients with disabling conditions of the limbs and/or spine, and prostheses for patients who have partial or total absence of a limb or significant superficial deformity. Includes instruction in biomechanics, gait analysis, pathomechanics, kinesiology, pathology, neuroanatomy, materials science, diagnostic imaging, patient analysis and measurement, impression taking, model rectification, assistive/restorative technology and engineering applications, product finishing, diagnostic and definitive fitting and alignment, power devices, postoperative management, and patient counseling and follow-up. (only approved for FA Prep Coursework plans)

### **51.2309: Therapeutic Recreation/Recreational Therapy**

A program that prepares individuals to plan, organize, and direct recreational activities designed to promote health and well-being for patients who are physically, mentally, or emotionally disabled. Includes instruction in the foundations of therapeutic recreation, leisure education and counseling, program planning, therapeutic recreational modalities, basic anatomy and physiology, psychology, medical terminology, human growth and development, patient observation and evaluation, special needs populations, and professional standards and ethics. (Vocational)

### **51.2310: Vocational Rehabilitation Counseling**

A program that prepares individuals to counsel and assist disabled individuals and recovering patients in order to achieve their greatest physical, mental, social, educational, and vocational potential. Includes instruction in patient evaluation and testing, rehabilitation program planning, patient support services and referral, job analysis, adjustment psychology, rehabilitation services



provision, patient counseling and education, applicable law and regulations, and professional standards and ethics. (Vocational)

#### **51.2312: Assistive/Augmentive Technology**

A program that prepares individuals to apply the principles of psychology, engineering, and occupational therapy to the design and implementation of technological interventions and systems to promote patient rehabilitation and function. Includes instruction in ergonomics, seating and mobility design, universal and near environment systems design, rehabilitation research, rehabilitation biomechanics, access and communications design, microprocessor-based technologies, neurological trauma, standards and testing, and service delivery management. (Vocational)

#### **51.2601: Health Aide**

A program that prepares individuals to provide routine care and assistance to patients under the direct supervision of other health care professionals, and/or to perform routine maintenance and general assistance in health care facilities and laboratories. (Vocational)

#### **51.2602: Home Health Aide**

A program that prepares individuals to provide routine care and support services for homebound disabled, recovering, or elderly people. Includes instruction in basic nutrition, home sanitation, infection control, first aid, taking vital signs, personal hygiene, interpersonal communication skills, supervised home management, emergency recognition and referral, geriatric care, and legal and ethical responsibilities. (Vocational)

#### **51.2604: Rehabilitation Aide**

A program that prepares individuals to assist in rehabilitation services under the supervision of occupational therapists, speech-language pathologists, and other therapeutic professionals, and to perform routine functions in support of rehabilitation. Includes instruction in roles and responsibilities of rehabilitation providers, basic function of the human body, disabling conditions, therapeutic skills, client management, and communication skills. (Vocational)

#### **51.2699: Health Aides/Attendants/Orderlies, Other**

Any other instructional program that prepares individuals to provide routine patient care and assistance. (Vocational)

#### **51.2706: Medical Informatics**

A program that focuses on the application of computer science and software engineering to medical research and clinical information technology support, and the development of advanced imaging, database, and decision systems. Includes instruction in computer science, health information systems architecture, medical knowledge structures, medical language and image processing, quantitative medical decision modeling, imaging techniques, electronic medical records, medical research systems, clinical decision support, and informatics aspects of specific research and practice problems. (Vocational)



### **51.3103: Dietetic Technician**

A program that prepares individuals, under the supervision of registered dietitians and nutritionists, to implement nutritional and dietetic plans and provide direct client and patient services. Includes instruction in human nutrition, client interviewing and record keeping, dietary planning, food preparation and safety, food worker supervision, food service establishment monitoring and inspection, and applicable procedures and regulation. (Vocational)

### **51.3104: Dietetic Assistant**

A program that prepares individuals to assist registered dietitians in planning, preparing, and serving meals to individuals with specific dietary needs. Includes instruction in equipment use, food preparation, diet regulations, food handling, safety and sanitary standards, and administrative techniques and procedures. (Vocational)

### **51.3501: Massage Therapy**

A program that prepares individuals to provide relief and improved health and well-being to clients through the application of manual techniques for manipulating skin, muscles, and connective tissues. Includes instruction in Western (Swedish) massage; Shiatsu, acupressure, and other Oriental massage techniques; sports massage; myotherapy/trigger point massage; myofascial release; deep tissue massage; cranio-sacral therapy; reflexology; Rosen Method; massage safety and emergency management; client counseling; practice management; applicable regulations; and professional standards and ethics. (Vocational)

### **51.3599: Somatic Bodywork and Related Therapeutic Services, Other**

Any instructional program in somatic bodywork and related therapeutic services not listed above. (Vocational)

### **51.3701: Aromatherapy**

An instructional program that prepares individuals to provide therapeutic care through the preparation and application of extracted essential oils from plants, including flowers (botanicals), roots, berries, and bark. Includes instruction in aromatherapy history and theory, basic physiology of absorption, aromachemistry, organic chemistry, botanical taxonomy, carrier oils, essential oils, extraction methods, blending techniques, application methods, safety, client consultation and treatment planning, business management, professional standards and ethics, and applicable regulations. (Vocational)

### **51.3702: Herbalism/Herbalist**

An instructional program that prepares individuals for the independent professional practice of Western herbalism or clinical/medical herbalism, a combination of European and Native American therapeutic systems using vitamins, minerals, and plant extracts to prevent and cure illness and temporary physical disorders. Includes instruction in anatomy, physiology, pathology, toxicology, human nutrition, medical terminology, materia medica, therapeutic herbalism, herbal pharmacy, botany and ethnobotany, plant identification and wildcrafting, constitutional medicine, phytotherapy, pharmacognosy, herbology, contraindications, practice management, consultation skills, and professional standards and ethics. (Vocational)

### **51.3801: Registered Nursing**

A program that generally prepares individuals in the knowledge, techniques and procedures for promoting health, providing care for sick, disabled, infirmed, or other individuals or groups. Includes instruction in the administration of medication and treatments, assisting a physician during treatments and examinations, Referring patients to physicians and other health care specialists, and planning education for health maintenance. (Vocational)

### **51.3811: Public Health/Community Nursing**

A program that prepares registered nurses to promote health and provide preventive and curative nursing services for groups or communities under the supervision of a public health agency. Includes instruction in community and rural health, family therapy and intervention, disease prevention, health education, and community health assessment. (Vocational)

### **51.3812: Operating Room and Surgical Nursing**

A program that prepares registered nurses to provide care to patients before and during surgery, and provide tableside assistance to surgeons. Includes instruction in operating room safety and preparation, aseptic technique, anesthesia, patient preparation, surgical instruments and procedures, sterilization and disinfecting, surgical drugs and solutions, hemostasis, emergency procedures, and patient/family education. (Vocational)

### **51.3818: Nursing Practice**

A practice-focused program that prepares registered nurses for increasingly complex evidence-based nursing practice, including translating research into practice, evaluating evidence, applying research in decision-making, and implementing viable clinical innovations to change practice. Includes instruction in healthcare delivery systems, health economics and finance, health policy, research methods, translating evidence into practice, concepts in population health, and nursing leadership. (only approved for FA Prep Coursework plans)

### **51.3901: Licensed Practical Nursing**

A program that prepares individuals to assist in providing general nursing care under the direction of a registered nurse, physician or dentist. Includes instruction in taking patient vital signs, applying sterile dressings, patient health education, and assistance with examinations and treatment. (Vocational)

### **51.3902: Nursing Assistant/Aide**

A program that prepares individuals to perform routine nursing-related services to patients in hospitals or long-term care facilities, under the training and supervision of a registered nurse or licensed practical nurse. (Vocational)

### **51.3999: Practical Nursing, Vocational Nursing, and Nursing Assistants, Other**

Any instructional program in practical nursing, vocational nursing, and nursing assistants not listed above. (Vocational)

## **52. BUSINESS MANAGEMENT AND ADMINISTRATIVE SERVICES**

*Instructional programs that prepare individuals to perform managerial, technical support, and applied research functions related to the operation of commercial and non-profit enterprises and the buying and selling of goods and services.*

#### **52.0101: Business/Commerce, General**

A program that focuses on the general study of business, including the processes of interchanging goods and services (buying, selling, and producing), business organization, and accounting as used in profit-making and nonprofit public and private institutions and agencies. The programs may prepare individuals to apply business principles and techniques in various occupational settings. (Academic)

#### **52.0201: Business Administration/Management**

A program that generally prepares individuals to plan, organize, direct, and control the functions and processes of a firm or organization. Includes instruction in management theory, human resources management and behavior, accounting and other quantitative methods, purchasing and logistics, organization and production, marketing, and business decision-making. (Vocational)

#### **52.0202: Purchasing, Procurement and Contracts Management**

A program that prepares individuals to manage and/or administer the processes by which a firm or organization contracts for goods and services to support its operations, as well as contracts it to sell to other firms or organizations. Includes instruction in contract law, negotiations, buying procedures, Government contracting, cost and price analysis, vendor relations, contract administration, auditing and inspection, relations with other firm departments, and applications to special areas such as high-technology systems, international purchasing, and construction. (Academic)

#### **52.0203: Logistics, Materials, and Supply Chain Management**

A program that prepares individuals to manage and coordinate all logistical functions in an enterprise, ranging from acquisitions to receiving and handling, through internal allocation of resources to operations units, to the handling and delivery of output. Includes instruction in acquisitions and purchasing, inventory control, storage and handling, just-in-time manufacturing, logistics planning, shipping and delivery management, transportation, quality control, resource estimation and allocation, and budgeting. (Vocational)

#### **52.0204: Office Management and Supervision**

A program that prepares individuals to supervise and manage the operations and personnel of business offices and management-level divisions. Includes instruction in employee supervision, management, and labor relations; budgeting; scheduling and coordination; office systems operation and maintenance; office records management, organization, and security; office facilities design and space management; preparation and evaluation of business management data; and public relations. (Vocational)

#### **52.0205: Operations Management and Supervision**

A program that prepares individuals to manage and direct the physical and/or technical functions of a firm or organization, particularly those relating to development, production, and manufacturing. Includes instruction in principles of general management, manufacturing and production systems, plant management, equipment maintenance management, production control, industrial labor

relations and skilled trades supervision, strategic manufacturing policy, systems analysis, productivity analysis and cost control, and materials planning. (Vocational)

#### **52.0206: Non-Profit/Public/Organizational Management**

A program that prepares individuals to manage the business affairs of non-profit corporations, including foundations, educational institutions, associations, and other such organizations, and public agencies and governmental operations. Includes instruction in business management, principles of public administration, principles of accounting and financial management, human resources management, taxation of non-profit organizations, business law as applied to non-profit organizations. (Vocational)

#### **52.0207: Customer Service Management**

A program that prepares individuals to supervise and monitor customer service performance and manage frontline customer support services, call centers/help desks, and customer relations. Includes instruction in customer behavior; specialized information technology and systems management; developing and using customer service databases; user surveys and other feedback mechanisms; strategic and performance planning and analysis; operations management; personnel supervision; and communications and marketing skills. (Vocational)

#### **52.0208: E-Commerce/Electronic Commerce**

A program that prepares individuals to plan, manage, supervise, and market electronic business operations, products, and services provided online via the Internet. Includes instruction in business administration, information technology, information resources management, web design, computer and Internet law and policy, computer privacy and security, e-trading, insurance, electronic marketing, investment capital planning, enterprise operations, personnel supervision, contracting, and product and service networking. (Vocational)

#### **52.0209: Transportation/Mobility Management**

A program that focuses on the theory, policy, law, and practices required to administrate and operate public transportation facilities, networks, services, and systems. Includes instruction in demand analysis and forecasting, environmental planning, facilities design and contraction, geographic information systems (GIS), logistics, multi- and intermodal transportations systems, project management, public administration, public policy, transportation economics, transportation law, transportation operations, transportation systems, and transportation technologies. (Vocational)

#### **52.0211: Project Management**

A program that prepares individuals to apply quantitative and qualitative knowledge, skills, tools, and techniques to manage projects in a wide range of fields and occupations. Includes instruction in project planning, risk management, cost and time management, contracts and procurement, accounting, statistics, decision making, and human resources. (Vocational)

#### **52.0212: Retail Management**

A program that prepares individuals to manage the operations of a wide variety of retail businesses, including department stores; independent and chain stores; fashion, food and beverage, and pharmaceutical establishments; and online retail businesses. Includes instruction in retail

management, merchandise management, customer service management, marketing, organizational behavior, accounting, finance, business law, and personnel management. (Vocational)

#### **52.0213: Organizational Leadership**

A program that focuses on leadership skills that can be applied to a business, government, non-profit, or educational setting. Includes instruction in organizational planning, dynamics of leadership, finance, team building, conflict resolution and mediation, communication and other management skills. (Vocational)

#### **52.0216: Science/Technology Management**

A program that prepares individuals to develop science, technical, and business skills required for management of people and systems in technology-based industries, government agencies, and non-profit organizations. Includes instruction in computer applications, general management principles, production and operations management, project management, quality control, safety and health issues, and statistics. (Vocational)

#### **52.0301: Accounting**

A program that prepares individuals to practice the profession of accounting, and to perform related business functions. Includes instruction in accounting principles and theory, financial accounting, managerial accounting, cost accounting, budget control, tax accounting, legal aspects of accounting, auditing, reporting procedures, statement analysis, planning and consulting, business information systems, accounting research methods, professional standards and ethics, and applications to specific for-profit, public, and non-profit organizations. (Academic)

#### **52.0302: Accounting Technician and Bookkeeping**

A program that prepares individuals to provide technical administrative support to professional accountants and other financial management personnel. Includes instruction in posting transactions to accounts, record-keeping systems, accounting software operation, and general accounting principles and practices. (Vocational)

#### **52.0401: Administrative Assistant and Secretarial Science, General**

A program that generally prepares individuals to perform the duties of administrative assistants and/or secretaries and stenographers. Includes instruction in business communications, principles of business law, word processing and data entry, office machines operation and maintenance, office procedures, public relations, secretarial accounting, filing systems and records management, and report preparation. (Vocational)

#### **52.0402: Executive Assistant/Executive Secretary**

A program that prepares individuals to perform the duties of special assistants and/or personal secretaries for business executives and top management. Includes instruction in business communications, principles of business law, public relations, scheduling and travel management, secretarial accounting, filing systems and records management, conference and meeting recording, report preparation, office equipment and procedures, office supervisory skills, and professional standards and legal requirements. (Vocational)

#### **52.0406: Receptionist**

A program that prepares individuals to perform frontline public relations duties for a business, organization, or answering service. Includes instruction in telephone answering techniques, responding to information requests, keeping caller and/or visitor records, placing business calls, operating telephone switchboards and/or other communications equipment, relaying incoming and interoffice calls, schedule maintenance, and public relations skills. (Vocational)

#### **52.0407: Office Automation/Data Entry**

A program that prepares individuals to support business information operations by using computer equipment to enter, process, and retrieve data for a wide variety of administrative purposes. Includes instruction in using basic business software and hardware; business computer networking; principles of desktop publishing; preparing mass mailings; compiling and editing spreadsheets; list maintenance; preparing tables and graphs; receipt control; and preparing business performance reports. (Vocational)

#### **52.0408: Office Occupations and Clerical Services**

A program that prepares individuals to provide basic administrative support under the supervision of office managers, administrative assistants, secretaries, and other office personnel. Includes instruction in typing, keyboarding, filing, general business correspondence, office equipment operation, and communications skills. (Vocational)

#### **52.0409: Parts, Warehousing, and Inventory Management Operations**

A program that prepares individuals to provide administrative, technical, and managerial support in the operation of warehouses, control of inventory, parts identification, and the performance of counter services for customers. Includes instruction in record-keeping, equipment operation, database entry, supply logistics, shop operations and math, and customer and supplier relations. (Vocational)

#### **52.0410: Traffic, Customs, and Transportation Clerk/Technician**

A program that prepares individuals to perform duties associated with managing revenue-based customs, traffic, or transportation services, such as control of domestic and international traffic, toll roads and waterways, and to assist in the dispatch and control of fleet-based traffic for businesses and public services. Includes instruction in record-keeping; preparation of customs and transportation documentation; operation of communications equipment; basic transportation operations management; tariffs, rates and fares; revenue collection and change-making; and interpretation of customs or transportation regulations and related legislation, policies, and procedures. (Vocational)

#### **52.0411: Customer Service Support/Call Center/Teleservice Operation**

A program that prepares individuals to assist customers with inquiries and problems in frontline call centers, help desks, teleservice centers, and online. Includes instruction in user interfaces and user behavior; principles of hardware and software systems operation; customer interaction skills; telephone and e-mailing skills; data entry; and database and Internet searching and retrieving. (Vocational)



### **52.0501: Business/Corporate Communications, General**

A program that prepares individuals to function in an organization as a composer, editor, and proofreader of business or business-related communications. (Vocational)

### **52.0701: Entrepreneurship**

A program that generally prepares individuals to perform development, marketing and management functions associated with owning and operating a business. (Vocational)

### **52.0703: Small Business Management**

A program that prepares individuals to develop and manage independent small businesses. Includes instruction in business administration; enterprise planning and entrepreneurship; start-up; small business operations and problems; personnel supervision; capitalization and investment; taxation; business law and regulations; e-commerce; home business operations; and applications to specific sectors, products, and services. (Vocational)

### **52.0801: Finance, General**

A program that generally prepares individuals to plan, manage, and analyze the financial and monetary aspects and performance of business enterprises, banking institutions, or other organizations. Includes instruction in principles of accounting; financial instruments; capital planning; funds acquisition; asset and debt management; budgeting; financial analysis; and investments and portfolio management. (Academic)

### **52.0803: Banking and Financial Support Services**

A program that prepares individuals to perform a wide variety of customer services in banks, insurance agencies, savings and loan companies, and related enterprises. Includes instruction in communications and public relations skills, business equipment operation, and technical skills applicable to the methods and operations of specific financial or insurance services. (Vocational)

### **52.0807: Investments and Securities**

A program that prepares individuals to manage assets placed in capital markets, and related technical operations. Includes instruction in security analysis, debt and equity analysis, investment strategies, securities markets, computer-assisted research, portfolio management, portfolio performance analysis, and applications to specific investment problems and business situations. (Academic)

### **52.0809: Credit Management**

A program that prepares individuals to perform and/or manage operations concerning personal and corporate credit collateral, loan processing, and related financial agency communications. Includes instruction in general finance and banking principles, insurance, real estate, taxation, business law and regulation, quantitative methods, financial computer systems applications, database management, communication skills, business and office management, and professional standards and ethics. (Vocational)

### **52.0901: Hospitality Management**

A program that prepares individuals to serve as general managers and directors of hospitality operations on a system-wide basis, including both travel arrangements and promotion and the



provision of traveler facilities. Includes instruction in principles of operations in the travel and tourism, hotel and lodging facilities, food services, and recreation facilities industries; hospitality marketing strategies; hospitality planning; management and coordination of franchise and unit operations; business management; accounting and financial management; hospitality transportation and logistics; and hospitality industry policies and regulations. (Vocational)

#### **52.0903: Tourism and Travel Services Management**

A program that prepares individuals to manage travel-related enterprises and related convention and/or tour services. Includes instruction in travel agency management, tour arranging and planning, convention and event planning, travel industry operations and procedures, tourism marketing and promotion strategies, travel counseling, travel industry law, international and domestic operations, and travel and tourism policy. (Vocational)

#### **52.0904: Hotel/Motel Management**

A program that prepares individuals to manage operations and facilities that provide lodging services to the traveling public. Includes instruction in hospitality industry principles; supplies purchasing, storage and control; hotel facilities design and planning; hospitality industry law; personnel management and labor relations; financial management; marketing and sales promotion; convention and event management; front desk operations; and applications to specific types of hotels and motel operations. (Vocational)

#### **52.0905: Restaurant/Food Services Management**

A program that prepares individuals to plan, manage, and market restaurants, food services in hospitality establishments, food service chains and franchise networks, and restaurant supply operations. Includes instruction in hospitality administration, food services management, wholesale logistics and distribution, franchise operations, business networking, personnel management, culinary arts, business planning and capitalization, food industry operations, marketing and retailing, business law and regulations, finance, and professional standards and ethics. (Vocational)

#### **52.0907: Meeting and Event Planning**

A program that prepares individuals to plan, budget, and implement conferences, meetings, and other special events in the public or private sectors. Includes instruction in principles of meeting and event planning; special event management; budgets and finance; site selection; contracts, vendors, and negotiations; marketing and promotions; food and beverage management; audio-visual basics and meeting technology; and hospitality law. (Vocational)

#### **52.0908: Casino Management**

A program that prepares individuals to manage casinos and gaming establishments. Includes instruction in business and financial management; casino operations; casino security and surveillance; hospitality, facilities, and personnel management; and principles of the gaming industry, ethics, and gaming law. (Vocational)

#### **52.0909: Hotel, Motel, and Restaurant Management**

An instructional program that prepares individuals to manage operations and facilities that provide food and/or lodging services to the traveling public. Includes instruction in hospitality industry principles; supplies purchasing, storage, and control; hotel and restaurant facilities design and

planning; hospitality industry law; personnel management and labor relations; financial management; facilities management; marketing and sale promotion strategies; convention and event management; front desk operations; and applications to specific types of hotel, motel, and/or restaurant operations. (Vocational)

#### **52.1001: Human Resources Management/Personnel Administration**

A program that prepares individuals to manage the development of human capital in organizations, and to provide related services to individuals and groups. Includes instruction in personnel and organization policy, human resource dynamics and flows, labor relations, sex roles, civil rights, human resources law and regulations, motivation and compensation systems, work systems, career management, employee testing and assessment, recruitment and selection, managing employee and job training programs, and the management of human resources programs and operations. (Vocational)

#### **52.1002: Labor/Industrial Relations**

A program that focuses on employee-management interactions and the management of issues and disputes regarding working conditions and worker benefit packages, and that may prepare individuals to function as labor or personnel relations specialists. Includes instruction in labor history, policies and strategies of the labor movement, union organization, labor-management negotiation, labor law and contract interpretation, labor economics, welfare and benefit packages, grievance procedures, and labor policy studies. (Vocational)

#### **52.1101: International Business/Trade/Commerce**

A program that prepares individuals to manage international businesses and/or business operations. Includes instruction in the principles and processes of export sales, trade controls, foreign operations and related problems, monetary issues, international business policy, and applications to doing business in specific countries and markets. (Vocational)

#### **52.1302: Business Statistics**

A program that focuses on the application of mathematical statistics to the description, analysis, and forecasting of business data. Includes instruction in statistical theory and methods, computer applications, data analysis and display, long- and short-term forecasting methods, and market performance analysis. (Vocational)

#### **52.1401: Marketing Management**

A program that generally prepares individuals to undertake and manage the process of developing consumer audiences and moving products from producers to consumers. Includes instruction in buyer behavior and dynamics, principle of marketing research, demand analysis, cost-volume and profit relationships, pricing theory, marketing campaign and strategic planning, market segments, advertising methods, sales operations and management, consumer relations, retailing, and applications to specific products and markets. (Vocational)

#### **52.1402: Market Research**

A program that prepares individuals to provide analytical descriptions of consumer behavior patterns and market environments to marketing managers and other business decision-makers. Includes instruction in survey research methods, research design, new product test marketing, exploratory

marketing, consumer needs and preferences analysis, geographic analysis, and applications to specific products and markets. (Vocational)

#### **52.1404: Digital Marketing**

A program that prepares individuals to develop a digital marketing plan and integrate marketing, advertising, sales, and logistics across physical and digital channels. Includes instruction in digital marketing, e-commerce, online consumer psychology, search engine optimization, social media marketing, and web analytics. (Vocational)

#### **52.1499: Marketing, Other**

Any instructional program in general marketing and marketing research not listed above. (Vocational)

#### **52.1501: Real Estate**

A program that prepares individuals to develop, buy, sell, appraise, and manage real property. Includes instruction in land use development policy, real estate law, real estate marketing procedures, agency management, brokerage, property inspection and appraisal, real estate investing, leased and rental properties, commercial real estate, and property management. (Academic and Vocational)

#### **52.1601: Taxation**

A program that prepares individuals to provide tax advice and management services to individuals and corporations. Includes instruction in tax law and regulations, tax record systems, individual and corporate income taxation, tax planning, partnerships and fiduciary relationships, estates and trusts, property depreciation, capital gains and losses, dispositions, transfers, liquidity, valuation, and applications to specific tax problems. (Vocational)

#### **52.1701: Insurance**

A program that prepares individuals to manage risk in organizational settings and provide insurance and risk-aversion services to businesses, individuals, and other organizations. Includes instruction in casualty insurance and general liability, property insurance, employee benefits, social and health insurance, loss adjustment, underwriting, risk theory, and pension planning. (Vocational)

#### **52.1801: Sales, Distribution, and Marketing Operations, General**

A program that focuses on the general process and techniques of direct wholesale and retail buying and selling operations and introduces individuals to related careers. Includes instruction in the principles of entrepreneurial economics, basic sales skills, the distribution channels for goods and services, and supervised practical application experiences. (Academic)

#### **52.1803: Retailing and Retail Operations**

A program that prepares individuals to perform operations associated with retail sales in a variety of settings. Includes instruction in over-the-counter and other direct sales operations in business settings, basic bookkeeping principles, customer service, team/staff leadership and supervision, floor management, and applicable technical skills. (Vocational)

### **52.1804: Selling Skills and Sales Operations**

A program that prepares individuals to possess the skills associated with direct promotion of products and services to potential customers and to function as independent sales representatives and managers. Includes instruction in consumer psychology, image projection, public speaking and interpersonal communications, sales organization and operations, customer relations, professional standards and ethics, and applicable technical skills. (Vocational)

### **52.1899: General Merchandising, Sales, and Related Marketing Operations, Other**

Any instructional program in merchandising, sales, and related marketing operations not listed above. (Vocational)

### **52.1902: Fashion Merchandising**

A program that prepares individuals to promote product lines/brands, and organize promotional campaigns, at the wholesale level to attract retailer interest, wholesale purchasing, and supply contracts. Includes instruction in wholesaling, wholesale advertising, selling, and customer relations. (Vocational)

### **52.1903: Fashion Modeling**

A program that prepares individuals to present and display fashion, apparel, and accessories products in wholesale and retail settings, either on the person or via props and natural or artificial settings. Includes instruction in modeling skills, health and cosmetic principles, fashion show management, display design and production, and applicable aspects of advertising and fashion photography. (Vocational)

### **52.1905: Tourism/Travel Services Marketing Operations**

A program that prepares individuals to provide direct retail services to hotel and motel clients and customers in a variety of settings. Includes instruction in principles of hotel/motel operations, customer sales and assistance operations and techniques, telephone operations, and basic office management. (Vocational)

### **52.1907: Vehicle Parts and Accessories Marketing Operations**

A program that prepares individuals to perform operations connected with the distribution and sales of replacement parts and other end-use supplies in the automotive, marine, and aviation industries. Includes instruction in wholesaling and retailing; principles of vehicular technologies; storage and distribution; customer sales and service skills; and principles of consumer research and sales forecasting. (Vocational)

### **52.2001: Construction Management, General**

A program that prepares individuals to manage, coordinate, and supervise the construction process. Includes instruction in commercial, residential, mechanical, highway/heavy civil, electrical, environmental, industrial, and specialty construction; facilities management; budgeting and cost control; logistics and materials management; organization and scheduling; personnel management and labor relations; site safety; construction contracting; construction process and techniques; and applicable codes and regulations. (Vocational)

### **52.2101: Telecommunications Management**

A program that prepares individuals to apply business skills to design, implement, and manage the voice, video, and data networking systems of organizations. Includes instruction in telecommunications concepts and technologies, network operations and management, wireless communications and mobile computing, cybersecurity, regulation and public policy, business practices and management, and written and oral communications. (Vocational)

## **54. HISTORY**

*Instructional programs that focus on the study and interpretation of past events, institutions, issues, and cultures.*

### **54.0101: History, General**

A program that focuses on the general study and interpretation of the past, including the gathering, recording, synthesizing and criticizing of evidence and theories about past events. Includes instruction in historiography; historical research methods; studies of specific periods, issues, and cultures; and applications to areas such as historic preservation, public policy, and records administration. (Academic)

### **54.0102: American History (United States)**

A program that focuses on the development of American society, culture, and institutions from the Pre-Columbian period to the present. Includes instruction in American historiography, American history sources and materials, historical research methods, and applications to the study of specific themes, issues, periods, and institutions. (Academic)

### **54.0103: European History**

A program that focuses on the development of European society, culture, and institutions from their origins to the present. Includes instruction in European historiography, European history sources and materials, historical research methods, and applications to the study of specific themes, issues, periods, and institutions. (Academic)

### **54.0104: History and Philosophy of Science and Technology**

A program that focuses on the historical evolution of scientific theories, science applications and technologies, and the scientific, medical, and technological disciplines, as well as the philosophy of science and its historical socio-economic context. Includes instruction in the concepts and methods of philosophical inquiry; historiography of science; history of science, medicine, and technology; and research methods in the history of the scientific and engineering disciplines, including mathematics. (Academic)

### **54.0106: Asian History**

A program that focuses on the development of the society, culture, and institutions of the Asian Continent from their origins to the present. Includes instruction in the historiography of specific cultures and periods; sources and materials; historical research methods, and applications to the study of specific themes, issues, periods, and institutions. (Academic)

### **54.0107: Canadian History**

A program that focuses on the society, culture, and institutions of the Canada from its origins to the present. Includes instruction in Canadian historiography, sources, and materials; historical research methods, and applications to the study of specific themes, issues, periods, and institutions.  
(Academic)

## **99. FACILITIES CODES**

*These codes have been developed for the use of the Washington State community and technical colleges for facility identification and are not to be used for instructional coding.*

### **99.0001: Multidisciplinary Computer Labs**

A support activity allowing scheduled and unscheduled access to microcomputer equipment, to enhance personal computer skills, and/or to do computing in support of any academic or vocational instruction.

### **99.0002: Microcomputer Applications Instructional Support**

A support activity allowing unscheduled access to microcomputer equipment, to enhance personal computer skills, and/or to do computing in support of any academic or vocational instruction.

### **99.0003: Multi-Disciplinary Facilities Not Otherwise Defined**

A code that references facilities not otherwise described in the Course Coding and Crosswalk Manual.

### **99.0004: Instruction Administrative Space Not Otherwise Defined**

A code that references space on community and technical college campuses in the state of Washington for the purpose of identification of generalized instructional administration.

### **99.0005: Conference Rooms/Multi-Disciplinary**

A code that references conference rooms on community and technical college campuses in the state of Washington for the purpose of identification.

### **99.0006: Part-time Faculty Office Facilities**

A code that references part-time faculty office facilities on community and technical college campuses in the state of Washington for the purpose of identification.

## **Resources**

If none of the current approved CIP codes describe your program or course accurately, please see the [Classification of Instructional Programs](#). Please note that most academic CIP codes will include “focuses on”, and most vocational CIP codes will include “prepares individuals to” in their descriptions.

If you need help in finding a CIP code, or want to request to use a CIP Code that isn’t on this list, please contact [dataservices@sbctc.edu](mailto:dataservices@sbctc.edu) for assistance.







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Washington State Board for Community and Technical Colleges