# Utah Career and Technical Education Career Pathway
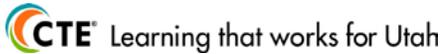## 2018-2019 School Year

CTE Learning that works for Utah

CareerClusters® PATHWAYS TO COLLEGE & CAREER READINESS
Health Science

## Career Cluster: Health Science

## Career Pathway: Clinical Laboratory Science: Biotechnology

| CORE CODE | FOUNDATION COURSES (required) | CREDITS | |
|---|---|---|---|
| 36.01.00.00.080 | Biotechnology | 1.00 | 1.00 credit |
| | **ELECTIVE COURSES** | | |
| 36.01.00.00.090 | Health Science, Introduction | .50 | |
| 36.01.00.00.001 | Health Science, Advanced (capstone course) * | .50 | |
| 36.01.00.00.110 | Medical Anatomy and Physiology | 1.00 | 2.00 credits |
| 36.01.00.00.150 | Medical Math | .50 | |
| 36.01.00.00.175 | Medical Terminology | .50 | |
| 41.00.00.00.030 | Workplace Skills | .50 | |
| | | **3.00 credits for completion** | |

* Course can be taken up to 1.00 credit.

**Career and Technical Education provides all students access to high-quality, rigorous career-focused programs that result in attainment of credentials with labor market value.**

### CTSO Information

Career and Technical Student Organizations (CTSO) align with the national Career Clusters® and the Utah CTE Career Pathways.

HOSA is the CTSO for students in the Biotechnology Career Pathway. HOSA enhances the delivery of compassionate, quality health care by providing opportunities for knowledge, skill and leadership development of all health science education students.

### Workforce Trends

Biotechnology is a dynamic career field that is expanding by leaps and bounds. "Biotechnology has become the centerpiece of therapy of all ailments, from heart disease and cancers to the common cold," says Carl B. Feldbaum, former president of the Biotechnology Industry Organization (BIO).

### Biotechnology is:
> High skill
> High demand

### Sample Occupations Requiring:

**High School Diploma**
> N/A

**Certificate**
> Clinical Laboratory Technician
> Medical Laboratory Technician

**Assoc. or Technical Degree**
> Clinical Laboratory Technologist
> Medical Laboratory Technologist

**Baccalaureate Degree**
> Biological Scientist
> Biotechnology Technician
> Career and Technical Education Teacher
> Chemist
> Microbiologist
> Sales Representative, Technical/Scientific Products

**Graduate or Prof. Degree**
> Biochemist
> Biophysicist
> Medical Scientist

## HIGH SCHOOL TO POSTSECONDARY EDUCATION AND TRAINING
There are a number of options for education and training beyond high school, depending on your career goals.

| 12th Grade | 1-Year Certificate | 2-Year Associate or Technical Degree | 4-Year Bachelor's Degree | More Graduate or Prof. Degree |
|---|---|---|---|---|

Certificates are awarded upon the successful completion of a brief course of study, usually one year or less. Upon completion of a course of study, a certificate does not require any further action to retain.

In high school a variety of certificates can be earned.

An academic degree is an award for the completion of a program or course of study over multiple years at postsecondary education institutions.

In 2015-2016, 73 percent of secondary students who concentrated in a CTE Career Pathway placed in postsecondary education, advanced training, military service or employment (October 1-December 31).

### Student Testimonial

"Throughout the past four years of high school, I have been given the opportunity to take many Health Science [Education] CTE courses. Because of these classes, I have developed a love for the medical field. These courses impacted my education and career goals tremendously."

Markelle Bradshaw

### Utah Business and Industry Facts

Utah is known for its medical innovations, such as the Kolff artificial heart and genetic research. The Utah Population Database (UPDB) is one of the world's richest sources of in-depth information supporting research on genetics, epidemiology, demography, and public health. (Governor's Office of Economic Development [GOED])

### CTE Skill Certificates
Competency-based student assessments, measured by core standards and competencies needed to be successful in the workforce.

### UtahFutures: College and Career Planning
Visit UtahFutures.org for salary projections, labor market demand, and training options.

In 2016-2017, 105,691 CTE skill certificates were awarded to high school students. Students' knowledge and performance is demonstrated as part of the Skill Certificate process.

In 2016-2017, the graduation rate for students who concentrated in a CTE Career Pathway was 95 percent, compared to Utah's statewide graduation rate of 86 percent.

# Utah Career and Technical Education Career Pathway
## 2018-2019 School Year

CTE® Learning that works for Utah

CareerClusters® PATHWAYS TO COLLEGE & CAREER READINESS
**Health Science**

## Career Cluster: Health Science

### Career Pathway: Clinical Laboratory Science: Medical Forensics

| CORE CODE | FOUNDATION COURSES (required) | CREDITS | |
|---|---|---|---|
| 36.01.00.00.085 | Medical Forensics | 1.00 | 1.00 credit |
| | **ELECTIVE COURSES** | | |
| 36.01.00.00.090 | Health Science, Introduction | .50 | |
| 36.01.00.00.001 | Health Science, Advanced (capstone course) * | .50 | |
| 36.01.00.00.110 | Medical Anatomy and Physiology | 1.00 | 2.00 credits |
| 36.01.00.00.150 | Medical Math | .50 | |
| 36.01.00.00.175 | Medical Terminology | .50 | |
| 41.00.00.00.030 | Workplace Skills | .50 | |
| | | | **3.00 credits for completion** |

\* Course can be taken up to 1.00 credit.

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HOSA is the CTSO for students in the Medical Forensics Career Pathway. HOSA enhances the delivery of compassionate, quality health care by providing opportunities for knowledge, skill and leadership development of all health science education students.

### Workforce Trends
With popular TV crime shows like Bones, CSI, Criminal Minds, and NCIS the interest of pursuing a career in forensic science has increased.

Clinical laboratory technicians and technologist are valuable in the field of forensic science.

### Medical Forensics is:
> High skill
> High wage
> High demand

### Sample Occupations Requiring:

**High School Diploma**
> N/A

**Certificate**
> Clinical Laboratory Technician
> Medical Laboratory Technician

**Assoc. or Technical Degree**
> Clinical Laboratory Technologist
> Medical Laboratory Technologist

**Baccalaureate Degree**
> Biological Scientist
> Career and Technical Education Teacher
> Chemist
> Forensic Science Technician

**Graduate or Prof. Degree**
> Medical Scientist

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### Student Testimonial
"My personal goal is to become a homicide detective. For my occupation I would have to work my way up through the ranks, I am prepared and would love the opportunity. I took a medical forensics class and a bio-technology class; both classes helped me immensely on what to do at a crime scene and how to process evidence. I learned a lot and could definitely use these skills in the career that I want to pursue."

Micayla Poulsen

### Utah Business and Industry Facts
According to the Utah Department of Workforce Services, medical and clinical laboratory technicians are employed in 5,268 local, state, and federal businesses throughout the state, including 1,866 physicians' offices industry.

### CTE Skill Certificates
Competency-based student assessments, measured by core standards and competencies needed to be successful in the workforce.

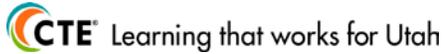### UtahFutures: College and Career Planning
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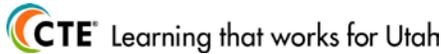# Utah Career and Technical Education Career Pathway
## 2018-2019 School Year

CTE® Learning that works for Utah

CareerClusters® PATHWAYS TO COLLEGE & CAREER READINESS
Health Science

## Career Cluster: Health Science

### Career Pathway: Emergency Medical Services

| CORE CODE | FOUNDATION COURSES (required) | CREDITS | |
|---|---|---|---|
| 36.01.00.00.030 | Emergency Medical Technician | 2.00 | 2.00 credits |
| | **ELECTIVE COURSES** | | |
| 36.01.00.00.070 | Emergency Medical Responder | .50 | |
| 36.01.00.00.090 | Health Science, Introduction | .50 | |
| 36.01.00.00.001 | Health Science, Advanced (capstone course) * | .50 | |
| 36.01.00.00.110 | Medical Anatomy and Physiology | 1.00 | 1.00 credit |
| 36.01.00.00.150 | Medical Math | .50 | |
| 36.01.00.00.175 | Medical Terminology | .50 | |
| 41.00.00.00.030 | Workplace Skills | .50 | |
| | | **3.00 credits for completion** | |

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### CTSO Information
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HOSA is the CTSO for students in the Emergency Medical Services Career Pathway. HOSA enhances the delivery of compassionate, quality health care by providing opportunities for knowledge, skill and leadership development of all health science education students.

### Workforce Trends
A growing and urbanized population will demand more emergency services, increasing the demand for professional emergency medical technicians (EMT) and paramedics.

### Emergency Medical Services is:
> High skill
> High demand

### Sample Occupations Requiring:

**High School Diploma**
> N/A

**Certificate**
> Emergency Medical Technician
> Paramedic

**Assoc. or Technical Degree**
> N/A

**Baccalaureate Degree**
> Career and Technical Education Teacher

**Graduate or Prof. Degree**
> N/A

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### Student Testimonial
"By taking the CNA and EMT courses in high school I'm better prepared to enter the workforce. These courses allowed me to gain hands-on learning and on-the-job training through CTE Internships, and receive instruction from actual teachers who work in the field."

Taylar Brown

### Utah Business and Industry Facts
According to the Utah Department of Workforce Services, 2,390 individuals are employed as emergency medical technicians throughout Utah.

### CTE Skill Certificates
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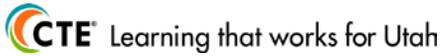
## CTSO Information

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HOSA is the CTSO for students in the Nursing Services Career Pathway. HOSA enhances the delivery of compassionate, quality health care by providing opportunities for knowledge, skill and leadership development of all health science education students.

## Workforce Trends

According to the Utah Department of Workforce Services, healthcare occupations are expected to make up seven of the 20 fastest growing occupations by the year 2030.

In Utah, employment for nurse practitioners is projected to increase 4.6 percent annually through the year 2024.

## Career Cluster: Health Science

## Career Pathway: Nursing Services

| CORE CODE | FOUNDATION COURSES (required) | CREDITS | |
|---|---|---|---|
| 36.01.00.00.190 | Nurse Assistant (CNA)* | .50 | .50 credit |
| | ELECTIVE COURSES | | |
| 36.01.00.00.070 | Emergency Medical Responder | .50 | |
| 34.01.00.00.150 | Food and Nutrition 1 | .50 | |
| 34.01.00.00.160 | Food and Nutrition 2 | .50 | |
| 34.01.00.00.185 | Foundations of Nutrition * | .50 | |
| 36.01.00.00.090 | Health Science, Introduction | .50 | |
| 36.01.00.00.001 | Health Science, Advanced (capstone course) * | .50 | 2.50 credits |
| 34.01.00.00.197 | Human Development | 1.00 | |
| 36.01.00.00.110 | Medical Anatomy and Physiology | 1.00 | |
| 36.01.00.00.150 | Medical Math | .50 | |
| 36.01.00.00.175 | Medical Terminology | .50 | |
| 41.00.00.00.030 | Workplace Skills | .50 | |
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### Nursing Services is:
> High skill
> High demand

### Sample Occupations Requiring:

**High School Diploma**
> N/A

**Certificate**
> Certified Nurse Assistant (CNA)
> Licensed Practical Nurse (LPN)
> Medical Assistant

**Assoc. or Technical Degree**
> Advanced Practice Nurse (APN)
> Registered Nurse (RN)

**Baccalaureate Degree**
> Career and Technical Education Teacher

**Graduate or Prof. Degree**
> Nurse Anesthetist
> Nurse Midwife
> Nurse Practitioner

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## Student Testimonial

"In the CNA class I learned many skills. Most importantly I learned how to interact with people from all walks of life and care for them in the ways I would want my loved ones to be cared for.

"It's a requirement for many RN programs to have your CNA before applying to nursing school. I'm glad that CTE gave me the chance to complete that requirement in high school."

Marie-Chantal Niwenshuti

## Utah Business and Industry Facts

According to the Utah Department of Workforce Services, 20,481 individuals are employed as registered nurses throughout Utah.

Nurses are employed in hospitals, outpatient care centers, physician offices.

In Utah, a nurse anesthetist (CRNA), a licensed practical nurse (LPN), and a registered nurse (RN) must be licensed.

### CTE Skill Certificates
Competency-based student assessments, measured by core standards and competencies needed to be successful in the workforce.

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# Utah Career and Technical Education Career Pathway
## 2018-2019 School Year

CareerClusters®
PATHWAYS TO COLLEGE & CAREER READINESS
Health Science

CTE® Learning that works for Utah

## CTSO Information

Career and Technical Student Organizations (CTSO) align with the national Career Clusters® and the Utah CTE Career Pathways.

HOSA is the CTSO for students in the Dental Assistant Career Pathway. HOSA enhances the delivery of compassionate, quality health care by providing opportunities for knowledge, skill and leadership development of all health science education students.

## Workforce Trends

The dental industry is in critical need of dental assistants. Dentists are hiring more assistants to perform routine tasks so that they may devote more time to complex procedures. In Utah, employment for dental assistants is projected to increase 3.0 percent through the year 2024.

## Career Cluster: Health Science

## Career Pathway: Therapeutic Clinical Services: Dental Assistant

| CORE CODE | FOUNDATION COURSES (required) | CREDITS | |
|---|---|---|---|
| 36.01.00.00.020 | Dental Assistant | 2.00 | 2.00 credits |
| | **ELECTIVE COURSES** | | |
| 34.01.00.00.150 | Food and Nutrition 1 | .50 | |
| 34.01.00.00.160 | Food and Nutrition 2 | .50 | |
| 34.01.00.00.185 | Foundations of Nutrition * | .50 | |
| 36.01.00.00.090 | Health Science, Introduction | .50 | |
| 36.01.00.00.001 | Health Science, Advanced (capstone course) * | .50 | 1.00 credit |
| 36.01.00.00.110 | Medical Anatomy and Physiology | 1.00 | |
| 36.01.00.00.150 | Medical Math | .50 | |
| 36.01.00.00.175 | Medical Terminology | .50 | |
| 41.00.00.00.030 | Workplace Skills | .50 | |
| | | **3.00 credits for completion** | |

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## Dental Assistant is:
> High demand

## Sample Occupations Requiring:

**High School Diploma**
> Dental Laboratory Technician

**Certificate**
> Dental Assistant

**Assoc. or Technical Degree**
> Dental Hygienist
> Medical Equipment Repairer

**Baccalaureate Degree**
> Career and Technical Education Teacher
> Health Services Administrators
> Public Health Educators

**Graduate or Prof. Degree**
> Dentist
> Orthodontist

## Student Testimonial

"The high school dental assisting program has helped me beyond measure. I always knew I wanted to be in the dental field and this [CTE Pathway] gave me the assurance I needed. The opportunity I had to gain this knowledge of my passion for the dental field, as a junior in high school, has greatly [impacted] my future."

Sydnee Dayley

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## Utah Business and Industry Facts

The University of Utah School of Dentistry provides dental-related clinical, research, and healthcare training.

According to the Utah Department of Workforce Services, more than 4,500 dental assistants are employed in 1,697 dental offices throughout the state.

In Utah, dental professionals must be licensed.

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Health Science

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## Career Cluster: Health Science

### Career Pathway: Therapeutic Clinical Services: Exercise Science/Sports Medicine

| CORE CODE | FOUNDATION COURSES (required) | CREDITS | |
|---|---|---|---|
| 36.01.00.00.040 | Exercise Science/Sports Medicine | 1.00 | 1.00 credit |
| | ELECTIVE COURSES | | |
| 36.01.00.00.070 | Emergency Medical Responder | .50 | |
| 36.01.00.00.090 | Health Science, Introduction | .50 | |
| 36.01.00.00.001 | Health Science, Advanced (capstone course) * | .50 | |
| 36.01.00.00.110 | Medical Anatomy and Physiology | 1.00 | 2.00 credits |
| 36.01.00.00.150 | Medical Math | .50 | |
| 36.01.00.00.175 | Medical Terminology | .50 | |
| 36.01.00.00.195 | Physical Therapy, Introduction | .50 | |
| 41.00.00.00.030 | Workplace Skills | .50 | |
| | | 3.00 credits for completion | |

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### CTSO Information

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HOSA is the CTSO for students in the Exercise Science/Sports Medicine Career Pathway. HOSA enhances the delivery of compassionate, quality health care by providing opportunities for knowledge, skill and leadership development of all health science education students.

### Workforce Trends

Job growth will be concentrated in healthcare industry settings, such as ambulatory healthcare services and hospitals. According to the Utah Department of Workforce Services, healthcare occupations are expected to make up seven of the 20 fastest growing occupations by the year 2030.

### Therapeutic Exercise Science/Sports Medicine is:
> High skill
> High wage
> High demand

### Sample Occupations Requiring:

**High School Diploma**
> Occupational Therapy Aide
> Physical Therapist Aide

**Certificate**
> Message Therapist

**Assoc. or Technical Degree**
> Occupational Therapy Assistant
> Physical Therapist Assistant

**Baccalaureate Degree**
> Athletic Trainer
> Career and Technical Education Teacher

**Graduate or Prof. Degree**
> Chiropractor
> Occupational Therapist
> Physical Therapist

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### Student Testimonial

"My occupational goal is to become a physical therapist. The CTE courses that I have taken have not only helped me to gain experience, but they have also helped me to figure out what I would like to study when I reach college."

Tiffany Thacker

### Utah Business and Industry Facts

Utah consistently ranks among the healthiest states in the nation. (United Health Foundation)

According to the Utah Department of Workforce Services, the average annual salary for an experienced physical therapist assistant is $52,620.

### CTE Skill Certificates

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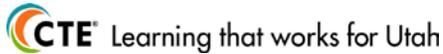### UtahFutures: College and Career Planning

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PATHWAYS TO COLLEGE & CAREER READINESS
**Health Science**

## Career Cluster: Health Science

## Career Pathway: Therapeutic Clinical Services: Medical Assistant

| CORE CODE | FOUNDATION COURSES (required) | CREDITS | |
|---|---|---|---|
| 36.01.00.00.120 | Medical Assistant | 2.00 | 2.00 credits |
| | **ELECTIVE COURSES** | | |
| 36.01.00.00.070 | Emergency Medical Responder | .50 | |
| 36.01.00.00.090 | Health Science, Introduction | .50 | |
| 36.01.00.00.001 | Health Science, Advanced (capstone course) * | .50 | |
| 36.01.00.00.110 | Medical Anatomy and Physiology | 1.00 | 1.00 credit |
| 36.01.00.00.150 | Medical Math | .50 | |
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### Workforce Trends

A growing and aging population and technological advances in medicine make this one of the fastest growing occupations nationwide, having a projected job growth of 23 percent through the year 2024.

**Medical Assistant is:**
> High demand

**Sample Occupations Requiring:**

**High School Diploma**
> Medical Secretary

**Certificate**
> Certified Nurse Assistant (CNA)
> Licensed Practical Nurse (LPN)
> Medical Assistant
> Medical Sonographer
> Medical Transcriptionist

**Assoc. or Technical Degree**
> Registered Nurse (RN)

**Baccalaureate Degree**
> Career and Technical Education Teacher
> Medical and Health Service Manager

**Graduate or Prof. Degree**
> Nurse Practitioner

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### Student Testimonial

"The CTE [medical assistant] course helped me get a head start in the medical field. It also helped me determine whether or not I actually loved it or not. I plan to work at a doctor's office as a medical assistant while I attend college to further my education."

Bronda Riguerod

### Utah Business and Industry Facts

According to the Utah Department of Workforce Services, 7,313 individuals are employed as medical assistants throughout Utah.

The median salary for a medical assistant is $25,870.

In Utah, a medical assistant working as a radiology assistant must be licensed. A licensed practical nurse (LPN), and a registered nurse (RN) must also be licensed.

### CTE Skill Certificates
Competency-based student assessments, measured by core standards and competencies needed to be successful in the workforce.

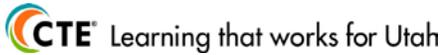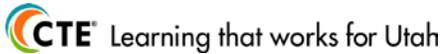### UtahFutures: College and Career Planning
Visit UtahFutures.org for salary projections, labor market demand, and training options.

In 2016-2017, 105,691 CTE skill certificates were awarded to high school students. Students' knowledge and performance is demonstrated as part of the Skill Certificate process.

In 2016-2017, the graduation rate for students who concentrated in a CTE Career Pathway was 95 percent, compared to Utah's statewide graduation rate of 86 percent.

# Utah Career and Technical Education Career Pathway
## 2018-2019 School Year

**CTE** Learning that works for Utah

CareerClusters® PATHWAYS TO COLLEGE & CAREER READINESS
Health Science

## Career Cluster: Health Science

## Career Pathway: Therapeutic Clinical Services: Pharmacy Technician

| CORE CODE | FOUNDATION COURSES (required) | CREDITS | |
|---|---|---|---|
| 36.01.00.00.210 | Pharmacy Technician | 2.00 | 2.00 credits |
| | **ELECTIVE COURSES** | | |
| 36.01.00.00.090 | Health Science, Introduction | .50 | |
| 36.01.00.00.001 | Health Science, Advanced (capstone course) * | .50 | |
| 36.01.00.00.110 | Medical Anatomy and Physiology | 1.00 | 1.00 credit |
| 36.01.00.00.150 | Medical Math | .50 | |
| 36.01.00.00.175 | Medical Terminology | .50 | |
| 41.00.00.00.030 | Workplace Skills | .50 | |
| | | **3.00 credits for completion** | |

\* Course can be taken up to 1.00 credit.

**Career and Technical Education provides all students access to high-quality, rigorous career-focused programs that result in attainment of credentials with labor market value.**

### CTSO Information
Career and Technical Student Organizations (CTSO) align with the national Career Clusters® and the Utah CTE Career Pathways.

HOSA is the CTSO for students in the Pharmacy Technician Career Pathway. HOSA enhances the delivery of compassionate, quality health care by providing opportunities for knowledge, skill and leadership development of all health science education students.

### Workforce Trends
According to the U.S. Bureau of Labor Statistics, employment of pharmacists is projected to grow 3 percent through the year 2024. As more people have access to insurance coverage, more pharmacist will be needed to fill their prescriptions and to consult with patients about their medications.

### Pharmacy Technician is:
> High skill
> High demand

### Sample Occupations Requiring:

**High School Diploma**
> Pharmacy Aide
> Pharmacy Technician

**Certificate**
> N/A

**Assoc. or Technical Degree**
> N/A

**Baccalaureate Degree**
> Career and Technical Education Teacher

**Graduate or Prof. Degree**
> Pharmacist

## HIGH SCHOOL TO POSTSECONDARY EDUCATION AND TRAINING
There are a number of options for education and training beyond high school, depending on your career goals.

| 12th Grade | 1-Year Certificate | 2-Year Associate or Technical Degree | 4-Year Bachelor's Degree | More Graduate or Prof. Degree |
|---|---|---|---|---|

Certificates are awarded upon the successful completion of a brief course of study, usually one year or less. Upon completion of a course of study, a certificate does not require any further action to retain.

In high school a variety of certificates can be earned.

An academic degree is an award for the completion of a program or course of study over multiple years at postsecondary education institutions.

In 2015-2016, 73 percent of secondary students who concentrated in a CTE Career Pathway placed in postsecondary education, advanced training, military service or employment (October 1-December 31).

### Student Testimonial
"I loved the opportunity to participate in CTE courses. These classes have given me the opportunity to plan and prepare. They have helped prepare me for life after high school by giving me the opportunity to experience a variety of life skills. Upon completion of high school, I plan on completing the 600 hour pharmacy technician course offered through Uintah Basin ATC."

Madison Lamb

### Utah Business and Industry Facts
Within the healthcare industry, Utah is highly specialized in drug and pharmaceuticals. Leading biotechnology and pharmaceutical research companies based in Utah include ARUP Laboratories, Myriad Genetics Laboratories, Inc., and USANA Health Sciences, Inc.

In Utah, a pharmacist and pharmacy technician must be licensed.

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