

LEARN MORE. EARN MORE.

# CAREER EDUCATION GUIDE

SAN DIEGO & IMPERIAL COUNTIES COMMUNITY COLLEGES



# MIDDLE-SKILL JOBS DRIVE THE ECONOMY

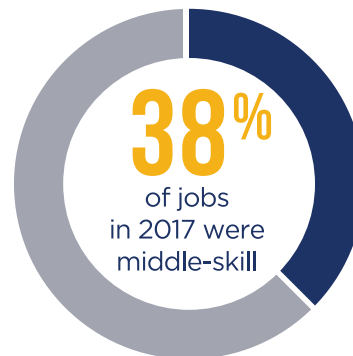
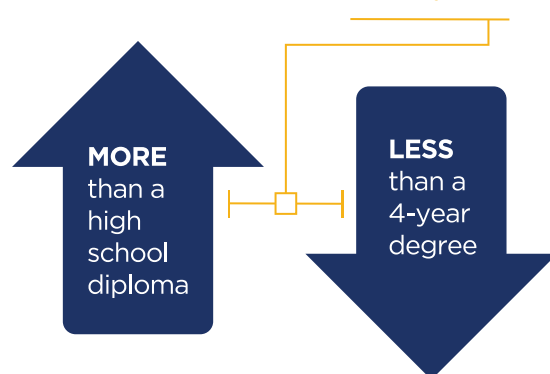


Businesses need more qualified candidates to fill good-paying middle-skill positions. Career Education at San Diego and Imperial Counties Community Colleges holds the key to unlock these growing, in-demand jobs.

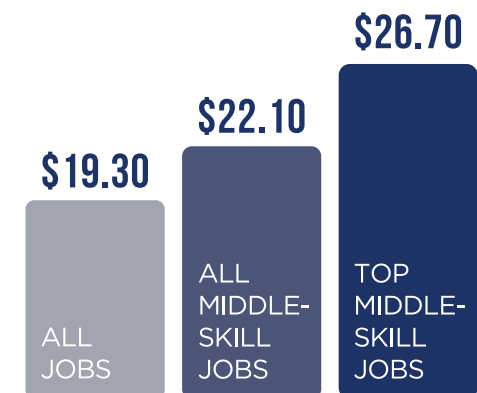
## THE OPPORTUNITY

Middle-skill jobs are large and growing—and these jobs pay well.

### MIDDLE-SKILL JOBS REQUIRE



Of the **1,583,115 jobs** in **San Diego** and **Imperial Counties**



**MEDIAN HOURLY RATE**



## THE JOBS

Career Education can quickly launch you into these careers.

71% of graduates  
**ARE EMPLOYED  
ONE YEAR AFTER**  
finishing their program

### ADVANCE YOUR CAREER BY



BUILDING  
YOUR SKILLS



EARNING A  
CERTIFICATE



OBTAINING AN  
ASSOCIATE DEGREE

## TOP 9 IN-DEMAND SECTORS

- 1 Advanced Manufacturing
- 2 Advanced Transportation & Logistics
- 3 Agriculture, Water, & Environmental Technologies
- 4 Business & Entrepreneurship
- 5 Energy, Construction, & Utilities
- 6 Global Trade
- 7 Health
- 8 Information Communication Technologies (ICT) & Digital Media
- 9 Life Sciences & Biotechnology

## GET CONNECTED

STUDENTS



### CAREER EDUCATION

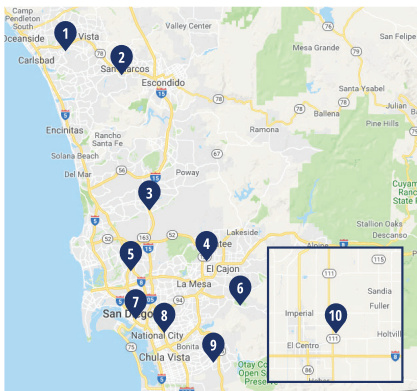
TRAINING  
WORK EXPERIENCE  
JOB PLACEMENT



EMPLOYERS

## THE REASON

Career Education gives students a wide variety of program choices at multiple campuses—at a fraction of the cost.



## OVER 200 PROGRAMS AND 10 COMMUNITY COLLEGES

- |                                    |                                   |
|------------------------------------|-----------------------------------|
| 1 <b>MiraCosta College</b>         | 6 <b>Cuyamaca College</b>         |
| 2 <b>Palomar College</b>           | 7 <b>San Diego City College</b>   |
| 3 <b>San Diego Miramar College</b> | 8 <b>San Diego Continuing Ed.</b> |
| 4 <b>Grossmont College</b>         | 9 <b>Southwestern College</b>     |
| 5 <b>San Diego Mesa College</b>    | 10 <b>Imperial Valley College</b> |

**\$46**

per credit  
**Community Colleges  
are the best value.**

# ADVANCED MANUFACTURING

Companies in this sector create products to solve many of today's most challenging problems. High-tech manufacturing (i.e., Advanced Manufacturing) jobs continue to grow, especially in the areas of 3-D printing, and high-speed, computerized numerical control machining. Because robots and automation take care of the repetitive work, today's manufacturing employees have more challenging and interesting job assignments.

Employers in this sector look for technicians who are at ease in the mechanical world and able to apply scientific and technical principles to manufacturing processes. Opportunities for advancement are plentiful as technological advancements make higher-skill jobs in product design, process engineering, operations, maintenance, and lab work more prevalent.



## CAREER EDUCATION GUIDE



## TRAITS FOR SUCCESS IN THIS SECTOR

### Are you interested in...?

- Working with your head and hands to bring product designs to life
- Using mechanical skills to build and maintain heavy machinery
- Learning a practical trade that is in demand no matter where you live
- Understanding how complicated equipment works
- Applying scientific and technical principles to structures and manufacturing processes

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### Do you...?

- Like to work collaboratively
- Have innovative ideas
- Pay attention to detail
- Have a strong work ethic
- Like to use math and/or machines to solve problems





## RELATED PATHWAYS AND PROGRAMS

### ENGINEERING AND ARCHITECTURAL DESIGN

The world's future will be propelled by ideas that will be developed in the Engineering and Architectural field. As the population continues to grow, engineers and architects will be called upon to imagine the future and turn it into reality. This sector is designed to provide a foundation in engineering, architecture, and design.

#### Types of Careers

Mechanical Drafters	\$22.85 - \$28.10
Architectural and Civil Drafters	\$24.68 - \$28.25
Electrical and Electronics Drafters	\$24.75 - \$28.64
Landscape Architects	\$26.01 - \$38.85

### WELDING AND MATERIALS JOINING

The Welding and Materials Joining pathway provides students with an understanding of manufacturing processes and systems common to careers in welding and related industries. Topics include the interpretation and layout of welded and assembled parts through cutting, mechanical bonding, joining, cohesive bonding, adhesive bonding, and mechanical fastening.

#### Types of Careers

Structural Metal Fabricators and Fitters	\$14.05 - \$20.38
Welders, Cutters, Solderers, and Brazers	\$17.10 - \$22.73
Welders, Cutters, and Welder Fitters (Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders)	\$17.66 - \$22.09

### MACHINING AND FORMING TECHNOLOGIES

The Machine and Forming Technologies pathway provides students with an understanding of manufacturing processes and systems common to careers in machine tool and materials forming industries. Topics include trade vocabulary; shop math; basic material identification; proper use of hand and machine tools; interpretation of machined and formed-part prints; cutting, shaping, fastening, and finishing of machined parts; forging, molding (casting), cold forming, and shearing processes; and reading precision measuring tools within .001".

#### Types of Careers

Computer-Controlled Machine Tool Operators, Metal and Plastic	\$16.34 - \$21.60
Machinists	\$16.42 - \$21.67
Electro-Mechanical Technicians	\$18.00 - \$24.03
Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic	\$22.12 - \$32.41

### PRODUCT INNOVATION AND DESIGN

This pathway provides students with an understanding of technologies common to careers in product design and manufacturing. Topics include product design, product development, computer-aided design, fabrication, manufacturing, sustainability, and global design principles.

#### Types of Careers

Model Makers, Metal and Plastic	\$17.72 - \$23.82
Mechanical Drafters	\$22.85 - \$28.10
Commercial and Industrial Designers	\$23.89 - \$27.80

# ADVANCED TRANSPORTATION & LOGISTICS

The Advanced Transportation & Logistics sector is responsible for ensuring that people and things get to the right place, at the right time, for the right price. Using cutting-edge technologies and processes, people in this sector are called on to move people and products from point A to point B by air, land and sea. It takes people with all different talents, skills, and training to keep things moving. Areas of projected market growth include the use of Global Positioning Systems (GPS), Geographic Information Systems (GIS), and Radio Frequency Identification (RFID), developments in rocket technology, super-capacity jet airplanes, hybrid and hydrogen fuel-cell technology, and the use of bio-diesel and other alternative fuels.

As vehicle components and repair techniques become increasingly sophisticated, this sector will continuously need transportation professionals. Because of the significant role that transportation plays in our personal and professional lives, there is a wide range of occupations in the sector, from technical to managerial positions.



## CAREER EDUCATION GUIDE



## TRAITS FOR SUCCESS IN THIS SECTOR

### Are you interested in...?

- Applying your knowledge of mechanics to maintain machines
- Using the latest technology to identify and solve mechanical problems
- Learning skills that will be in demand no matter where you live
- Making vehicles and processes run smoothly and efficiently

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### Do you...?

- Enjoy travel
- Like to read maps and figure out routes
- Like to tinker with machines and motors
- Like electronics, computer and technology
- Want to fly planes and operate trains and other vehicles





## RELATED PATHWAYS AND PROGRAMS

### OPERATIONS AND LOGISTICS

The Operations and Logistics pathway prepares students for postsecondary employment and education in a variety of career opportunities in the transportation industry, including but not limited to harbors, ports, warehousing, marine applications, airplanes, trains, vehicles, and specialty equipment.

#### Types of Careers

Warehouse Dispatchers (Dispatchers, Except Police, Fire, and Ambulance)	\$16.07 - \$20.87
Production, Planning, and Expediting Clerks	\$18.09 - \$22.88
Transportation, Storage, and Distribution Managers	\$34.29 - \$41.12
Crane and Tower Operators	\$23.35 - \$29.10

### STRUCTURAL REPAIR AND REFINISHING

The Structural Repair and Refinishing pathway prepares students for postsecondary education and employment in the transportation industry, including but not limited to body and frame straightening, estimating, painting, and refinishing for airplanes, trains, vehicles, equipment, etc.

#### Types of Careers

Automotive Body and Related Repairers	\$12.08 - \$15.98
Structural Metal Fabricators and Fitters	\$14.05 - \$20.38
Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	\$14.59 - \$19.10
Civil Engineering Technicians	\$17.75 - \$24.88
Structural Iron and Steel Workers	\$21.73 - \$32.30
Electrical and Electronics Repairers, Commercial and Industrial Equipment	\$24.93 - \$29.04

### SYSTEMS DIAGNOSTICS, SERVICES AND REPAIR

The Systems Diagnostics, Service, and Repair pathway prepares students for postsecondary education and employment in the transportation industry, which includes but is not limited to motor vehicles, rail systems, marine applications, and small-engine and specialty equipment.

#### Types of Careers

Automotive Body and Related Repairers	\$12.08 - \$15.98
Bus and Truck Mechanics and Diesel Engine Specialists	\$18.14 - \$25.07
Mobile Heavy Equipment Mechanics, Except Engines	\$21.87 - \$26.62
Electrical and Electronics Installers and Repairers, Transportation Equipment	\$26.04 - \$28.74

# AGRICULTURE, WATER & ENVIRONMENTAL TECHNOLOGIES

As California's population continues to grow, the state's agricultural, water and environmental resources are more important than ever. Agriculture alone is a \$47 billion-dollar industry in California, making our state the most prolific agricultural producer in the U.S. To meet the growing demand for these resources, companies are rapidly adopting new technologies and sustainable practices, and need workers to drive improvements in the sector. Careers in this sector range from turf management at municipal golf courses to research in biological sciences. Employees may work in a lab, on a farm, ranch, dairy, orchard, greenhouse, plant nursery, or in a veterinary office.



## CAREER EDUCATION GUIDE



## TRAITS FOR SUCCESS IN THIS SECTOR

### Are you interested in...?

- Solving real-world problems with practical, hands-on solutions
- The relationship between humans, the environment and natural resources
- Diagnosing, testing, and repairing large equipment using complex technologies

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### Do you...?

- Enjoy working outdoors
- Want to protect the environment and natural resources
- Like working with people
- Have a green thumb





## RELATED PATHWAYS AND PROGRAMS

### SUSTAINABLE AGRICULTURE (PLANT SCIENCE, HORTICULTURE, AND NURSERY TECHNOLOGY)

This pathway covers topics such as soil management, pest control, horticulture, floriculture, and crop, nursery and plant production. In addition, students learn about plant identification, classification, physiology, reproduction, and pathology.

#### Types of Careers

Pesticide Handlers, Sprayers, and Applicators	\$15.56 - \$16.22
Agricultural and Food Science Technicians	\$16.61 - \$19.88
Soil and Plant Scientists	\$27.43 - \$38.44

### ENVIRONMENTAL TECHNOLOGY

Topics include waste treatment technologies, current hazardous waste and hazardous materials regulations, sustainable development, economic and sociopolitical environmental issues, small business and large facility compliance, emergency response techniques, and the cleanup of contaminated air, water, and soil.

#### Types of Careers

Environmental Science and Protection Technicians	\$19.45 - \$23.46
Environmental Engineering Technicians	\$23.02 - \$29.85

### LANDSCAPE DESIGN AND MAINTENANCE

This pathway includes sustainable practices in landscape design, installation and maintenance, urban landscapes, irrigation, and agricultural technologies.

#### Types of Careers

Agricultural Equipment Operators	\$11.58 - \$13.99
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	\$15.08 - \$17.65
Farm Equipment Mechanics and Service Technicians	\$15.64 - \$21.03
Landscape Architects	\$26.01 - \$38.85

### WATER AND WASTEWATER TECHNOLOGIES

Water is arguably California's most important resource. More than 39 million people in the state depend on the water industry for a safe and reliable water supply and wastewater sanitation. Students learn about water usage, conservation and technologies in a variety of industries such as energy, agriculture, manufacturing, construction, and life sciences.

#### Types of Careers

Water and Wastewater Treatment Plant and System Operators	\$26.48 - \$32.88
Water Resources Specialists (Natural Sciences Managers)	\$55.71 - \$68.55

### AGRICULTURAL BUSINESS, SALES AND SERVICE

This pathway includes agricultural business operation and management. Topics include accounting, finance, economics, business organization, marketing, and sales.

#### Types of Careers

Sales Representatives, Wholesale and Manufacturing	\$18.12 - \$24.94
Agricultural Inspectors	\$21.17 - \$32.37
Sales Managers	\$31.65 - \$48.78
General and Operations Managers	\$33.27 - \$51.52

# BUSINESS & ENTREPRENEURSHIP

Regardless of the industry, every company needs people to account for finances, manage personnel, and sell products. Persons trained in fields such as business, management, marketing, sales, and financial services (e.g., accounting, banking, investing) will find that their skills are highly marketable. Individuals interested in running their own businesses must master financial literacy and develop skills in mathematics, organization, time management, customer service, and communication. Within this field, professionals are responsible for maximizing the experiences of customers, generating digital sales and traffic, managing personnel, and developing brands and products. Advances in technology, as well as market globalization and the expansion of banking and investment institutions around the world, will continue to create exciting and challenging career opportunities in this sector for the foreseeable future.



## CAREER EDUCATION GUIDE



## TRAITS FOR SUCCESS IN THIS SECTOR

### Are you interested in...?

- Owning your own business
- Using software to track taxes, investments, and assets
- Managing a team of employees
- Working with financial records to make sure everything adds up
- Understanding how local, state, national and global economies work

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### Do you...?

- Enjoy working with numbers
- Like to read business/financial information
- Like making presentations
- Like to follow the stock market
- Want to develop skills that are transferable to any business
- Enjoy solving problems





## RELATED PATHWAYS AND PROGRAMS

### MARKETING, SALES AND SERVICE

In the Marketing, Sales and Service pathway, professionals advertise and promote products to increase sales. People who work in this field not only use their creativity, imagination, and persuasive skills to sell products and services, but also their customer service skills to maintain customer satisfaction. Using today's diverse and powerful communication tools and improved transportation systems, it is now possible to market, service and sell products to anyone anywhere in the world.

#### Types of Careers

Customer Service Representatives	\$13.99 - \$17.72
Advertising Sales Agents	\$15.53 - \$23.87
Sales Representatives, Services, All Other	\$16.49 - \$23.68
Market Research Analysts and Marketing Specialists	\$21.78 - \$29.78
Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	\$22.90 - \$32.53

### ENTREPRENEURSHIP AND SELF-EMPLOYMENT

Develop knowledge and skills common to entrepreneurs and entrepreneurship, including the human characteristics vital for entrepreneurial thinking in a twenty-first-century global world. Students learn the business knowledge and skills required for entrepreneurs, as well as intangible skills and knowledge such as creativity and innovation skills.

#### Types of Careers

Travel Agents	\$15.04 - \$18.62
Meeting, Convention, and Event Planners	\$17.86 - \$22.17
Insurance Sales Agents	\$20.51 - \$25.31
Chief Executives	\$36.83 - \$87.33

### BANKING AND FINANCE

Financial services are an essential aspect of every business institution and organization. Students in this pathway investigate the field of financial management, including how it is impacted by industry standards as well as economic, financial, technological, international, social, legal, and ethical factors. Students formulate and interpret financial information for use in financial management decision making, such as compliance and risk management. This pathway may include programs of study for accounting, banking, securities and investments, and other financial specializations.

#### Types of Careers

Billing and Posting Clerks	\$16.75 - \$20.70
Bookkeeping, Accounting, and Auditing Clerks	\$16.81 - \$20.88
Financial Specialists, All Other	\$25.73 - \$34.34
Personal Financial Advisors	\$30.43 - \$39.99

### BUSINESS MANAGEMENT

Management consists of planning, leading, and controlling an organization or effort to accomplish a goal. In the Business Management pathway, students learn entrepreneurship and business fundamentals, goal-setting, resource allocation, organizational structure and management techniques, economics, financial data, risk management, information technology, and supply chain management.

#### Types of Careers

Human Resources Assistants, Except Payroll and Timekeeping	\$17.77 - \$20.69
Human Resources Specialists	\$22.36 - \$30.58
Buyers and Purchasing Agents	\$23.79 - \$30.64
Administrative Services Managers	\$31.74 - \$40.25

# ENERGY, CONSTRUCTION & UTILITIES

The United States is not only one of the world's leading suppliers of energy, it is also one of its largest consumers. With the increase of public and governmental interest in renewable energy, clean energy generation, and energy efficiency, job opportunities are growing rapidly, especially with the existing workforce expected to retire in the upcoming years.

Firms in this sector need people who can work with their heads and hands to design and build office buildings, hospitals, shopping malls, and housing communities. Once architects come up with a design, it takes a team of skilled people such as plumbers, electricians, masons, roofers, framers and more to turn it into a finished structure. Craftsmen in this industry sector need a strong math background, good technology skills, and solid on-the-job experience.



## CAREER EDUCATION GUIDE



## TRAITS FOR SUCCESS IN THIS SECTOR

### Are you interested in...?

- Working with state-of-the-art technology and machines
- Balancing energy needs with environmental concerns
- Learning a practical trade that is transferable to any location
- Being part of a sector with a global impact
- Using math to solve community and global problems

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### Do you...?

- Enjoy building things and working with tools
- Dream of creating a city skyline
- Want to build massive infrastructures that connect and support our world
- Follow directions
- Prefer working outdoors
- Work on a project until all the pieces fit together
- Work with your hands





## RELATED PATHWAYS AND PROGRAMS

### CABINETRY, MILLWORK AND WOODWORKING

The Cabinetry, Millwork, and Woodworking pathway provides learning opportunities for students interested in preparing for careers in cabinet construction, millwork, finish carpentry, and furniture making for both production and custom products.

#### Types of Careers

Woodworking Machine Setters, Operators, and Tenders	\$12.62 - \$14.77
Milling and Planing Machine Setters, Operators, and Tenders, Metal and Plastic	\$14.74 - \$18.16
Woodworking Engineer/Drafter (Woodworkers, All Other)	\$15.02 - \$16.46
Cabinetmakers and Bench Carpenters	\$15.98 - \$17.98

### ENERGY AND POWER TECHNOLOGIES

This pathway provides learning opportunities for students interested in preparing for careers in the energy and power industries, including, but not limited to, geothermal, solar, and wind energy.

#### Types of Careers

Energy Brokers (Sales Representatives, Services, All Other)	\$16.49 - \$23.68
Solar Photovoltaic Installers	\$17.69 - \$21.65
Weatherization Installers and Technicians (Misc. Construction and Related Workers)	\$17.80 - \$23.82
Energy Engineers (Engineers, All Other)	\$35.67 - \$48.32

### MECHANICAL SYSTEMS INSTALLATION AND REPAIR

The Mechanical Systems Installation and Repair pathway provides students with competencies fundamental for preparing for employment or advanced training in heating, ventilation, air conditioning (HVAC) and appliance installation, maintenance, and repair. The pathway includes preparation for a Class C California License and EPA certification.

#### Types of Careers

Insulation Workers, Mechanical	\$16.63 - \$22.90
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	\$17.07 - \$25.02
Sheet Metal Workers	\$20.99 - \$27.60
Mechanical Engineering Technicians	\$20.96 - \$27.61

### RESIDENTIAL AND COMMERCIAL CONSTRUCTION

The Residential and Commercial Construction pathway provides learning opportunities for students interested in preparing for careers in construction and building design, performance, and sustainability. The focus is on the manner in which residential and commercial structures are designed and built (Class B California License).

#### Types of Careers

Carpenters	\$13.98 - \$19.25
Plumbers, Pipefitters, and Steamfitters	\$17.86 - \$23.78
Electricians	\$19.15 - \$27.66
Construction and Building Inspectors	\$25.91 - \$34.91
First-Line Supervisors of Construction Trades and Extraction Workers	\$26.39 - \$35.54

### ENGINEERING AND HEAVY CONSTRUCTION

The Engineering and Heavy Construction pathway provides learning opportunities for students interested in preparing for careers in engineering and heavy industrial construction (roads, highways, subdivisions). The pathway includes instruction in the way in which these structures are built (Class A California License).

#### Types of Careers

Welders, Cutters, Solderers, and Brazers	\$17.10 - \$22.73
Cement Masons and Concrete Finishers	\$18.84 - \$26.71
Construction Managers	\$19.25 - \$38.53
Structural Iron and Steel Workers	\$21.73 - \$32.30
Mobile Heavy Equipment Mechanics, Except Engines	\$21.87 - \$26.62

# GLOBAL TRADE

The relative ease of travel and the use of electronic communication have seemingly diminished the size of the globe, yet the interdependence of countries for goods and services causes this marketplace to grow, thrive, and become increasingly more competitive. Students focusing on the occupational area of international trade develop an understanding of the global business environment and the interconnectedness of cultural, political, legal, historical, economic, and ethical systems. The Global Trade sector includes organizations, technologies and resources that move international goods and services from supplier to customer. Some programs in this sector include sourcing, procurement, and mastering import/export laws. As a major economic driver for California, international trade creates high-paying jobs for more than a million residents.



## CAREER EDUCATION GUIDE



## TRAITS FOR SUCCESS IN THIS SECTOR

### Are you interested in...?

- Working in international companies
- Being in a corporate environment
- Understanding international rules and regulations
- Estimating prices for the best deals
- Business intelligence and data analysis

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### Do you...?

- Enjoy travel
- Wonder where things (supplies, equipment, products) come from
- Want to work in culturally diverse teams



## RELATED PATHWAYS AND PROGRAMS

### INTERNATIONAL BUSINESS

Topics in this pathway include supply chain management, customs brokering, export and import processes, regulatory compliance, purchasing, and shipping. The Global Trade and Business and Entrepreneurship sectors have similar occupations, which tend to overlap due to similarities in duties and work roles.

#### Types of Careers

Sales Representatives, Services, All Other	\$16.49 - \$23.68
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	\$18.12 - \$24.94
Buyers and Purchasing Agents	\$23.79 - \$30.64
Cost Estimators	\$25.16 - \$30.18
Business Operations Specialists, All Other	\$27.13 - \$37.34



# HEALTH CARE

Caring students looking for a “recession-proof” career will want to explore health opportunities available in Health Care. The medical and health industry is one of the largest employers in California, employing nearly 1.4 million professionals across a wide range of well-paying career opportunities. Surprisingly doctors and nurses comprise less than 40% of health professionals, while allied health professionals make up an estimated 60% of the national Health Care workforce. While many of the careers in this sector require advanced-level preparation, there are plenty of options available for students of various aptitudes, interests, abilities, and degree levels. Because almost all health professions are experiencing shortages, careers in this sector offer promising futures.

Programs of study in this sector can lead to many different specialties, including nursing, research, diagnostic services, support services, physical therapy, and health informatics (using cutting-edge technology to store and retrieve medical data). While significant expansion will continue across all occupational segments, the Health Workforce Initiative notes especially strong growth opportunities for Certified Nursing Assistants, Home Health Aides, and Licensed Vocational Nurses.



## CAREER EDUCATION GUIDE



## TRAITS FOR SUCCESS IN THIS SECTOR

### Are you interested in...?

- Caring for people who are sick and suffering
- Researching and performing experiments using the latest technologies
- Collecting data in order to better understand a disease or treatment
- Assisting doctors and nurses with their daily activities

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### Do you...?

- Like working on a team
- Pay attention to detail
- Enjoy helping people
- Enjoy entertaining, conversing, or reading aloud to patients



## RELATED PATHWAYS AND PROGRAMS

### PATIENT CARE

Topics in this pathway include the prevention, treatment, and management of illness, as well as the preservation of mental and physical well-being through services offered by medical and allied health professionals.

#### Types of Careers

Pharmacy Technicians	\$14.63 - \$17.72
Dental Assistants	\$15.64 - \$17.69
Cardiovascular Technologists and Technicians	\$23.00 - \$31.89
Radiologic Technologists	\$28.00 - \$37.49
Respiratory Therapists	\$32.71 - \$38.08
Dental Hygienists	\$40.97 - \$44.87

### HEALTH CARE ADMINISTRATIVE AND OPERATIONAL SUPPORT SERVICES

This pathway includes site administrators, managers, attorneys, receptionists, secretaries, billing and coding specialists, health informatics technicians, accountants, managers, facility managers, maintenance workers, food service workers, housekeeping workers, and other knowledge workers that support the process of patient care. Health care administrative and operational support workers are the invisible backbone of health care; without appropriately skilled workers in these fields, health care systems simply could not function.

#### Types of Careers

Medical Secretaries	\$15.54 - \$19.01
Medical Records and Health Information Technicians	\$16.88 - \$21.63
Administrative Services Managers	\$31.74 - \$40.25
Medical and Health Services Managers	\$32.21 - \$51.42

### PUBLIC AND COMMUNITY HEALTH

The standards for the Public and Community Health pathway apply to occupations or functions involved primarily in environmental health, community health and health education, epidemiology, disaster management, and geriatrics.

#### Types of Careers

Community Health Workers	\$15.23 - \$18.79
Health Educators	\$16.88 - \$20.15
Healthcare Social Workers	\$25.00 - \$32.34
Dietitians and Nutritionists	\$30.18 - \$34.06

### MENTAL AND BEHAVIORAL HEALTH

The standards for mental and behavioral health relate to occupations that assist clients on their journey toward better health. Collaborating with other departments as members of interdisciplinary teams of mental health professionals, such as psychiatrists, psychologists, registered nurses, and other disciplines, they assist with delivery of appropriate, quality treatment to patients with behavioral health concerns, psychological crises, and other biopsychological problems.

#### Types of Careers

Psychiatric Aides	\$12.50 - \$14.34
Substance Abuse, Behavioral Disorder, and Mental Health Counselors	\$15.41 - \$18.97
Psychiatric Technicians	\$16.40 - \$28.85
Mental Health and Substance Abuse Social Workers	\$16.62 - \$22.21

# INFORMATION COMMUNICATION TECHNOLOGIES (ICT) & DIGITAL MEDIA



In California alone, this sector accounts for 12.6% of the state's economy, while providing more than one million jobs across the state. As companies continue to use new and emerging technologies, the demand for technologically savvy and creative professionals will continue to grow. Jobs in the ICT & Digital Media sector tend to be constantly changing and require a combination of imaginative and hands-on skills. Professionals in this sector must be able to work both independently and collaboratively.

ICT & Digital Media students learn about the design, development, maintenance, and management of hardware, software, multimedia, and systems integration services. Because of the central role that technology plays in all industries, ICT professionals are and will continue to be in great demand in every sector of the economy. Specific areas of future growth are likely to surface in cloud computing, collection and storage of big data, and information security.

## CAREER EDUCATION GUIDE



## TRAITS FOR SUCCESS IN THIS SECTOR

### Are you interested in...?

- Solving puzzles using computers, software and/or technology
- Using your imagination to find creative solutions to artistic problems
- Working on a team of professionals to develop cutting-edge products and solutions
- Learning job skills that are transferable to almost any location and industry
- Troubleshooting a variety of software and hardware problems

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### Do you...?

- Enjoy art and design
- Have an active imagination
- Like to paint, draw, perform, sculpt or write
- Enjoy explaining technology to non-technology users
- Want to work in a fast-paced work environment
- Enjoy collaborating on project-based assignments





## RELATED PATHWAYS AND PROGRAMS

### SOFTWARE APPLICATIONS AND SYSTEMS DEVELOPMENT

Students in the Software and Systems Development pathway prepare for careers that involve the design, development, implementation, maintenance, and management of systems that rely on software programs to satisfy the operational needs of businesses. Persons with expertise in systems development and programming are critical to support operations such as security, electronic commerce, medical records management, retail sales and inventory management, digital entertainment, and energy use.

#### Types of Careers

Web Developers	\$16.17 - \$20.88
Computer Programmers*	\$32.27 - \$46.71
Software Developers, Applications*	\$38.10 - \$50.58
Software Developers, Systems Software*	\$41.18 - \$54.90

### INFORMATION SUPPORT AND SERVICES

Students in the Information Support and Services pathway prepare for careers that involve the implementation of computer services and software, support of multimedia products and services, provision of technical assistance, creation of technical documentation, and the administration and management of information and communication systems. Mastery of information and communication technologies is the foundation for all successful business organizations today. Persons with expertise in ICT support and services are in high demand for a variety of positions in business and industry.

#### Types of Careers

Computer User Support Specialists	\$22.33 - \$27.26
Database Administrators*	\$34.44 - \$45.01
Information Security Analysts*	\$37.15 - \$46.61
Computer and Information Systems Managers*	\$54.13 - \$68.65

### NETWORKING

Students in the Networking pathway prepare for careers that involve network analysis, planning, and implementation, including the design, installation, maintenance, and management of network systems. The successful establishment, maintenance, and securing of information and communication technologies infrastructure is critical to the success of every twenty-first-century organization. Employment continues to grow for persons with expertise in networking.

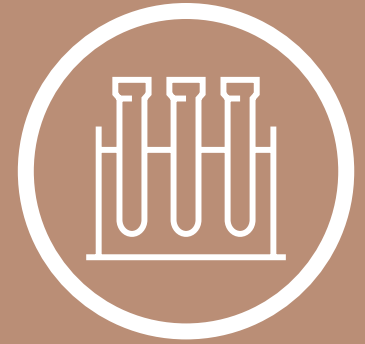
#### Types of Careers

Computer Network Support Specialists	\$26.39 - \$33.37
Network and Computer Systems Administrators*	\$33.54 - \$41.28
Computer Network Architects*	\$43.72 - \$56.74

*\*Indicates that these occupations have a typical entry-level educational requirement of a bachelor's degree; however, 33% or more people employed in these occupations have an associate degree or less*

# LIFE SCIENCES & BIOTECHNOLOGY

This sector focuses on finding solutions for the world's great challenges in health care, agriculture, and sustainability. Firms include research, testing and medical laboratories that are engaged in the discovery, development and commercialization of new products. The Life Sciences & Biotechnology sector encompasses many segments, including pharmaceuticals, biomedical devices, M-Health (mobile health) or wireless health, agricultural and industrial biotechnology (e.g., biofuels, biodegradable materials), and bioscience-related distribution and trade. The Life Sciences & Biotechnology sector is an economic driver and job producer; for every job created in this sector, four other jobs are generated throughout San Diego County.



## CAREER EDUCATION GUIDE



## TRAITS FOR SUCCESS IN THIS SECTOR

### Are you interested in...?

- Using computers and computer systems to analyze information and evaluate results
- Observing, receiving, and obtaining information from relevant sources
- Collecting, documenting, and recording data
- Conducting tests and seeing results
- Using reasoning to produce answers that make sense to a specific problem

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### Do you...?

- Enjoy solving puzzles
- Enjoy working hands-on with materials
- Use information to form general rules or conclusions
- Enjoy making hypotheses and proving them right or wrong
- Wonder how the world is put together



## RELATED PATHWAYS AND PROGRAMS

### BIOMEDICAL OR MEDICAL DEVICES AND PRODUCTS

Firms in this field produce surgical, medical, dental, optical, and ophthalmic devices and products. Students in this pathway work with new technologies that play a vital role in patient care. Students learn the inspection, maintenance and repair of medical devices.

#### Types of Careers

Medical Appliance Technicians	\$13.03 - \$19.14
Ophthalmic Laboratory Technicians	\$15.10 - \$19.49
Medical Equipment Repairers (Biomedical Equipment Technicians)	\$18.50 - \$23.83

### CHEMICAL TECHNOLOGY

Students in this pathway prepare for work as analytical technicians in chemical laboratories associated with chemical production, environmental concerns, pharmaceuticals, food additive production and testing, or general analysis.

#### Types of Careers

Chemical Equipment Operators and Tenders	\$12.90 - \$18.79
Chemical Technicians	\$17.29 - \$22.76
Chemical Plant and System Operators	\$22.99 - \$28.73

### BIOTECHNOLOGY AND BIOMANUFACTURING

Professionals in Biotechnology and Biomanufacturing are responsible for understanding and solving biomedical problems and creating products to improve the quality of human life. This field primarily consists of research, testing, and development facilities that focus on the discovery, manufacturing, and commercialization of medicinal and diagnostic substances. Firms in this sector are typically middle to smaller sized companies as well as world-renowned research institutes.

#### Types of Careers

Inspectors, Testers, Sorters, Samplers and Weighers	\$14.73 - \$19.33
Quality Control Analysts (Life, Physical, and Social Science Technicians, All Other)	\$18.73 - \$25.63
Biological Technicians	\$19.81 - \$24.20
Clinical Laboratory Technologists and Technicians	\$24.22 - \$36.78
Manufacturing Production Technicians (Engineering Technicians, All Other)	\$26.21 - \$33.03



# ADDITIONAL RESOURCES



## **San Diego & Imperial Counties Community Colleges**

The regional career education website for the San Diego and Imperial Counties Community Colleges. Includes career and college exploration as well as information about fees and how to apply.

<https://careered.org/>



## **Dec 5th, 2018 Counselor Conference Bridging Pathways: From Exploration to Career**

Links to breakout session handouts, PowerPoints, and more.  
[www.myworkforceconnection.org/counselor-resources/](http://www.myworkforceconnection.org/counselor-resources/)



## **Core Academics for Careers**

A project of SB1070 CTE Regional Pathways, this website provides resources that expand college pathways into the middle and high school setting through professional development, curriculum, and industry connections.

<https://www.careeracademics.org/>



## **California Community Colleges Workforce and Economic Development**

Regional interactive resource map, top 10 sector priority handouts, career pathways and guided pathways toolkits, and more.

[www.doingwhatmatters.cccco.edu](http://www.doingwhatmatters.cccco.edu)



## **California Community Colleges My Path**

About colleges, explore careers, choose a college, apply for college, pay for college.

<https://www.cccmypath.org>



## **California Community Colleges Career Coach**

Discover majors and in-demand careers and education based on your interests. Take a career assessment, browse careers, or browse programs. Offers Military Search. Powered by EMSI.  
<https://ccc.emsicc.com/>



## **CTE Model Curriculum Standards**

A program of study that involves a multiyear sequence of courses that integrates core academic knowledge with technical and occupational knowledge to provide students with a pathway to postsecondary education and careers.  
[www.cde.ca.gov/ci/ct/](http://www.cde.ca.gov/ci/ct/)



## **California Career Zone**

Career exploration and planning system designed especially for students. Jobseekers, educators, and counselors will benefit from the wealth of information on 900 occupations from the Occupational Information Network (O\*Net) database  
[www.cacareerzone.org](http://www.cacareerzone.org)



## **California Career Center**

California Career Center is a virtual counselor for career and college exploration and planning resources to help students map their futures. The Career Center is focused on students but also contains resources for counselors, teachers, and parents/guardians.

<https://www.calcareercenter.org/>



### **Career Surfer**

Career Surfer is CalCRN's mobile application that can be downloaded for free from AppStore or Google Play. Basic information about the 900 occupations detailed on the California Career Zone.

<https://www.calcareercenter.org/Home/Content?contentID=404>



### **Salary Surfer**

To help students and their families make important decisions about investing time and money in a college education, the California Community Colleges Chancellor's Office, through Salary Surfer, is providing comparative information about the earnings of recent California community college graduates who received an award in a specific program of study.

<https://salarysurfer.cccco.edu/SalarySurfer.aspx>



### **Here to Career**

The Here to Career app is an easy way to find careers that match your interest and get connected with tools to be successful. With Here to Career, you can view salary information and high-demand career opportunities in your area and find a local community college with a program to help you achieve your goals.

<https://www.heretocareer.org/>



### **California Career Café**

A virtual career center for California community college students.

[www.cacareercafe.com/](http://www.cacareercafe.com/)



### **O\*NET Interest Profiler**

The O\*NET Interest Profiler can help you find out what your interests are and how they relate to the world of work. You can find out what you like to do. The O\*NET Interest Profiler helps you decide what kinds of careers you might want to explore.

<https://www.mynextmove.org/explore/ip>



### **Statewide Career Pathways**

Creating School to College Articulation provides a statewide framework to assist high school and college faculty to collaborate and develop programs of study that include articulation of high school coursework.

[www.statewidepathways.org/](http://www.statewidepathways.org/)



### **Who Do U Want 2B?**

Info on California high school and community college courses, career options and financial assistance. Includes a link to the Industry Sector Pathways Poster: A one-page document that lays out all 15 of the California Industry Sector Pathways in a unique, colorful way.

[www.whodouwant2b.com/](http://www.whodouwant2b.com/)

# COLLEGE OVERVIEW

## CUYAMACA COLLEGE



### El Cajon

Situated on 165 rolling acres in scenic Rancho San Diego, Cuyamaca College opened in 1978 and serves almost 10,000 students each semester. The school in eastern San Diego County offers 91 degree programs and 74 certificates. Cuyamaca College has renowned career education programs in automotive technology, ornamental horticulture, computer and information science, and engineering.



## GROSSMONT COLLEGE



### El Cajon

Grossmont College, located on a 135-acre mesa in northwest El Cajon, has been a vital part of the community since 1961. Grossmont serves almost 19,000 full- and part-time students per semester, and offers 95 degree and 73 certificate programs. Grossmont College has highly regarded career education programs in culinary arts, nursing and health, and law enforcement.



## IMPERIAL VALLEY COLLEGE



### Imperial

In 1962, a handful of people gathered on a 160-acre plot of land in Imperial, CA. It was the first day of classes for what would become Imperial Valley College. Today, 9,000 students learn across dozens of degree, certificate and career education programs each semester. Over the past decade, Imperial Valley College has continued major modernization programs, including construction of state-of-the-art Career Education buildings and labs, and establishment of innovative educational partnerships.



## MIRACOSTA COLLEGE



### Oceanside

The MiraCosta Community College District includes Oceanside, Carlsbad, La Costa, Encinitas, Olivenhain, Rancho Santa Fe, Cardiff by the Sea, Solana Beach, Del Mar, and Carmel Valley. With its coastal location, beautiful campuses, and strong academic programs, MiraCosta College attracts students from throughout San Diego County, the state, and the country as well as from abroad. Founded in 1934, today, MiraCosta is one of a handful of California community colleges that offers a bachelor's degree. Nearly 15,000 students take class each semester, including military members and veteran community.

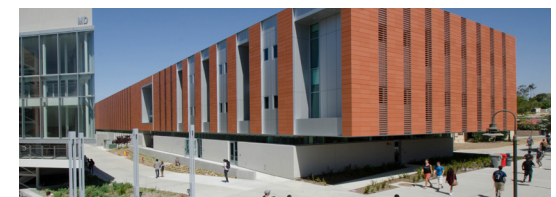


## PALOMAR COLLEGE



### San Marcos

Palomar College is a public, two-year community college. Its main campus is located approximately 30 miles north of downtown San Diego, in San Marcos, California. Palomar enrolls nearly 30,000 full-time and part-time students and gives you the opportunity to choose from over 200 associate degrees, complete certificate training programs, and enjoy career education classes for lifelong learning.





## SAN DIEGO CITY COLLEGE



### Downtown San Diego

For more than 100 years, City College has been a public, two-year community college serving as the educational cornerstone of downtown San Diego. The college covers 60 acres, taking up 20% of downtown's footprint. By the numbers, the school offers 250 majors and certificate programs, and conducts 1,500 classes each semester for more than 17,000 students. Explore career education at City College.



## SAN DIEGO CONTINUING EDUCATION



### Across San Diego

Founded in 1914, SDCE is the adult education division of the San Diego Community College District. SDCE provides accessible, equitable, and innovative quality education across more than 70 programs and thousands of free classes. Programs are available at seven campuses in San Diego from the Barrio Logan community in the south, to Miramar in the north. Students also attend classes at over 200 community locations.

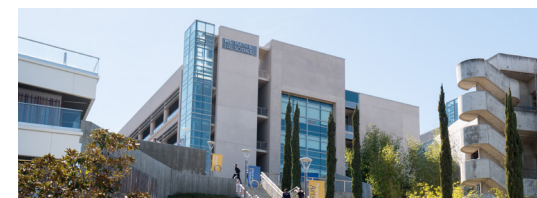


## SAN DIEGO MESA COLLEGE



### Clairemont Mesa

As one of California's largest community colleges, Mesa College ranks as San Diego's top transfer institution, with small classes, award-winning faculty, and a reputation as the leading college of equity and excellence. Conveniently located in central San Diego, Mesa offers Career Education programs in fields such as allied health, Geographic Information Systems (GIS), business, multimedia, hospitality, culinary arts, fashion, architecture, and interior design along with a four-year baccalaureate degree in Health Information Management.



## SAN DIEGO MIRAMAR COLLEGE



### Mira Mesa

Founded in 1969, and located in Mira Mesa, Miramar College enrolls 15,000 students annually, in both online and on-campus classes. The school offers 117 degrees and certificates across 16 career education programs. Partnerships with local industries help prepare students for high-demand and well-paying jobs in the highly-competitive labor market, including biotechnology, paralegal, aviation, automotive, diesel and advanced transportation and energies.

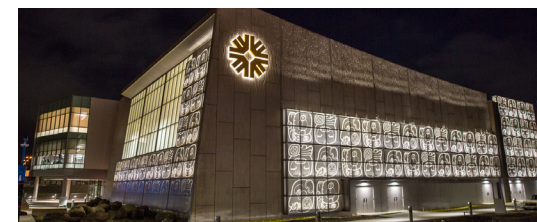


## SOUTHWESTERN COLLEGE



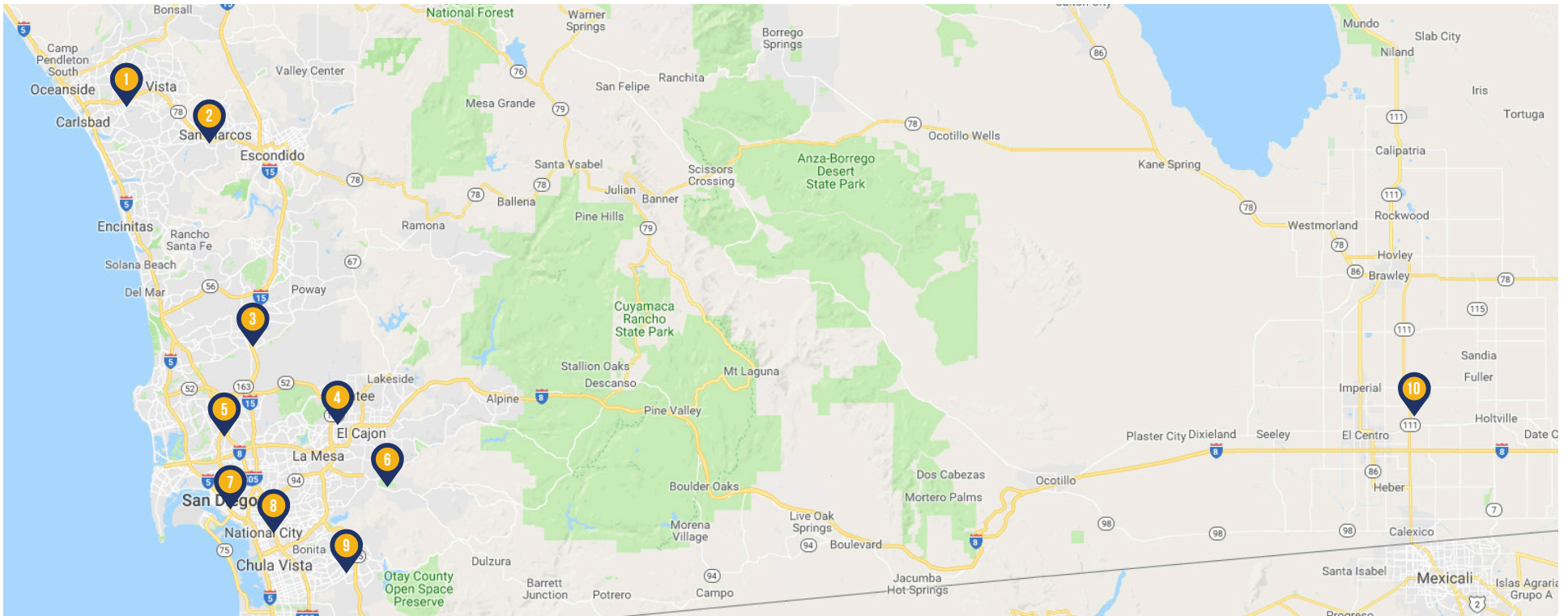
### Chula Vista

Since its inception in 1961, Southwestern College has shaped the lives of hundreds of thousands of South County students through higher education. Nestled on a 156-acre campus in the heart of Chula Vista, the school provides a supportive environment, with over 320 associate degree and certificate programs available for a highly diverse traditional and non-traditional student population. Whether your goal is a certificate, degree, transferring to a four-year college, or pursuing career education, SWC offers extensive opportunities to meet educational, career and personal improvement goals with five locations throughout the South Bay.



To explore community colleges, visit [CareerEd.org](https://www.careered.org)

# COLLEGE MAP



**1 MIRACOSTA COLLEGE**  
Oceanside

**2 PALOMAR COLLEGE**  
San Marcos

**3 SAN DIEGO MIRAMAR COLLEGE**  
Mira Mesa

**4 GROSSMONT COLLEGE**  
El Cajon

**5 SAN DIEGO MESA COLLEGE**  
Clairemont Mesa

**6 CUYAMACA COLLEGE**  
El Cajon

**7 SAN DIEGO CITY COLLEGE**  
Downtown San Diego

**8 SAN DIEGO CONTINUING EDUCATION**  
Across San Diego

**9 SOUTHWESTERN COLLEGE**  
Chula Vista

**10 IMPERIAL VALLEY COLLEGE**  
Imperial



# LEARN MORE. EARN MORE.

[CareerEd.org](https://www.CareerEd.org)