



BIOMEDICAL
SCIENCE

HEALTHCARE
DIAGNOSTICS

HEALTHCARE
THERAPEUTICS

Science, Technology, Engineering, and Mathematics Career Cluster

The Science, Technology, Engineering, and Mathematics (STEM) Career Cluster focuses on planning, managing, and providing, scientific research and professional and technical services, including laboratory and testing services, and research and development services.

Biomedical Science Statewide Program of Study



The Biomedical Science program of study focuses on the study of biology and medicine in order to introduce CTE learners to the knowledge and skills necessary to be successful in the healthcare field, such as researching and diagnosing diseases, pre-existing conditions, or other determinants of health. Students may also practice patient care and communication.

Secondary Courses for High School Credit

Level 1

- Principles of Biomedical Science (PLTW)

Level 2

- Human Body Systems (PLTW)

Level 3

- Medical Interventions (PLTW)

Level 4

- Biomedical Innovation (PLTW)
- Practicum in Science, Technology
- Scientific Research and Design

Postsecondary Opportunities

Associates Degrees

- Histologic Technician
- Clinical Laboratory Science/Medical Technology/Technologist

Bachelor's Degrees

- Biomedical Engineers
- Clinical Laboratory Science/Medical Technology/Technologist

Master's, Doctoral, and Professional Degrees

- Genetic Counseling
- Medical Scientists
- Epidemiology

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
<ul style="list-style-type: none">Join Health Occupations Students of America	<ul style="list-style-type: none">Intern at a labShadow a healthcare or medical professional

Industry-Based Certifications

- Biotechnician Assistant Credentialing Exam (BACE)
- Medical Laboratory Assistant
- Medical Laboratory Technician



Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Medical and Laboratory Technicians	\$37,981	1,159	28%
Biological Technicians	\$42,931	452	17%
Forensic Science Technicians	\$48,152	171	35%
Chemical Technicians	\$49,733	672	10%
Medical and Clinical Laboratory Technologists	\$58,760	1,166	35%

Successful completion of the Biomedical program of study will fulfill requirements of the Public Service or STEM endorsement if the math and science requirements are met. Revised – August 2022

Biomedical Science Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	GRADE
5410W Principles of Biomedical Science (PLTW)	N1302092 (1 credit)	None	9-11

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	GRADE
5425W Human Body Systems (PLTW)	N1302093 (1 credit)	Biology and Completed/Concurrent Chemistry Recommended: One course from Biomedical or Health Science	10-12

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	GRADE
5415W Medical Interventions (PLTW)	N1302094 (1 credit)	Biology, Chemistry, and Principles of Biomed or Human Body Systems	11-12

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	GRADE
5440W Biomedical Innovation (PLTW)	N1302095 (1 credit)	Principles of Biomed or Human Body Systems and Medical Interventions	11-12
0030 ISM - Scientific Research and Design	13037200 (1 credit)	Biology, Chemistry, IPC, or Physics	11-12
5085 Practicum in Science, Technology, Engineering, and Math	13037400 (2 credits)	Algebra I and Geometry Recommended: 1 course from Biomedical Science	12

Health Science Career Cluster

The Health Science Career Cluster focuses on planning, managing, and providing therapeutic services, diagnostics services, health informatics, support services, and biotechnology research and development. To pursue a career in the health science industry, students should learn to reason, think critically, make decisions, solve problems, communicate effectively, and work well with others.

Healthcare Diagnostics Statewide Program of Study



The Healthcare Diagnostics program of study introduces students to occupations and education opportunities related to performing complex medical laboratory tests for the diagnosis, treatment, and prevention of disease. This program of study may also include exploration into the opportunities associated with blood laboratories as well as radiologic technology and ultrasound technology.

Secondary Courses for High School Credit

Level 1

- Principles of Health Science

Level 2

- Medical Terminology – FJH and FHS

Level 3

- Health Science Theory

Level 4

- Human Body Systems - Anatomy and Physiology
- Medical Interventions - Pathophysiology
- Practicum in Health Science – CCMA
- Practicum in Health Science – EMT (Dual Credit)

Postsecondary Opportunities

Associates Degrees

- Nuclear Medical Technology/Technologist
- Magnetic Resonance Imaging (MRI) Technology/Technician

Bachelor's Degrees

- Nuclear Medical Technology/Technologist
- Medical Radiologic Technology/Science Radiation Therapist

Master's, Doctoral, and Professional Degrees

- Radiologist
- Radiologic Technology/Science Radiographer

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities

- Participate in Health Occupation Students of America

Work-Based Learning Activities

- Perform clinical rotations at a community wellness center, hospital, assisted living, nursing home

Industry-Based Certifications

- Certified Cardiographic Technician
- Certified Clinical Medical Assistant
- Certified EKG Technician
- ECG Technician
- Limited Medical Radiologic Technologist
- Medical Assistant
- Medical Laboratory Assistant
- Medical Laboratory Technician
- Nationally Registered Certified EKG Technician
- Phlebotomy Technician
- Registered Diagnostic Medical Sonographer - Abdomen*
- Registered Diagnostic Medical Sonographer - Obstetrics and Gynecology*
- Registered Technologist - Cardiac-Interventional Radiography*
- Registered Technologist - Computed Tomography*
- Registered Technologist - Magnetic Resonance Imaging*
- Registered Technologist - Mammography*
- Registered Technologist - Nuclear Medicine Technology*
- Registered Technologist - Radiography*
- Registered Technologist - Sonography*
- Registered Technologist - Vascular Sonography*
- Registered Technologist - Vascular-Interventional Radiography*
- Registered Vascular Technology*

*IBC sunseting 8/31/24

Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Diagnostic Medical Sonographers	\$69,909	495	35%
Phlebotomist	\$30,597	1,442	36%
Nuclear Medicine Technologists	\$75,962	91	13%
Radiologic Technologists	\$55,494	1,196	21%
Magnetic Resonance Imaging Technologists	\$68,661	217	21%

Successful completion of the Healthcare Diagnostics program of study will fulfill requirements of the Public Service or STEM endorsement if the math and science requirements are met. Revised – August 2022

Healthcare Diagnostics

Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	GRADE
5430 Principles of Health Science	13020200 (1 credit)	None	9-12

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	GRADE
4845 Medical Terminology	13020300 (1 credit)	None	9-12

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	GRADE
5431 Health Science Theory	13020400 (1 credit)	Biology	10-12

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	GRADE
5425W Human Body Systems - Anatomy and Physiology	13020600 (1 credit)	Biology and completed/concurrent Chemistry Recommended: One course from Biomedical or Health Science	10-12
5415W Medical Interventions - Pathophysiology	13020800 (1 credit)	Biology and Chemistry; Principles of Biomed or Human Body Systems	11-12
5435 Practicum in Health Science - CCMA 5434 A/B Practicum in Health Science – EMT (Dual Credit)	13020500 (2 credits) 13020510 (2 credits)	Health Science Theory and Biology	12

Health Science Career Cluster

The Health Science Career Cluster focuses on planning, managing, and providing therapeutic services, diagnostics services, health informatics, support services, and biotechnology research and development. To pursue a career in the health science industry, students should learn to reason, think critically, make decisions, solve problems, communicate effectively, and work well with others.

Healthcare Therapeutic Statewide Program of Study



The Healthcare Therapeutic program of study introduces students to occupations and educational opportunities related to diagnosing and treating acute, episodic, or chronic illness independently or as part of a healthcare team. This program of study also includes an introduction to the opportunities associated with providing treatment and counsel to patients as well as rehabilitative programs that help build or restore daily living skills to persons with disabilities or developmental delays.

Secondary Courses for High School Credit

Level 1

- Principles of Health Science

Level 2

- Medical Terminology – FJH and FHS

Level 3

- Human Body Systems - Anatomy and Physiology
- Health Science Theory

Level 4

- Medical Interventions - Pathophysiology
- Pharmacy I
- Pharmacology
- Practicum in Health Science – CCMA
- Practicum in Health Science – EMT (Dual Credit)

Postsecondary Opportunities

Associates Degrees

- Dental Hygienist
- Medical/Clinical Assistant

Bachelor's Degrees

- Dental Hygienist

Master's, Doctoral, and Professional Degrees

- Dentist
- Physician Assistant
- Family and General Practitioners
- Pharmacist

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities

- Participate in SkillsUSA or Health Occupation Students of America

Work-Based Learning Activities

- Volunteer at a community wellness center, hospital, assisted living, or nursing home

Industry-Based Certifications

- Certified Clinical Medical Assistant
- Certified Dental Assistant
- Certified EKG Technician
- Certified Nurse Aide (CNA)
- Certified Occupational Therapy Assistant
- Certified Patient Care Technician (CPCT)
- ECG Technician
- Medical Assistant
- Medical Laboratory Assistant
- Nationally Registered Certified EKG Technician
- Patient Care Technician
- Pharmacy Technician
- Phlebotomy Technician
- Registered Dental Assistant X-Ray Certification

- Certified Ophthalmic Technician*
- Certified Surgical Technologist*
- Licensed Dental Hygienist*
- Orthopedic Technologist*

*IBC sunseting 8/31/24



Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Medical Assistants	\$29,598	8,862	30%
Surgical Technologists	\$45,032	1,150	20%
Dental Hygienists	\$73,507	1,353	38%
Physicians and Surgeons	\$213,071	1,151	30%

Successful completion of the Healthcare Therapeutic program of study will fulfill requirements of a Public Service endorsement or STEM endorsement if the math and science requirements are met. Revised – August 2022

Healthcare Therapeutic Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	GRADE
4845 Principles of Health Science	13020200 (1 credit)	None	9-12

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	GRADE
5430 Medical Terminology	13020300 (1 credit)	None	9-12

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	GRADE
5425W Human Body Systems - Anatomy and Physiology	13020600 (1 credit)	One credit in Biology, completed/concurrent Chemistry Recommended: 1 course from Biomedical or Health Science	10-12
5431 Health Science Theory	13020400 (1 credit)	Biology	10-12

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	GRADE
5415W Medical Interventions - Pathophysiology	13020800 (1 credit)	Biology and Chemistry; Principles of Biomed or Human Body Systems	11-12
5439 Pharmacy I	N1302127 (1 credit)	Biology and Chemistry, Coreq: Pharmacology	12
5432 Pharmacology	13020950 (1 credit)	Biology and Chemistry, Coreq: Pharmacy I	12
5435 Practicum in Health Science – CCMA	13020500 (2 credits)	Health Science Theory and Biology	12
5434 Practicum in Health Science – EMT Dual Credit	13020510 (2 credits)		