



Health Science and Medical Technology Industry Sector

Health Science and Medical Technology continue to be one of the fastest-growing industry sectors in California, offering numerous opportunities and benefits. Of the more than 300 careers within this sector, about 41 percent require professional-level preparation; about 33 percent, technical-level preparation; and 26 percent, assistant-level preparation. The Health Science and Medical Technology pathways and careers offer options to match a variety of the aptitudes, interests, abilities, and academic achievement of students. Wages and salaries are projected to increase by 27 percent through 2014, and employment is expected to account for about 3.6 million new jobs—19 percent of all jobs to be added to the economy by 2014.

The career pathways are grouped in functions that have a common purpose and similar attributes: Biotechnology Research and Development, Diagnostic Services, Health Informatics, Support Services, and Therapeutic Services. Standards for each career path build on and continue the Health Science and Medical Technology foundation standards, providing more complexity, rigor, and career specificity. And each career pathway includes standards needed for all careers within that pathway.

Health Science and Medical Technology Industry Sector Pathways:

- *Biotechnology Research and Development*
- *Diagnostic Services*
- *Health Informatics*
- *Support Services*
- *Therapeutic Services*

Entry Level Careers

(with high school diploma)

- Physical Therapy Assistant
- Respiratory Care Practitioner
- Optometric Assistant
- Medical Assistant
- Medical Office Secretary
- Home Health Aide
- Laboratory Assistant
- Pharmacy Aide
- Dental Assistant
- Medical Equipment Preparers
- Personal and Home Care Aide
- Psychiatric Aides
- Veterinary Assistants
- Laboratory Animal Caretakers
- Biotechnology Assistant
- Central Supply Aide
- Geriatric Assistant

Technical Level Careers

(with AA or AS degree or certificate)

- Certified Nursing Assistant - CNA
- Pharmacy Technician
- Registered Nurses (2 yr)
- Paramedic
- Operating Room Technician
- Medical Records Technician
- Emergency Medical Technician - EMT
- Licensed Vocational Nurse - LVN
- Radiology Technologist
- Dental Lab Technician
- Respiratory Therapists
- Cardiovascular Technologists
- Dental Hygienist
- Diagnostic Medical Sonographers
- Biomedical Technician
- Environmental Services Technician
- Gerontologist

Professional Level Careers

(with BS or BA degree)

- Surgeons
- Speech-Language Pathologists
- Registered Nurses (4 yr)
- Pharmacists
- Physicians
- Orthodontists
- Nurse Practitioner
- Anesthesiologists
- Athletic Trainers
- Dietitians and Nutritionists
- Clinical Trials Researcher
- Biomedical Chemist
- Geneticist
- Health Services Administrator
- Industrial Hygienist
- Materials Management Supervisor
- Medical/Public Health Social Workers



Support Services Pathway

Sample CTE Courses*

Education Level and Related Occupations**

Introductory	Concentration	Capstone	High School Diploma	Certification and/or AA Degree	Environmental Health Specialist+ Bachelor's Degree or Higher
<ul style="list-style-type: none"> ▪ Introduction to Health Careers I ▪ Introduction to Health Careers II ▪ Introduction to Hospital Occupations 	<ul style="list-style-type: none"> ▪ Medical Terminology ▪ Structure and Function 	<ul style="list-style-type: none"> ▪ Hospital Support Services ▪ Maintenance and Supply Technician ▪ Medical Transporter 	<ul style="list-style-type: none"> ▪ Central Supply Aide ▪ Environmental Services Assistant 	<ul style="list-style-type: none"> ▪ Central Supply Technician+ ▪ Environmental Services Technician+ ▪ Mortician+ 	<ul style="list-style-type: none"> ▪ Industrial Hygienist+ ▪ Materials Management Supervisor+ ▪ Nursing Home Administrator+

Therapeutic Services Pathway

Sample CTE Courses*

Education Level and Related Occupations**

Introductory	Concentration	Capstone	High School Diploma	Certification and/or AA Degree	Bachelor's Degree or Higher
<ul style="list-style-type: none"> ▪ Introduction to Health Careers I ▪ Introduction to Health Careers II ▪ Introduction to Hospital Occupations 	<ul style="list-style-type: none"> ▪ Hospital Occupations II ▪ Medical Terminology ▪ Structure and Function 	<ul style="list-style-type: none"> ▪ Certified Nursing Assistant ▪ Dental Assistant ▪ Emergency Medical Technician ▪ Medical Assistant 	<ul style="list-style-type: none"> ▪ Certified Nurses Assistant+ ▪ Emergency Medical Technician+ ▪ Medical Assistant ▪ Physical Therapy Aide ▪ Respiratory Therapy Aide 	<ul style="list-style-type: none"> ▪ Dental Hygienist+ ▪ Fitness/Aerobics Instructor+ ▪ Licensed Vocational Nurse/Registered Nurse+ ▪ Pharmacy Technician+ ▪ Registered Physical Therapy Aide+ 	<ul style="list-style-type: none"> ▪ Dentist+ ▪ Exercise Physiologist+ ▪ Pharmacist+ ▪ Physical Therapist+ ▪ Physician Assistant+

*Sample CTE Courses are from the Career Technical Education Framework for California Public Schools (California Department of Education: 2007, <http://www.cde.ca.gov/re/pn/fd/>).

**Visit ASSIST (www2.assist.org/browseAreas.do) for community college and UC/CSU information and California Career Zone (www.cacareerzone.org) for occupation information.

+This occupation requires certification or licensure.

Related Career Technical Student Organization: Health Occupations Students of America (HOSA) (<http://www.cal-hosa.org/>)

Additional Industry Sector information available through the California Health Careers Consortium (<http://www.health-careers.org/>).



Biotechnology Research and Development Pathway

Sample CTE Courses*

Education Level and Related Occupations**

Introductory	Concentration	Capstone	High School Diploma	Certification and/or AA Degree	Bachelor's Degree or Higher
<ul style="list-style-type: none"> ▪ Introduction to Health Careers I ▪ Introduction to Health Careers II 	<ul style="list-style-type: none"> ▪ Introduction to Biotechnology I ▪ Medical Terminology ▪ Structure and Function 	<ul style="list-style-type: none"> ▪ Biotechnology Assistant ▪ Biotechnology Technician ▪ Introduction to Biotechnology II 	<ul style="list-style-type: none"> ▪ Biotechnology Assistant 	<ul style="list-style-type: none"> ▪ Biomedical Technician+ ▪ Biotechnology Technician+ ▪ Quality Assurance/Control Technician+ 	<ul style="list-style-type: none"> ▪ Bioinformatics Specialist+ ▪ Biomedical Chemist+ ▪ Biostatistician+ ▪ Biotechnology Scientist+ ▪ Clinical Trials Researcher+

Diagnostic Services Pathway

Sample CTE Courses*

Education Level and Related Occupations**

Introductory	Concentration	Capstone	High School Diploma	Certification and/or AA Degree	Bachelor's Degree or Higher
<ul style="list-style-type: none"> ▪ Hospital Occupations ▪ Introduction to Health Careers I ▪ Introduction to Health Careers II ▪ Introduction to Imagery I 	<ul style="list-style-type: none"> ▪ Health: Biological Structure and Function ▪ Medical Terminology 	<ul style="list-style-type: none"> ▪ Bioengineering Assistant ▪ Medical Laboratory Assistant ▪ Radiology Assistant 	<ul style="list-style-type: none"> ▪ Medical Laboratory Aide ▪ Transporter 	<ul style="list-style-type: none"> ▪ Biotechnology Engineer ▪ Cardiology Technologist+ ▪ Medical Laboratory Assistant ▪ Medical Laboratory Technician+ ▪ Radiology Technologist+ 	<ul style="list-style-type: none"> ▪ Biotechnology Scientist+ ▪ Clinical Medical Technologist+ ▪ Geneticist+ ▪ Radiologist+

Health Informatics Pathway

Sample CTE Courses*

Education Level and Related Occupations**

Introductory	Concentration	Capstone	High School Diploma	Certification and/or AA Degree	Bachelor's Degree or Higher
<ul style="list-style-type: none"> ▪ Computer Technology ▪ Hospital Occupations ▪ Introduction to Health Careers I ▪ Introduction to Health Careers II 	<ul style="list-style-type: none"> ▪ Health: Biological Structure and Function ▪ Medical Terminology 	<ul style="list-style-type: none"> ▪ Insurance Billing ▪ Medical Coding ▪ Medical Transcription ▪ Skill-specific Health Informatics 	<ul style="list-style-type: none"> ▪ Health Unit Coordinator ▪ Medical Coder ▪ Medical Records Clerk ▪ Medical/Hospital Receptionist 	<ul style="list-style-type: none"> ▪ Medical Record Technician+ ▪ Medical Transcriptionist+ ▪ Telehealth Technician 	<ul style="list-style-type: none"> ▪ Health Educator ▪ Health Services Administrator ▪ Hospital/Nursing Home Administrator ▪ Medical Librarian

*Sample CTE Courses are from the Career Technical Education Framework for California Public Schools (California Department of Education: 2007, <http://www.cde.ca.gov/re/pn/fd/>).

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Additional Industry Sector information available through the California Health Careers Consortium (<http://www.health-careers.org/>).

CAREER OPPORTUNITIES IN HEALTH SCIENCE AND MEDICAL TECHNOLOGY INDUSTRY SECTOR

10 TIPS FOR CHOOSING THE RIGHT CAREER FOR YOU

*How does a person know what career to work toward?
There is no perfect answer, but the following 10 tips will
get you off to a good start.*

- 1 Get to know yourself** – Complete more than one self-assessment test.
- 2 Identify your strengths and weaknesses** – What do you do well and what do you not do well?
- 3 Develop an inventory of careers** – Write down some careers that might interest you.
- 4 Research different careers** – Talk to others and use the Internet.
- 5 Write the pros and cons** – List positives and negatives about the careers that interest you.
- 6 Network** – Discuss your ideas with others.
- 7 Talk with people who work in your area of interest** – Family and friends are great resources.
- 8 Find a mentor** – Find someone with whom you can discuss your career selection.
- 9 Experiment** – Take a related class or part-time job.
- 10 Don't give up** – "If there is a will, there is a way."



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Plan For Success
Visit statecenter.com/industrysectors





Health care is one of the fastest-growing career sectors. The Health Science and Medical Technology Industry Sector requires academic and technical skills, as well as the related knowledge necessary for the field. These careers range from entry level to management, including technical and professional specialties. Workers in this field need the knowledge and ability to contribute to the delivery of safe and effective health care. Nearly half of the careers in this area require professional level preparation. Students commonly need the academic background required for entry into postsecondary education. Specific skill sets needed usually include chemistry, physics, math, and biology, plus communication, problem solving, and critical thinking skills. Many careers require state certification or credentials.

Web sites
for further information:

www.californiacareers.info

www.whodouwant2be.com

www.californiacolleges.edu

www.edd.ca.gov/Jobs_and_Training/

Career Pathways



Biotechnology Research and Development Pathway

Want to search for new answers and develop medical breakthroughs? The Biotechnology Research and Development Pathway includes occupations that use biological science to research and develop applications used to benefit human health.

CAREERS/CAREER AREAS:

- *Biomedical Chemist* • *Biostatistician*
- *Biotechnology Assistant*
- *Biotechnology Technician*
- *Biomedical Technician*
- *Quality Assurance/Control Technician*
- *Biotechnology Scientist*
- *Bioinformatics Specialist*
- *Clinical Trials Researcher*



Diagnostic Services Pathway

If you like to help solve medical problems, the Diagnostic Services Pathway may be for you. Analyzing the cause or nature of a person's condition by creating a picture of their health status at a single point in time is the basis of the work performed in diagnostic services.

CAREERS/CAREER AREAS:

- *Medical Laboratory Aide* • *Transporter*
- *Radiology Technologist* • *Geneticist*

- *Biotechnology Scientist* • *Radiologist*
- *Medical Laboratory Technician*
- *Cardiology Technologist*
- *Biotechnology Engineer*
- *Medical Laboratory Assistant*
- *Clinical Medical Technologist*



Health Informatics Pathway

Computer utilization is very fascinating to many people. If you think operating a computer as your primary work focus sounds intriguing, the Health Informatics Pathway may be right for you. Health informatics involves distribution of patient health data organized via the computer. As software continues to be developed, the health informatics job opportunities will continue to grow.

CAREERS/CAREER AREAS:

- *Medical Records Clerk* • *Health Educator*
- *Health Unit Coordinator* • *Medical Coder*
- *Telehealth Technician* • *Medical Librarian*
- *Medical Record Technician*
- *Medical/Hospital Receptionist*
- *Health Services Administrator*
- *Hospital/Nursing Home Administrator*
- *Medical Transcriptionist*



Therapeutic Services Pathway

Want to assist patients in overcoming disease, illness, or injury? Occupations that affect the ongoing treatment and rehabilitation of patients are part of the Therapeutic

Services Pathway, which includes an extensive list of entry through professional level career options.

CAREERS/CAREER AREAS:

- *Physical Therapy Aide* • *Dental Hygienist*
- *Medical Assistant* • *Pharmacist*
- *Exercise Physiologist* • *Physical Therapist*
- *Physician Assistant* • *Dentist*
- *Emergency Medical Technician*
- *Fitness/Aerobics Instructor*
- *Registered Physical Therapy Aide*
- *Licensed Vocational Nurse/Registered Nurse*
- *Pharmacy Technician*
- *Certified Nurses Assistant*
- *Respiratory Therapy Aide*

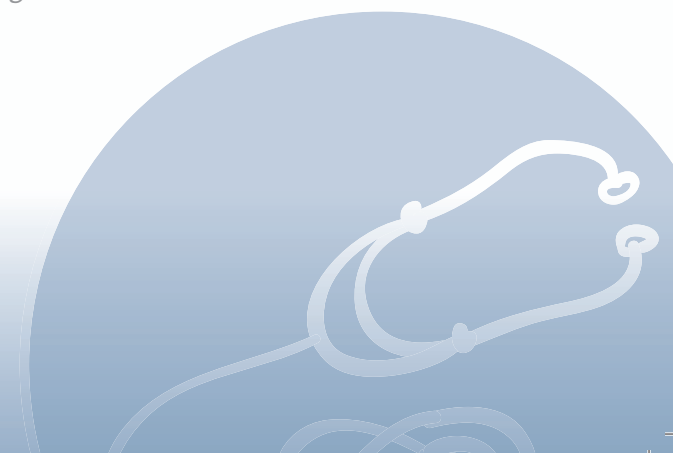


Support Services Pathway

The Support Services Pathway provides an opportunity to work directly or indirectly with patients, their environment, and their material needs.

CAREERS/CAREER AREAS:

- *Industrial Hygienist* • *Health Educator*
- *Central Supply Aide* • *Mortician*
- *Environmental Services Assistant*
- *Central Supply Technician*
- *Environmental Services Technician*
- *Materials Management Supervisor*
- *Environmental Health Specialist*
- *Nursing Home Administrator*





HEALTH SCIENCE AND MEDICAL TECHNOLOGY

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The information below is just a small sample of the many great employment related resources available on the State of California website www.edd.ca.gov. We encourage you to visit the website and explore the available information.

Occupation Title	Employment Levels in 2006	Projected Employment level 2016	Projected Job Growth	Percent of Job Growth	2008 Hourly ¹ Mean Wage	2008 ² Weekly Mean Wage	2008 ³ Monthly Mean Wage	2008 Annual Mean Wage
Biochemists & Biophysicists	4,500	5,600	1,100	24.4%	\$45.57	\$1,822.80	\$7,655.76	\$91,869.12
Dental Hygienists	22,400	30,400	8,000	35.7%	\$40.29	\$1,611.60	\$6,768.72	\$81,224.64
Dentists	15,300	17,400	2,100	13.7%	\$68.17	\$2,726.80	\$11,452.56	\$137,430.72
Diagnostic Medical Sonographers	3,300	3,900	600	18.2%	\$33.63	\$1,345.20	\$5,649.84	\$67,798.08
Health Educators	9,900	12,300	2,400	24.2%	\$23.24	\$929.60	\$3,904.32	\$46,851.84
Health Technologists & Technicians, all other	12,200	14,900	2,700	22.1%	\$21.97	\$878.80	\$3,690.96	\$44,291.52
Librarians, including Medical	11,300	12,800	1,500	13.3%	\$29.96	\$1,198.40	\$5,033.28	\$60,399.36
Licensed Vocational Nurses	57,700	67,800	10,100	17.5%	\$23.17	\$926.80	\$3,892.56	\$46,710.72
Medical & Clinical Lab Technologists	12,300	14,300	2,000	16.3%	\$33.70	\$1,348.00	\$5,661.60	\$67,939.20
Medical Records & Health Info Technicians	13,700	16,300	2,600	19.0%	\$17.33	\$693.20	\$2,911.44	\$34,937.28
Medical Transcriptionists	7,500	8,300	800	10.7%	\$19.62	\$784.80	\$3,296.16	\$39,553.92
Nuclear Medicine Technologists	1,600	1,900	300	18.8%	\$38.37	\$1,534.80	\$6,446.16	\$77,353.92
Occupational Therapists	7,900	10,100	2,200	27.8%	\$38.18	\$1,527.20	\$6,414.24	\$76,970.88
Pharmacists	23,800	30,000	6,200	26.1%	\$55.22	\$2,208.80	\$9,276.96	\$111,323.52
Physical Therapists	14,800	19,200	4,400	29.7%	\$38.92	\$1,556.80	\$6,538.56	\$78,462.72
Radiologic Technologist & Technicians	15,200	17,700	2,500	16.4%	\$29.13	\$1,165.20	\$4,893.84	\$58,726.08
Registered Nurses	238,400	298,000	59,600	25.0%	\$38.72	\$1,548.80	\$6,504.96	\$78,059.52
Respiratory Therapy Technicians	1,000	1,000	0	0.0%	\$26.50	\$1,060.00	\$4,452.00	\$53,424.00

These selected occupations with information on job growth, percent growth and earning potentials are based on information found at www.labormarketinfo.edd.ca.gov

¹ **Mean:** Midpoint between highest & lowest

² **Weekly:** Based on 40 hours

³ **Monthly:** Based on 168 hours



TIPS FOR JOB SEEKERS

How can you improve your chances of getting a job? Applying for a job is the easy part, but getting it can be more of a challenge. Following these five tips can help you reach your goal:

1 The Job

- Determine your interests: talk to others and consider your hobbies and talents
- Search “career assessments” on the Internet

2 The Resume

- Should be easy to read: not too long, too wordy or too cluttered
- Make it powerful
- Show you can cooperate, you can learn, and you can do

3 The Application

- Make it neat, complete and accurate
- Include recommendations from teachers, employers, coaches, friends, etc.

4 The Interview

- Show enthusiasm: it separates the winners from the losers
- Dress appropriately/similar to those on the job

5 The Follow-up

- Send a thank you note
- Call to see if a decision has been made
- If not, ask, “Am I still a candidate?”
- If you are, ask, “Is it okay if I call back in a couple of days?”



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