



Career and Technical Education Annual Report, 2019

Career and Technical Education is a key ingredient in meeting the needs of Utah's economy. Utah System of Higher Education institutions offer CTE programs in all regions of the state, working closely with local business and industry leaders to develop and deliver programs specifically tailored to local workforce needs. Within USHE, CTE courses and programs are offered at Utah State University, Weber State University, Southern Utah University, Snow College, Dixie State University, Utah Valley University, and Salt Lake Community College.

During the 2018-19 academic year, CTE courses comprised more than 21% of the total undergraduate courses offered at USHE institutions and accounted for over 18% of undergraduate degrees and certificates awarded.

This report includes data on a broad array of CTE offerings, credit and non-credit, provided by USHE institutions. These CTE offerings prepare students for employment in current or emerging occupations that require postsecondary credentials other than a baccalaureate or advanced degree. This report also provides data on statewide programs like Short Term Intensive Training and Custom Fit, where industry-specific courses are provided by USHE institutions.

Highlights from the report:

- 71,199 postsecondary students enrolled in USHE CTE courses in 2018-19. (Full-time equivalent enrollment totaled 17,932.)
- 6,142 CTE credentials were awarded to 5,437 distinct students by USHE institutions in 2018-19.
- 120+ new CTE certificate programs have been developed by USHE institutions since 2011, as a result of direct collaboration with business and industry.
- The median fifth-year wages for all individuals who earned a USHE CTE associate degree in 2014 was \$70,753.
- The median fifth-year wages for individuals who earned a USHE CTE associate degree in 2014 – and who did not earn a higher award prior to summer 2019—was \$51,951.
- The job placement rate for recent USHE CTE graduates is 89% (based on 2017-18 graduates, the most current year available for this data).
- 2018-19 USHE CTE graduates are estimated to earn more than \$2 billion in added income and generate more than \$290 million in additional taxes over 30 years of employment.

- 19,821 high school students enrolled in concurrent CTE courses offered by USHE institutions during 2018-19.
- 22,500+ CTE certificates and associate degrees were earned by USHE students over the last four years.

Partnering with industry, streamlining credit, & getting students to the workforce quickly—Regional CTE Councils

USHE institutions participate in one of eight regional CTE councils joined by representatives from public school districts and, where applicable, a college within the Utah System of Technical Colleges. These councils meet regularly to coordinate activities and curriculum, assess industry needs for CTE programs, and identify potential programs that could be developed or strengthened within each region. Regional CTE leaders also consult closely with leaders in industry and workforce development to identify certificate programs to be developed and/or strengthened, focusing on:

- Determining the availability of current CTE offerings in the region
- Developing regional coordination among three CTE stakeholder providers: Utah System of Higher Education, Utah State Board of Education, and the Utah System of Technical Colleges
- Identifying regionally relevant certificates and other programs that could be offered in high-demand, high-wage occupations
- Identifying how certificates and other credentials can complementarily stack to additional certificates, associate degrees, or other programs
- Identifying ways these programs, or portions thereof, might be provided for delivery in high schools through Concurrent Enrollment courses

This partnership approach focuses on short-term certificates (16-29 credits) as a first step for students seeking a college credential and as a short-term option for older adults retooling for a career change or career advancement. It is expected that students will be more likely to complete a meaningful board-approved credential by the time of high school graduation or shortly thereafter. High school and college students who complete certificates will:

- Be prepared for an entry-level position in a career that is in-demand and well-paying
- Be on an efficient pathway to a one-year certificate and/or degree

CTE Credentials

USHE institutions offer three primary types of CTE credentials:

- **Associate of Applied Science Degrees**—Designed to lead students directly to employment; requires two years of preparation. The AAS degree includes a core set of general education

courses that prepare students in composition, computation, and human relations. In some cases, AAS programs can serve a dual purpose to prepare students for the workforce while also serving as a pathway to a bachelor's degree. The Bachelor of Applied Science degree was approved by the Board of Regents in 2018¹. This new degree is able to incorporate Associate of Applied Science degrees as stackable credentials.

- **Certificates of Completion**—Awarded for completion of programs that are typically one-year in length and that prepare students for employment. Certificates of Completion also have a general education component.
- **Certificates of Proficiency**—Short-term programs, less than one year in length, that prepare students for specific employment skills.

Tuition & Fees

During 2018-19, full-time tuition and fees for credit-based CTE programs ranged from \$1,871 to \$3,712 per semester for all seven USHE institutions that provide a CTE role.

According to a recent [report from the College Board](#), tuition at Utah's public universities is the third lowest in the nation with an average annual 2019-20 tuition of \$7,160 (compared to the U.S. average of \$10,440)². It typically takes full-time students one to four semesters to complete a CTE credential, depending on whether a student is working on a certificate or an AAS degree. Many of the USHE CTE programs seamlessly stack into four-year degrees³, allowing students efficient and cost-effective means of earning additional college credentials once they complete a CTE program.

Though seven USHE institutions provide CTE programs⁴, non-credit, competency-based CTE programs are offered through Salt Lake Community College's School of Applied Technology⁵, Snow College⁶, and select regional campuses of Utah State University⁷ to fulfill the need for technical education in regions

¹ R401, *Approval of New Programs, Program Changes, Discontinued Programs, and Program Reports*, <https://ushe.edu/ushe-policies/r401-approval-of-new-programs-program-changes-discontinued-programs-and-program-reports/>

² College Board, *2019-20 published in-state tuition and fees at public four-year institutions by state*, <https://research.collegeboard.org/trends/college-pricing/figures-tables/published-state-tuition-and-fees-public-four-year-institutions-state>

³ Utah State Board of Education, *CTE Career Pathways*, <https://www.schools.utah.gov/cte/pathways>

⁴ Utah State Legislature, *53B-16-101. Establishment of institutional roles and general courses of study*, https://le.utah.gov/xcode/Title53B/Chapter16/53B-16-S101.html?v=C53B-16-S101_1800010118000101

⁵ Utah State Legislature, *53B-16-209. Salt Lake Community College -- School of Applied Technology -- Career and technical education -- Supervision and administration -- Institutional mission*, https://le.utah.gov/xcode/Title53B/Chapter16/53B-16-S209.html?v=C53B-16-S209_2017050920170701

⁶ Utah State Legislature, *53B-16-205. Establishment of Snow College Richfield campus -- Supervision and administration -- Transition -- Institutional mission*, <https://le.utah.gov/xcode/Title53b/Chapter16/53b-16-S205.html>

⁷ Utah State Legislature, *53B-16-207. Utah State University regional institutions -- Career and technical education - - Supervision and administration*, https://le.utah.gov/xcode/Title53B/Chapter16/53B-16-S207.html?v=C53B-16-S207_2019051420190701

where UTech does not have a presence. These non-credit, competency-based CTE programs are offered at tuition rates assessed by contact hour and are considerably less than tuition for credit-based CTE courses.

Earnings & Job Placement for USHE CTE Graduates

For 2014 CTE program completers who did not earn a higher award prior to summer 2019, the median fifth-year annual wages for CTE certificates of less than two years are \$37,814, and \$51,951 for associate degrees. Median fifth-year annual wages for non-CTE associate degrees are \$41,061. In other words, students who earned a USHE associate degree in a CTE area of study had median fifth-year annual wages that were \$10,890 higher than their peers who completed non-CTE associate degrees. More detailed wage information is available in the table below and at ushe.edu/wage-information⁸. Although results show wage gains for CTE completers, the data may be impacted by a variety of factors including the type of program, timing of when students continue their education, immediate short-term industry demand, and more.

The data below represents students who completed a CTE certificate or degree and did not complete a higher-level credential. Data were also examined for all students who completed a CTE associate degree, including those who continued their studies and earned higher level credentials. Average fifth-year earnings for this population of students was \$70,753.

USHE CTE 1 st - & 5 th -Year Wages			
	Median 1 st -Year Wages	Median 5 th -Year Wages	Wage Growth
CTE Programs			
Certificates	\$28,019	\$37,814	\$9,794
Associate Degrees	\$39,311	\$51,951	\$12,640
Non-CTE Associate Degrees	\$28,537	\$41,061	\$12,524

The table below shows placement rates for 2017-18 CTE graduates from USHE institutions by area of study⁹.

USHE CTE Job Placement Rate by Area of Study	
Classification of Instructional Program (CIP) Group	Placement Rate
Agriculture, Agriculture Operations, And Related Sciences	63.6%
Architecture and Related Services	100.0%
Business, Management, Marketing, And Related Support Services	77.0%
Communication, Journalism, And Related Programs	87.9%
Communications Technologies/Technicians and Support Services	81.0%
Computer and Information Sciences and Support Services	80.1%
Construction Trades	80.0%
Education	77.2%
Engineering	84.2%
Engineering Technologies and Engineering-Related Fields	70.6%

⁸ Utah System of Higher Education, *Wage Information*, <https://ushe.edu/wage-information/>

⁹ National Center for Education Statistics, *IPEDS Classification of Instructional Programs*, <https://nces.ed.gov/ipeds/cipcode/wizard/default.aspx?y=56>

Family and Consumer Sciences/Human Sciences	90.5%
Foreign Languages, Literatures, And Linguistics	90.9%
Health Professions and Related Programs	88.1%
Homeland Security, Law Enforcement, Firefighting and Related Protective Services	83.4%
Legal Professions and Studies	93.5%
Mechanic and Repair Technologies/Technicians	82.9%
Multi/Interdisciplinary Studies	100.0%
Parks, Recreation, Leisure, And Fitness Studies	81.8%
Personal and Culinary Services	78.9%
Precision Production	81.5%
Public Administration and Social Service Professions	100.0%
Science Technologies/Technicians	82.1%
Social Sciences	88.9%
Transportation and Materials Moving	60.6%
Visual and Performing Arts	73.3%
Overall Placement Rate	82.0%

***Note: While 82% of 2017-18 CTE graduates were employed during the 2018-19 fiscal year, an additional 7% of completers were not employed but returned to a USHE institution during the 2018-19 academic year. Employment data was extracted from the state's unemployment insurance records. It is estimated these records account for 90% - 95% of jobs throughout the state.

Return on Investment for USHE CTE Graduates

Applying wage and workforce information from the [U.S. Census Bureau](#)¹⁰ and the [Utah Taxpayers Association](#)¹¹, the 5,437 distinct 2018-19 CTE graduates will produce more than \$2 billion of added income over 30 years of employment than if they had not obtained their CTE credentials. It is estimated these graduates will generate an additional \$290 million in state taxes and fees.

ROI of 2018-19 USHE CTE Graduates						
New Graduates Highest Award Earned	Distinct New Graduates Count	Est. Workforce Participation Rate	Credentials in Workforce	Amount Earned over High School Level Median Earnings	Total Added Annual Income to Utah's Economy	Est. Additional Tax Contribution to the State (14.14%)
Certificates	1,545	77.7%	1,200	\$4,316	\$5,179,200	\$732,339
Associate Degrees	3,892	77.7%	3,023	\$17,169	\$51,901,887	\$7,338,927
Total	5,437		4,223		\$57,081,087	\$8,071,266
30 years of Employment					\$1,712,432,610	\$242,137,971
Economic Multiplier (1.2)					\$342,486,522	\$48,427,594
Value Added to Utah's Economy and Tax Base (30-Year Estimate)					\$2,054,919,132	\$290,565,565

CTE in Concurrent Enrollment

¹⁰ United States Census Bureau, *Labor Force Statistics*, <https://www.census.gov/topics/employment/labor-force.html>

¹¹ Utah Taxpayers Association, <https://utahtaxpayers.org/>

During the 2018-19 academic year, 38,907 high school students enrolled in a college Concurrent Enrollment course. In total, these students earned 285,710 college credits—saving students over \$54 million in total tuition costs.

Fifty-one percent or 19,821 of all Concurrent Enrollment students enrolled in at least one CTE course in 2018-19. Secondary students earned 86,006 CTE credit hours, or 30.1% of the total Concurrent Enrollment credit hours earned. The accompanying tables show unduplicated headcount in CTE Concurrent Enrollment courses.

Total Concurrent Enrollment, Fiscal Year 2018-19		
	Total	CTE
Total Students (Unduplicated Headcount)	38,907	19,821 (50.9%)
Earned Credit Hours	285,710	86,006 (30.1%)

Headcount in CTE Concurrent Enrollment by Institution, Fiscal Year 2018-19	
Institution	CTE Concurrent Enrollment (Unduplicated Headcount by USHE institution)
Utah State University	1,155
Weber State University	7,475
Southern Utah University	303
Snow College	954
Dixie State University	755
Utah Valley University	5,517
Salt Lake Community College	4,335
Total	20,494

***Enrollment headcounts may total more than the systemwide total because students can take Concurrent Enrollment courses from more than one institution.

Federal Funding

Institutions within USHE qualify for and participate in federal grant funding through the [Carl D. Perkins Career and Technical Education Act of 2006](#)¹². While a reauthorization of this act was finalized by Congress during the summer of 2018, funding changes under the reauthorization were not available until FY 2019-20. Funding is provided to the Utah State Office of Education and formulaically distributed to local school districts as well as UTech and USHE institutions that provide eligible CTE programs. This

¹² U.S. Department of Education, *Carl D. Perkins Career and Technical Education Act of 2006*, <https://www2.ed.gov/policy/sectech/leg/perkins/index.html>

funding is used by USHE institutions to improve CTE programs and services in ways that are not otherwise provided by state resources.

Perkins funding to institutions is allocated based on the number of students taking CTE courses from the following populations:

- Federal Pell Grant recipients
- Students who receive assistance from the Bureau of Indian Affairs
- Students who receive assistance from the Utah Department of Workforce Services

In 2018-19, \$3,991,029 was awarded to USHE institutions through the [Perkins Act](#). Since the program's origination, all USHE institutions receiving Perkins Grants have maintained eligibility for continued Perkins funding as it is made available through federal processes. USHE institutions report performance in the following areas related to this program:

- Technical skill attainment
- Completers
- Retention
- Employment
- Non-traditional student participation
- Non-traditional student completion

CTE Cost of Services

Data from the [2017-18 USHE Cost Study](#)¹³ show the appropriated direct costs per full-time equivalent student (30 credit hours/year) for CTE to be \$5,729. Factoring in indirect costs, the full cost of CTE instruction is \$10,788 per student FTE. The equivalent cost per clock hour is \$6.37 for direct costs of instruction and \$11.99 for full costs of instruction—cost per student FTE divided by 900 (the number of clock hours equal to one FTE). The USHE cost of CTE instruction is favorable and competitive when compared to instruction provided by other postsecondary CTE providers.

Program Duplication

When analyzing USHE and UTech programs, indicators show there is little, if any, duplication of programs. Using data available from the [Integrated Postsecondary Education Data System](#)¹⁴ for the academic years 2016-17, 2017-18, and 2018-19, only 17 out of 567 areas of study identified at the same level were within the same service region. Some programs within these areas of study are part of broader

¹³ Utah System of Higher Education 2019 Data Book, *Tab I, Table 7 -Cost Study*, https://ushe.edu/wp-content/uploads/pdf/databook/2019/TabI_CostStudy.pdf

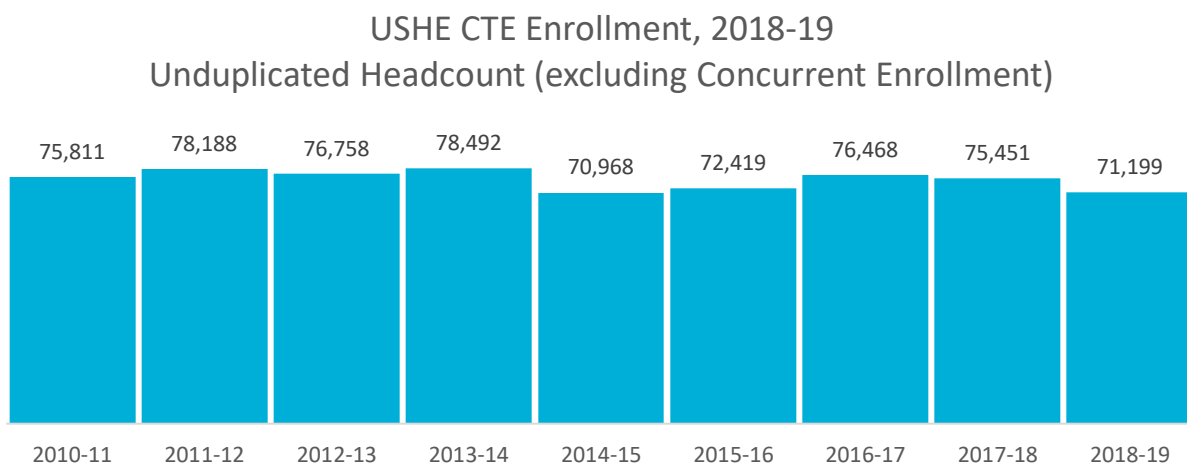
¹⁴ National Center for Education Statistics, IPEDS (Integrated Postsecondary Education Data System), <https://nces.ed.gov/ipeds/>

degree programs at USHE institutions and are offered to students who may have longer-term educational objectives than preparation for immediate employment, as is most typical in CTE programs.

Enrollments & Completions

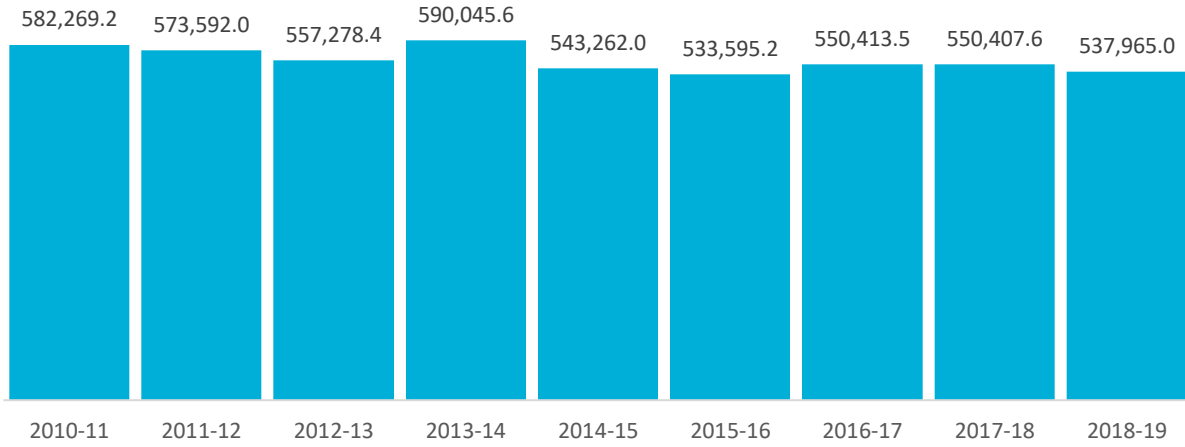
Enrollment and completion information presented below shows credit hours, headcounts, and clock hours to create a common comparison of CTE among USHE institutions. Over time, this data shows that USHE institutions have had a consistent number of students taking CTE courses, with 2018-19 showing a decrease over the previous year (71,199 in 2018-19 compared to 75,451 in 2017-18) and a corresponding decrease in student FTE (17,932 in 2018-19 compared to 18,347 in 2017-18). CTE course enrollment is impacted by a number of factors including employment conditions in local economies. Typically, CTE enrollment decreases as employment demand increases. [Utah's unemployment rates are among the lowest in the nation](#)¹⁵.

Completions of CTE credentials increased each year for the last two years with 6,142 CTE certificates and associate degrees awarded in 2018-19 compared to 5,812 in 2017-18, 5,503 in 2016-17, and 5,046 in 2015-16. Overall, graduates from USHE CTE programs earned 22,503 CTE credentials over the last four years.

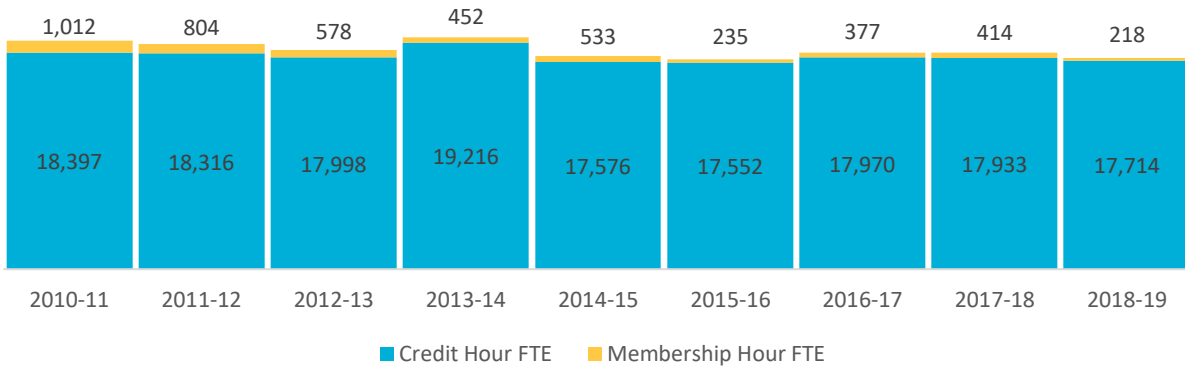


¹⁵ Kem C. Gardner Policy Institute, *2019 Economic Summary*, <https://gardner.utah.edu/wp-content/uploads/December-2019-Economic-Summary.pdf>

USHE CTE Credit Hour Equivalent



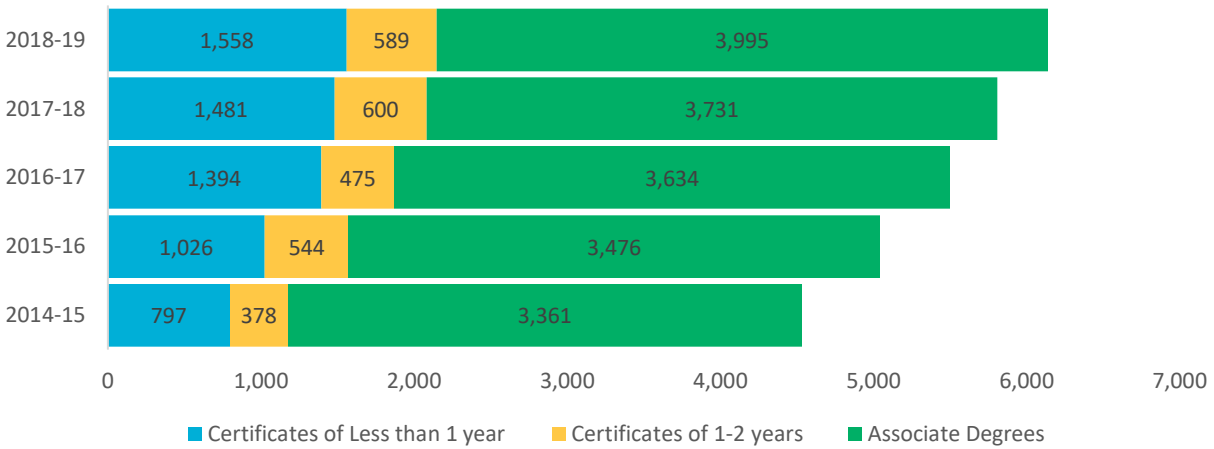
Annualized Full-Time Equivalent (FTE)



Career and Technical Education FTE Percent of USHE Total by Institution (2018-19)



Total Degrees and Certificates Awarded



Short-Term Intensive Training & Custom Fit

Short-Term Intensive Training provides occupation-specific training for current employees, or individuals seeking employment, by matching training needs with those of industry. USHE institutions provide STIT offerings throughout the state.

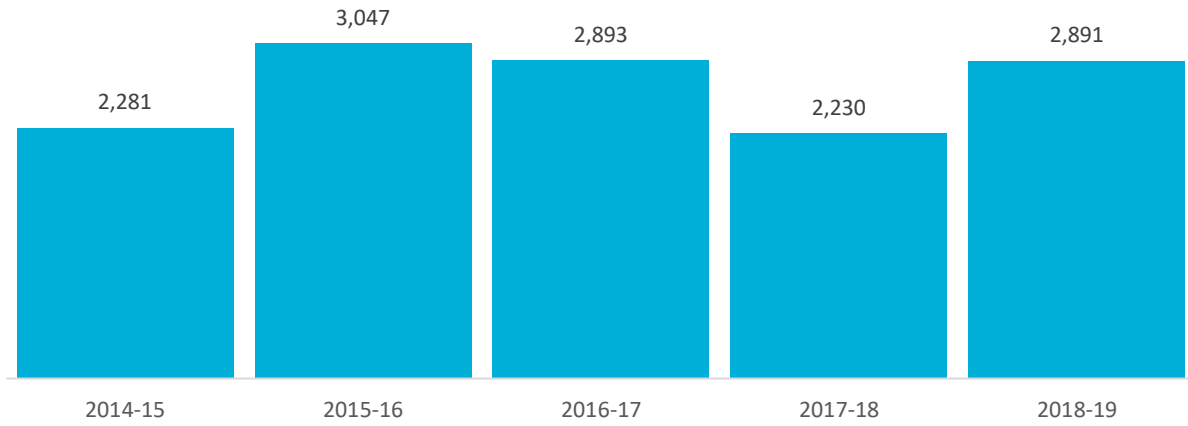
Custom Fit is a flexible, customized training program designed to meet training needs of Utah businesses. Within USHE, [Utah State University](#)¹⁶, [Snow College](#)¹⁷, and [SLCC](#)¹⁸ participate in the state’s Custom Fit program. Also, all UTech institutions receive Custom Fit funding to ensure the program is available throughout the state. Through this program, participating companies receive subsidized training for employees under qualifying criteria. The following two graphs show data relative to USHE institutions for Custom Fit and STIT.

¹⁶ Utah State University Eastern, *Small Business Development*, <https://usueastern.edu/sbdc/index>

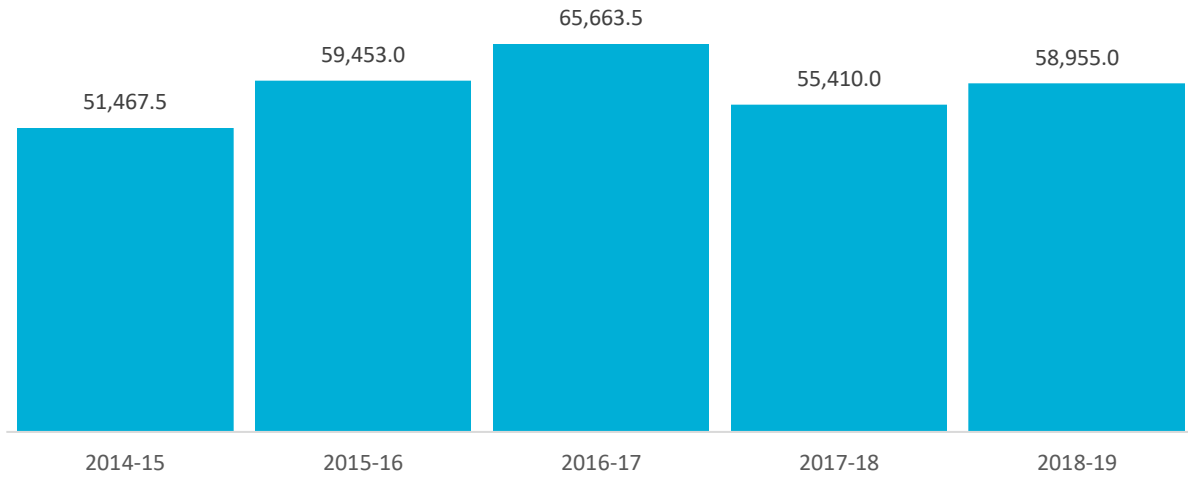
¹⁷ Snow College, *Custom Fit*, <https://www.snow.edu/community/sbdc/CFT.html>

¹⁸ Salt Lake Community College, *Custom Fit Training*, <https://www.slcc.edu/workforce/resources/custom-fit-training.aspx>

Short-Term Intensive Training/Custom Fit Unduplicated Headcount



Short-Term Intensive Training & Custom Fit Total Contact Hours



Total USHE CTE Credit Hours, Clock Hours, & Student Full-Time Enrollment by Year			
	2016-17	2017-18	2018-19
Credit Hours—Regular	539,107.5	537,976.4	531,428.5
Credit-based Student FTE (Credit Hours/30)	17,970	17,933	17,714
Non-Credit Student Clock Hours	339,180	372,936	196,096
Non-Credit Student FTE (Student Clock Hours/900)	377	414	218
Total Credit Hour Equivalent	550,414	550,407	537,965
Total Student FTE	18,347	18,347	17,932
Short-Term Intensive Training/Custom Fit Headcount	2,893	2,230	2,891
Short-Term Intensive Training/Custom Fit Hours	65,664	55,410	58,955

Top 5 Areas of Study, based on 2018-19 certificates/degrees awarded					
Program Categories	Less than 1 yr Certificates	1-2 yr Certificates	Associate & 2+ yr Certificates	Total	Percentage Share
Health Professions and Related Programs	371	202	1501	2074	34%
Computer and Information Sciences and Support Services	588	52	369	1009	16%
Business, Management, Marketing, And Related Support Services	108	80	673	861	14%
Engineering Technologies and Engineering- Related Fields	265	25	159	449	7%
Homeland Security, Law Enforcement, Firefighting, Related Protective Services	56	28	255	339	6%

Utah 2018-19 CTE Output Summary

	USHE Postsecondary	USHE Concurrent Enrollment	Total
Credit Hour Equivalent	537,965	90,203	628,168
Clock Hour Equivalent	16,138,951	2,623,410	18,762,361
Full-Time Equivalent (FTE)	17,932	2,915	20,847

Definitions & Formulas

CTE (Career and Technical Education [Vocational])—Organized educational programs offering sequences of courses or skill sets directly related to preparation for employment in occupations that generally do not require baccalaureate or associate degrees (see Utah Code 53B-1-101.5¹⁹).

Credit Hour—A unit used to measure the amount of coursework in which students enroll, as defined by regional accrediting bodies and the U.S. Department of Education²⁰.

Credit Hour Equivalent—Total credit hours, plus total student clock hours, divided by 30 (as per 34 CFR § 668.8^{21;22}).

Clock Hour—A 50- 60-minute unit of time within an instructor-led learning activity that is typically associated with non-credit CTE or vocational courses.

Student Clock Hours—Clock hours multiplied by the number of enrolled students.

FTE (full-time equivalent)—The total number of hours taught at an institution divided by the number of hours considered to be full-time for a student. An FTE student is one undergraduate student enrolled in 15 credit hours per semester. A part-time student may account for only 0.5 FTE while a student with a heavy course load may account for 1.25 FTE during a given academic year.

- 30 credit hours = 1 FTE for credit programs
- 900 clock hours = 1 FTE for non-credit programs

¹⁹ Utah State Legislature, *Utah Code 53B-1-101.5*, <https://le.utah.gov/xcode/Title53B/Chapter1/53B-1-S101.5.html>

²⁰ United States Department of Education, *Credit-hour definition*, <https://ifap.ed.gov/dpceletters/attachments/GEN1106.pdf>

²¹ United States Department of Education, *Program Eligibility*, <https://ifap.ed.gov/fsahandbook/attachments/Vol2Ch40809.pdf>

²² Cornell Law, *34 CFR § 668.8 - Eligible program*, <https://www.law.cornell.edu/cfr/text/34/668.8>

Unduplicated Headcount—The total number of individual students enrolled at an institution regardless of instruction time. Unduplicated headcount is only counted once, even though a student may fall into several enrollment categories.

Secondary/Postsecondary—Secondary education refers to high school (grades 9-12) education. Postsecondary education is any coursework beyond high school.

Note: Effective with this year's CTE report, student enrollment data captured all student CTE enrollment activity. In previous reports, enrollment data only reported students receiving a passing grade in CTE courses. Comparisons to reports from previous years should take this reporting change into account.