

January 13, 2016

MEMORANDUM

TO: State Board of Regents

FROM: David L. Buhler

SUBJECT: Career and Technical Education Annual Report

Issue

Each year the Office of the Commissioner of Higher Education prepares a report on Career and Technical Education. Career and Technical Education (CTE) can be defined as organized educational programs offering sequences of courses directly related to preparing individuals for paid or unpaid employment in current or emerging occupations requiring other than a baccalaureate or advanced degree. The CTE report for FY2015 is attached.

Background

Some of the FY15 report highlights include:

- Institutions in the Utah System of Higher Education (USHE) provided the equivalent of approximately 11.7 million membership hours in CTE instruction.
- USHE institutions awarded 4,536 CTE certificates and two-year degrees and enrolled nearly 62,000 CTE participants.
- CTE graduates are expected to produce over \$334 million of added income to the state over someone with a high school diploma.
- Over 17,000 high school students took CTE courses through concurrent enrollment.
- Among state-funded institutions, USHE institutions provided over 70% of the post-secondary CTE instruction in the state.
- Over the last few years USHE institutions have developed 89 new CTE certificate programs, most of which stack to longer programs that provide opportunities for students to earn college-level credentials and also to advance to higher levels of preparation as time and circumstances permit.

- Based on information extracted from Utah's Department of Workforce Services, the job placement rate of USHE's CTE graduates was nearly 84%, not counting those in the military, self-employed, and those employed out-of-state.
- Total cost of instruction per CTE membership hour equivalent was \$9.75.

Policy Issues

There are no policy issues associated with the information.

Commissioner's Recommendation

This is an information item only; no action is required.

David L. Buhler
Commissioner of Higher Education

DLB/BKC
Attachment

Career and Technical Education (CTE) is a key ingredient to meet the needs of Utah's economy. Utah System of Higher Education (USHE) 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 development needs.

11,665,522

Membership hours taken in
CTE courses in 2014-15 by
students at USHE institutions.

During the 2014-2015 academic year, CTE comprised 23% of the total undergraduate courses offered at USHE institutions, and it accounted for 16% of undergraduate degrees and certificates awarded.

This report includes data on a diverse and broad array of Career and Technical Education (CTE) credit and non-credit offerings provided by USHE institutions that prepare people for employment in current or emerging occupations that require credentials other than a baccalaureate or advanced degree. It also provides data on statewide programs, Short Term Intensive Training (STIT) and Custom Fit, where industry-specific courses are provided by USHE institutions on contract for individual companies.

4,536

CTE credentials
awarded by USHE
institutions in 2014-15.

Partnering with industry, streamlining credit, and getting students to the workforce quickly

For the past several years, each of Utah's eight regional CTE councils have met regularly to identify potential certificate 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 the following:

- Determine availability of current CTE offerings in the region
- Develop a regional plan shared by stakeholders including the three CTE providers: USHE, the Utah State Office of Education, and the Utah College of Applied Technology
- Identify certificates and other programs that could be offered in high-demand, high wage occupations and that are important to the region
- Identify how certificates and other credentials can complementarily stack to additional certificates, associate's degrees, or other programs
- Identify ways these programs, or portions thereof, might be provided for delivery in high schools through concurrent enrollment
- Ensure implementation details available

This partnership approach focuses on short-term certificates (16-29 credits) as a first step for students seeking a college credential or 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 offered through this initiative will:

- Have an earned post-secondary certificate in a relevant field.
- Be prepared for an entry-level position in a career that is in demand and pays high wages.
- Be on an efficient pathway to a one-year certificate or greater attainment.

CTE Credentials

The Utah System of Higher Education institutions offer three primary types of CTE credentials:

- **Associate of Applied Science Degrees**—Designed to lead students directly to employment requiring two years of preparation. The Associate of Applied Science (AAS) degree includes a core set of general education preparing students with a solid basis in composition, computation, and human relations. In some cases AAS programs can serve a dual purpose to prepare students for the workforce while serving as a pathway to a bachelor’s degree.
- **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 training programs less than one year in length that prepare students for specific employment skills.

Tuition and Fees

CTE programs are offered at seven of the eight USHE institutions (University of Utah’s mission does not include CTE; Salt Lake Community College fills this role in the service region shared by these two institutions). 2014-15 full-time tuition and fees for the seven institutions that carry a CTE role assignment ranged from \$1,694 to \$3,192 per semester.

Tuition and fees at Utah’s public institutions of higher education are the third lowest in the nation. 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 CTE programs seamlessly stack to four-year degree programs.

Earnings and Job Placement for USHE CTE Graduates

The median fifth-year wages for certificates of at least one year and associate degrees are \$35,768 and \$43,178, respectively. More detailed wage information is available online: <http://higheredutah.org/data/utah-wage-information>. Wage data with certificates of less than one

year were also calculated but are not included online. Although results showed wage gains over lower educational attainment levels, the data in this category are impacted by a variety of factors including the type of program, individual student intent, immediate short term industry demand, etc.

\$35,768

Median 5th-year wages for individuals with a USHE certificate of at least one year.

The table below shows placement rates for CTE graduates from a USHE institution for 2014-15 according to their field of study – according to the National Center for Education Statistics’ Classification of Instructional Program (CIP) codes.

84%

The overall job placement rate for 2014-15 USHE CTE graduates.

USHE CTE Job Placement Rate by Area of Study

Classification of Instructional Program (CIP) Group	Placement Rate
AGRICULTURE, AGRICULTURE OPERATIONS, AND RELATED SCIENCES	75.8%
BUSINESS, MANAGEMENT, MARKETING, AND RELATED SUPPORT SERVICES	81.7%
COMMUNICATION, JOURNALISM, AND RELATED PROGRAMS	84.7%
COMMUNICATIONS TECHNOLOGIES/TECHNICIANS AND SUPPORT SERVICES	76.6%
COMPUTER AND INFORMATION SCIENCES AND SUPPORT SERVICES	82.0%
CONSTRUCTION TRADES	87.0%
EDUCATION	73.3%
ENGINEERING	81.2%
ENGINEERING TECHNOLOGIES AND ENGINEERING-RELATED FIELDS	82.0%
FAMILY AND CONSUMER SCIENCES/HUMAN SCIENCES	81.3%
FOREIGN LANGUAGES, LITERATURES, AND LINGUISTICS	92.3%
HEALTH PROFESSIONS AND RELATED PROGRAMS	87.3%
HOMELAND SECURITY, LAW ENFORCEMENT, FIREFIGHTING AND RELATED PROTECTIVE SERVICES	85.4%
LEGAL PROFESSIONS AND STUDIES	82.8%
MECHANIC AND REPAIR TECHNOLOGIES/TECHNICIANS	79.0%
PARKS, RECREATION, LEISURE, AND FITNESS STUDIES	86.7%
PERSONAL AND CULINARY SERVICES	80.9%
PRECISION PRODUCTION	81.3%
SCIENCE TECHNOLOGIES/TECHNICIANS	74.4%
SOCIAL SCIENCES	76.5%
TRANSPORTATION AND MATERIALS MOVING	69.6%
VISUAL AND PERFORMING ARTS	74.8%
OVERALL PLACEMENT RATE	83.8%

Information is derived from state workforce data and may not include employment of all USHE graduates. For example, state workforce data does not include out-of-state employment, self-employed individuals, federal and military employees, and non-employed students who continued their education.

The ROI for USHE CTE Graduates

**\$334
million**

In added income by 2014-15 USHE CTE graduates, generating over \$47 million in added state taxes.

The table below provides an estimate of the wage impact of 2014-15 CTE graduates from USHE institutions. According to the wage and workforce information from the US Census, the 4,536 new CTE graduates will produce nearly \$335 million of added income to the state over someone with a high school diploma. Using taxpayer rate estimates of the Utah Taxpayers Association, these graduates will generate an added \$47 million in state taxes and fees.

	New Credentials Awarded	Est. Work Force 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	1,175	77.1%	906	\$2,657	\$2,407,242	\$340,384
Associate Degrees	+3,361	77.1%	+2,592	\$2,657	+\$6,886,944	+\$973,814
Total	4,536		3,498		\$9,294,186	\$1,314,198
30 years of Employment					\$278,825,580	\$39,425,937
Economic Multiplier (1.2)					\$55,765,116	\$7,885,187
Value Added to Utah's Economy and Tax Base (30 yr Estimate)					\$334,590,696	\$47,311,124

CTE in Concurrent Enrollment (high school students)

58%

Proportion of CTE college-level membership hours earned by high school students via USHE institutions.

28,549 high school students enrolled in a college course available through concurrent enrollment during the 2014-15 academic year. In total, these students earned 198,163 college credits – saving students over \$25 million in total tuition.

60% of all concurrent enrollment students (17,199) enrolled in at least one CTE course. Secondary students earned 75,496 CTE credit hours, or 38.1% of the total concurrent enrollment credit hours earned. This represents the equivalent of 2,264,880 membership hours (75,496 X 30) accounting for nearly 67% of postsecondary CTE enrollment in Utah's high schools and 58% of total postsecondary membership hours earned by high school students (the Utah College of Applied Technology served 8,652 high school students with 1,624,477 membership hours as reported in UCAT's 2015 annual report). The total contribution of Utah's postsecondary institutions to high school students is significant and provides college-level career preparation opportunities to nearly 26,000 high school students during the 2014-15 school year while giving these students credit toward postsecondary credentials.

The accompanying tables show unduplicated headcount in CTE concurrent enrollment courses.

Total Concurrent Enrollment, Fiscal Year 2014-15

	Total	CTE
Total Students (Unduplicated Headcount)	28,549	17,199 (60.2%)
Earned Credit Hours	198,163	75,496 (38.1%)

Headcount in CTE Concurrent Enrollment by Institution, Fiscal Year 2014-15

Institution	CTE Concurrent Enrollment (Unduplicated Headcount by USHE institution)
Utah State University	1,134
Southern Utah University	136
Snow College	451
Dixie State University	364
Weber State University	6,923
Utah Valley University	4,350
Salt Lake Community College	4,442
Total	17,800

Enrollment headcounts total more than system-wide total because students can take 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. Funding is provided to the Utah State Office of Education and formulaically distributed to local school districts, campuses of the Utah College of Applied Technology, and USHE institutions providing eligible CTE programs. This funding is used by USHE institutions to enhance and 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 2014-15, \$3,421,802 was awarded to USHE institutions through the Perkins Act. All USHE institutions receiving Perkins grants have maintained eligibility for continued Perkins funding as it is made available through federal processes since the program's origination in 2006. USHE reports 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 FY14 USHE Cost Study show the appropriated direct costs per full-time equivalent (FTE) student (15 credit hours/semester) for CTE to be \$4,575 (\$5.08 per membership hour). Factoring in indirect costs, the full cost of CTE instruction is \$8,773 per student FTE (\$9.75 per membership hour).

\$9.75
Average total direct cost per
CTE membership hour.

According to its report to the Higher Education Appropriations Subcommittee on September 30, 2015, the Utah College of Applied Technology (UCAT) reported its FY15 direct cost of instruction was \$6.09 per membership hour. From information provided in that report, its FY15 full cost of instruction per membership hour was \$11.64 (\$67,597,000 total reported state appropriation divided by 5,808,226 total membership hours). Both USHE and UCAT provide valuable services at comparable and competitive costs to Utah taxpayers.

Program Duplication

A recent analysis of USHE and UCAT programs indicates there is little, if any, duplication of programs. Using data available from the Integrated Postsecondary Education Data System (IPEDS) for the academic years 2011-12, 2012-13, and 2013-14, only five out of 292 areas of study (based on CIP codes) identified at the same level were within the same service region. Some programs within these five areas of study are part of broader degree programs at USHE institutions and are offered for students who may have longer-term educational objectives than preparation for immediate employment as is most typical in CTE programs.

Enrollments and Completions

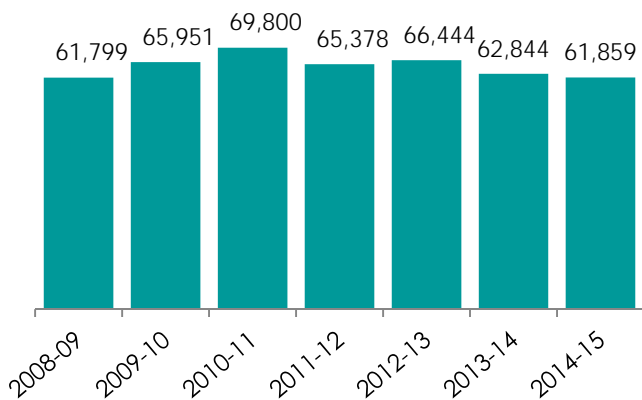
The enrollment and completion information presented below uses the standard CTE definitions used by the federal Carl D. Perkins program (generally accepted measurement nationwide). This information uses both credit hours and membership hours in order to create a common comparison of CTE among Utah's public, postsecondary institutions.

As the economy in Utah has improved since the recession years, USHE institutions have seen a reduction in the total number of students taking CTE courses, although the difference between FY2014 and FY2015 was fairly minor (62,844 in 2013-14 compared to 61,859 in 2014-15). This trend is typical during economic recoveries and was expected. However, while total headcount has retreated some, USHE institutions experienced an increase in CTE student FTE (11,802 in 2013-14 compared to 12,951 in 2014-15), suggesting students are taking higher course loads.

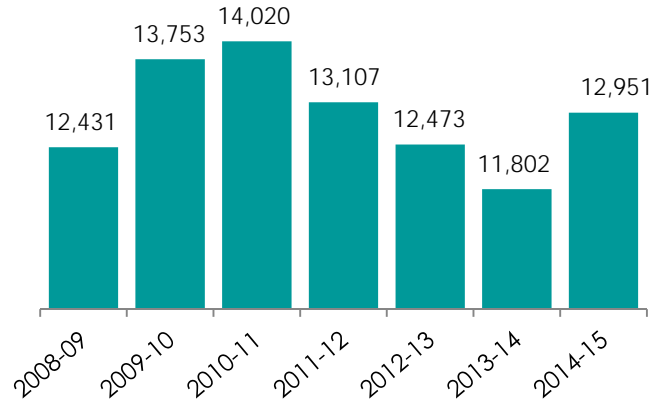
FTE is a measure, based on the total number of hours taught, of how many students could have been served if all students were full-time. One FTE is equal to 30 credit hours (for credit-based instruction) or 900 membership hours (for non-credit) in a given year. For membership and credit hour equivalents, one credit hour equals 30 membership hours.

USHE CTE Enrollment (2014-15)

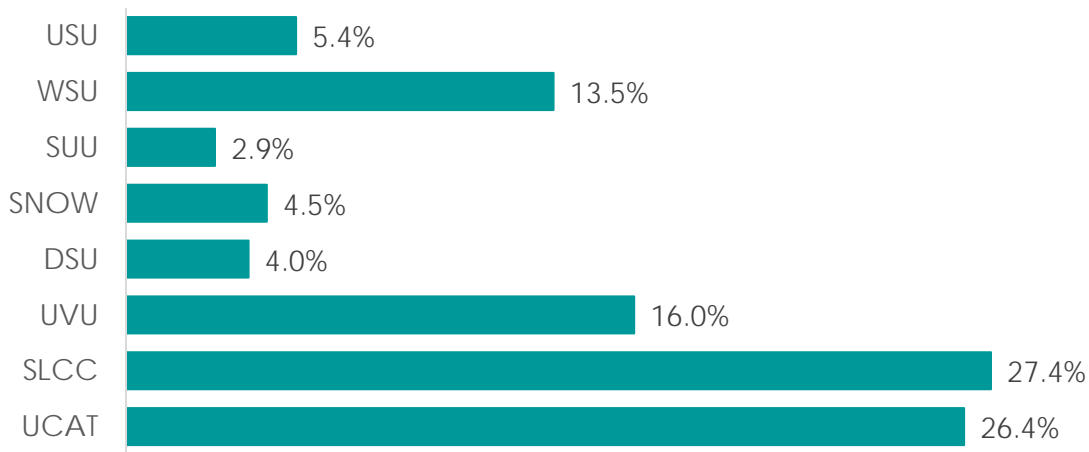
Headcount



Full-Time Equivalent (FTE)



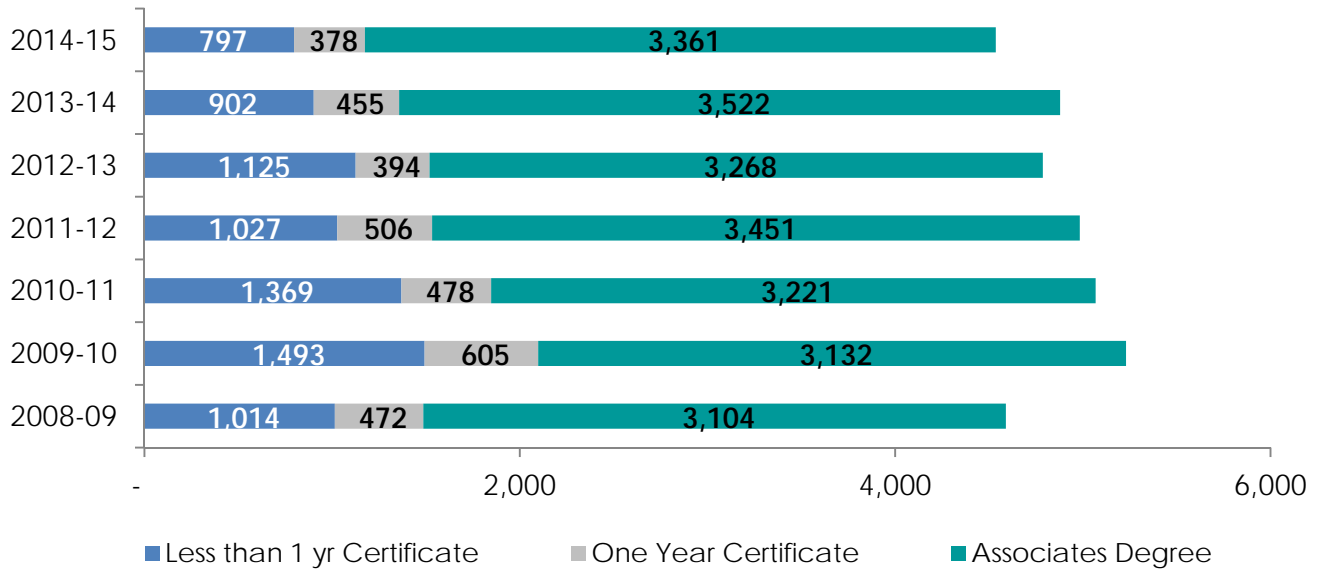
Career and Technical Education (FTE) by Institution (2014-15)



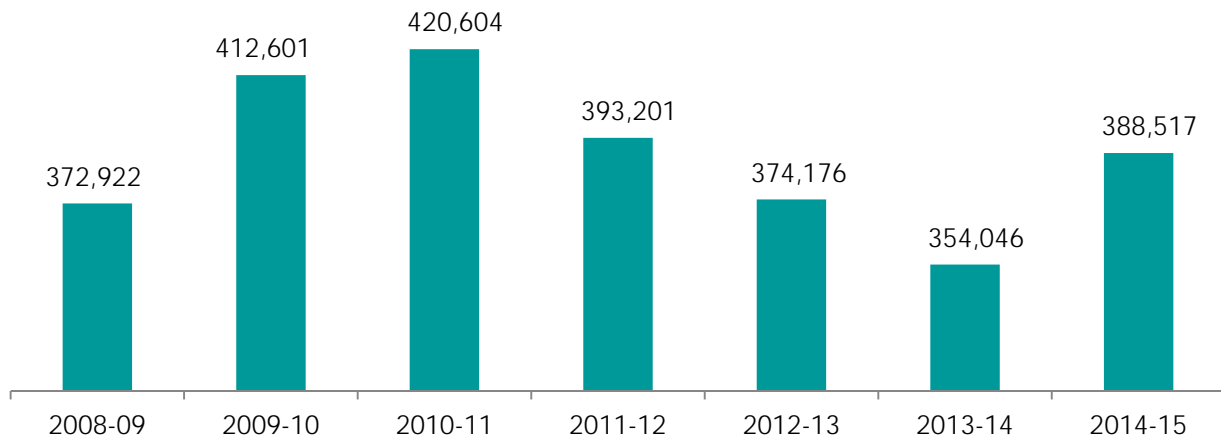
Total USHE CTE Membership Hours and FTE Equivalent by Year

	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Non-Credit Membership Hours	808,614	1,242,194	894,841	634,795	473,180	362,013	411,324
Short-Term Intensive Training/Custom Fit Hours	59,548	62,191	73,786	58,335	56,790	57,714	51,468
+ Equivalent Credit Hours (1 credit=30 hrs.)	10,319,490	11,073,630	11,649,480	11,102,910	10,695,300	10,201,650	11,192,730
Total Membership Hours	11,187,652	12,378,015	12,618,107	11,796,040	11,225,270	10,621,377	11,655,522
Full-time Equivalent-FTE (Total Membership Hours/900)	12,431	13,753	14,020	13,107	12,473	11,802	12,951

Total Certificates and Degrees Awarded



2014-15 USHE CTE Credit Hour Equivalent



Top 5 Areas of Study, based on 2014-15 certificates/degrees awarded

Program Categories	Less than 1 yr Certificates	1-2 yr Certificates	Associates & 2+ yr Certificates	Total	Percentage Share
HEALTH PROFESSIONS AND RELATED PROGRAMS	401	169	1,355	1,925	42%
COMPUTER AND INFORMATION SCIENCES AND SUPPORT SERVICES	249	29	238	516	11%
BUSINESS, MANAGEMENT, MARKETING, AND RELATED SUPPORT SERVICES	19	10	467	496	11%
HOMELAND SECURITY, LAW ENFORCEMENT, FIREFIGHTING, RELATED PROTECTIVE SERVICES	35	12	229	276	6%
ENGINEERING TECHNOLOGIES AND ENGINEERING-RELATED FIELDS	28	12	188	228	5%

Source: IPEDS Completions Survey

Utah CTE Output Summary

		USHE	UCAT*	Total	USHE % Total
Adults	Membership Hours	11,655,522	4,183,750	15,839,272	73.6%
	Student FTE	12,951	4,649	17,600	73.6%
	Student Headcount	61,859	27,541	89,400	69.2%
High School	Membership Hours	2,264,880	1,624,477	3,889,357	58.2%
	Student FTE	2,517	1,805	4,322	58.2%
	Student Headcount	17,199	8,652	25,851	66.5%
Credentials Awarded	< 1 Year Certificates	797	5,712	6,509	12.2%
	1+ Year Certificates	378	1,649	2,027	18.6%
	Associate Degrees	3,361	0	3,361	100.0%
Average Cost Per Membership Hour		\$9.75	\$11.64		

**Sources: Utah College of Applied Technology 2015 Annual Report, Reported information from the Utah College of Applied Technology to the Higher Education Appropriations Committee of the Utah Legislature (September 30, 2015), and IPEDS. USHE cost data is based on the FY14 cost study, the most recent data available at time of report.*

Definitions and Formulas

CTE (Career and Technical Education [Vocational])—CTE programs involve training for what are generally considered technical, high skill jobs such as automotive maintenance, welding, construction, and entry-level healthcare positions.

Credit Hours—A unit used to measure the amount of schoolwork a student has enrolled in or completed as defined by regional accrediting bodies and the U.S. Department of Education.

Membership Hours—Also called 'Clock Hours', assumed to be the number of hours attended at an institution in a CTE or vocational program.

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 for 15 credit hours per semester. A part-time student may account for only .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 membership Hours = 1 FTE for non-credit programs

Unduplicated Headcount—The total number of individual students enrolled at an institution, regardless of instruction time. Unduplicated Headcount is only counted once, even though the 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.