



Career and Technical Education Program Analysis Scorecard Report 2017-2018

Purpose of Evaluation

The purpose of this report is to summarize results of the Career and Technical Education (CTE) Program Analysis Scorecard for the 2017–2018 school year to provide a baseline of data for the CTE Five-Year Plan.

Program Description

CTE provides students with academic knowledge and technical skills needed to gain entry to high-demand, high-skill, and high-wage industries. CTE offers work-based learning experiences that combine hands-on learning with real-world scenarios, so students are prepared to enter the workforce or college after they graduate high school.

Five-Year Plan Goals

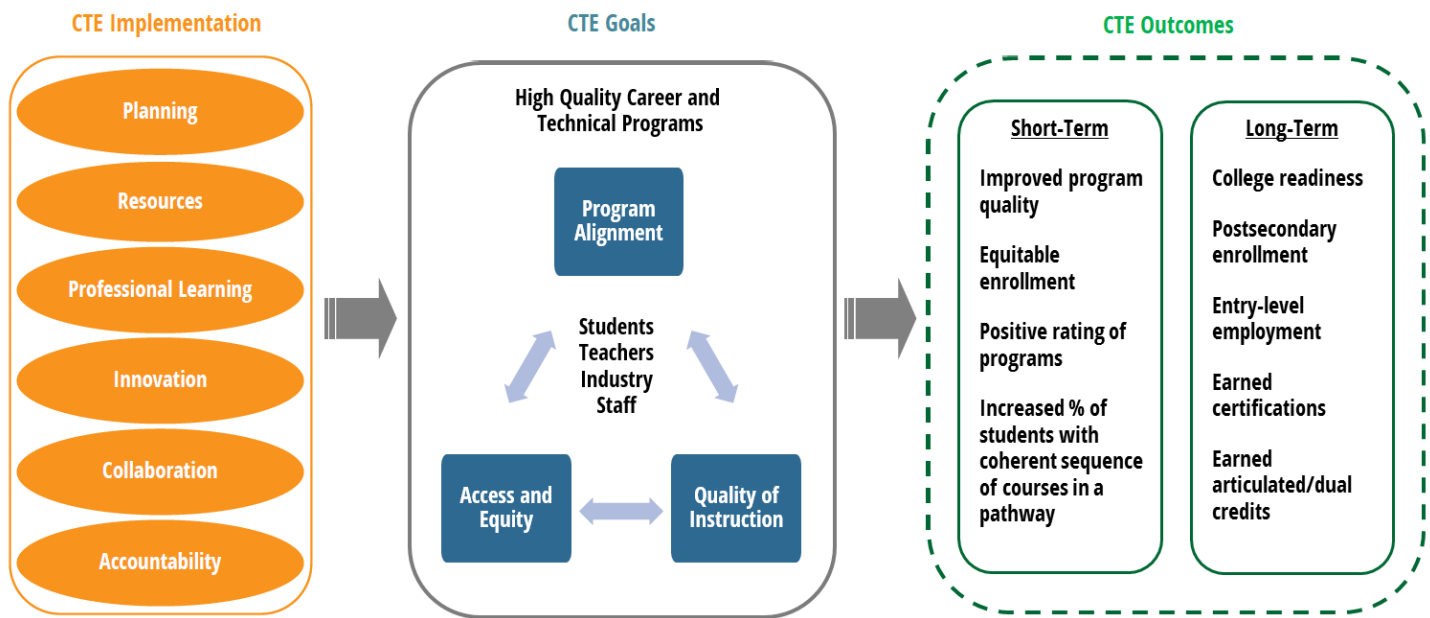
The primary goal of the CTE 5-Year Plan is to prepare all students for high-demand, high-skill, and high-wage careers through industry aligned pathways built on academic, professional, and technical skills, leadership development, work experiences, and postsecondary credentials. The plan includes three focus areas that CTE aims to further develop: instruction quality, program alignment, and access and equity.

First, CTE seeks to develop quality instruction with innovation, industry-standard resources, curriculum, and training to provide relevant experiences preparing all students for professional and postsecondary success. Second, CTE seeks to align all programs to industry and postsecondary standards and provide opportunities for students to begin exploring career options in early education which translates into access to certification credentials and dual credits. Third, with respect to access and equity, CTE seeks to provide all AISD students with opportunities to participate in their choice of CTE program as well as measure equitable access across the district.

CTE plans to implement goals through six areas of development: planning, resources, professional learning, innovation, collaboration, and accountability (Figure 1).



Figure 1
CTE Theory of Change



Source: AISD Career and Technical Education, 2018

Program Evaluation Description

In the CTE program evaluation for this year (2017-2018), CTE sought to establish a baseline of data to describe program conditions before implementation of the 5-Year Plan. AISD Department of Research and Evaluation (DRE) staff collected quantitative and qualitative data from AISD information systems and CTE teachers. Information about the evaluation methodology is provided in Appendix A.

To better understand and measure current conditions in the program, this evaluation answered three questions: 1) Quality of instruction: How did teachers rate the quality of their own CTE program in their respective career cluster?; 2) Program alignment: How many students enrolled in a career cluster earned at least one certification and/or at least one dual credit?; and, 3) Access and equity: How did the demographics of students enrolled in career clusters compare with the demographics of students enrolled in the district?

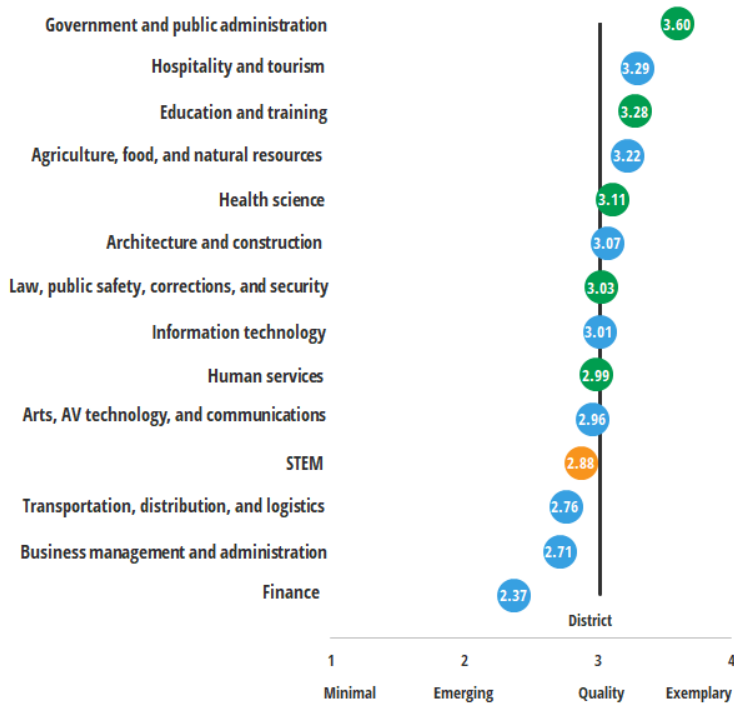
Quality of Instruction

To describe quality of instruction, DRE staff administered a survey for CTE teachers to self-assess their programs on 10 items utilizing a modified rubric developed by the CTE department and based on *2018 ACTE Quality CTE: Program of Study Framework* for high-quality CTE programs (Imperatore & Hyslop, 2018). CTE teachers were required to complete the survey rating their programs using the CTE department rubric prior to start of 2018-2019 school year, Year 1 in CTE's 5-Year Plan. Self-assessment results were described by endorsement and career cluster. Because endorsements for Arts and Humanities applied to no clusters and Multidisciplinary Studies applied to all clusters, this evaluation focused on reporting clusters assigned to STEM, Business and Industry, and Public Service endorsements.

How did teachers rate the quality of their own CTE programs?

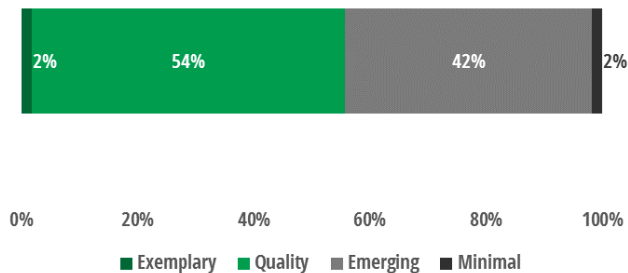
Ratings varied across clusters with most considered quality programs. A total of 185 teachers (about 85%) rated cluster programs. About half (54%) of programs were rated above the district average of 3.02, a quality program. Government and public administration, hospitality and tourism, and education and training were the top three most highly rated CTE cluster programs by teachers. Conversely, transportation, distribution and logistics, business management and administration, and finance were rated lowest (Figure 2). Ratings for some clusters in Business and Industry and STEM endorsements were below the district average; most Public Service clusters were above average. The distribution of teacher rating was in the quality range at 54% (Figure 3).

Figure 2
Government and public administration, hospitality and tourism, and education and training were the highest rated career clusters. **Eight clusters exceeded the district average.**



Source. CTE High Quality Rubric Survey, 2018–2019

Figure 3
About half of CTE teachers reported their CTE program was a quality program.



Source. CTE High Quality Rubric Survey, 2018-2019

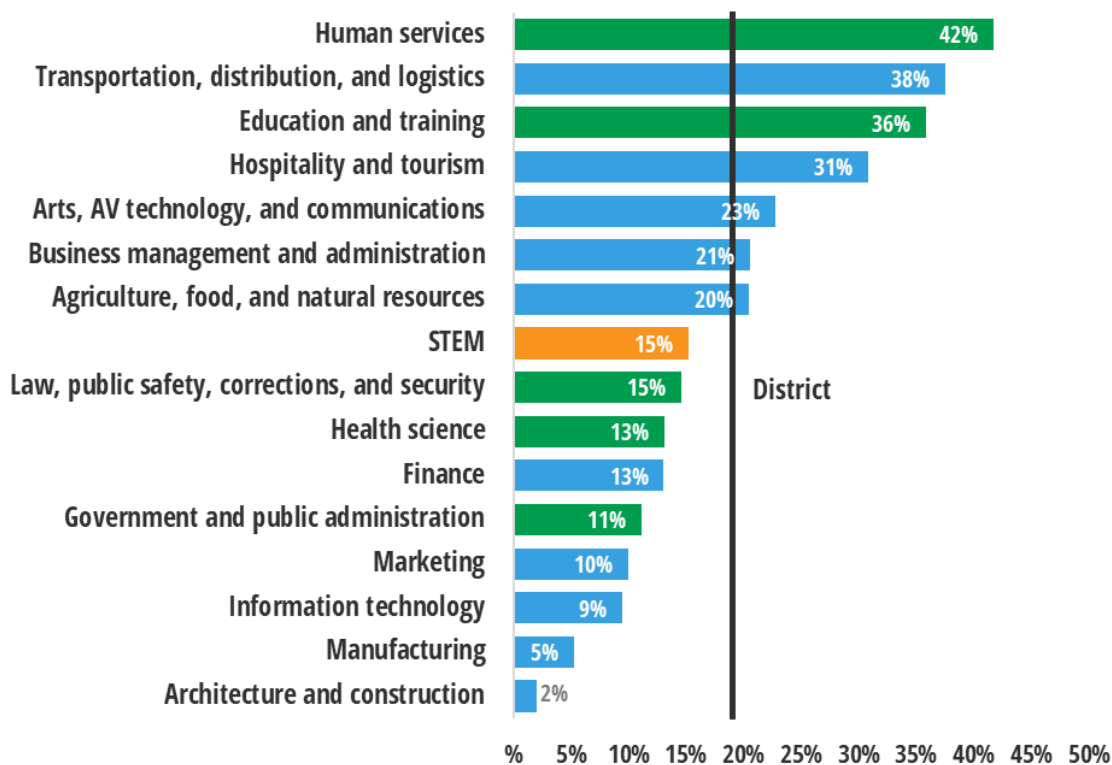
Program Alignment

To describe program alignment, AISD information systems provided baseline CTE student certification and dual-credit data from the 2017–2018 school year.

How many students enrolled in a career cluster earned at least one certification and/or dual credit?

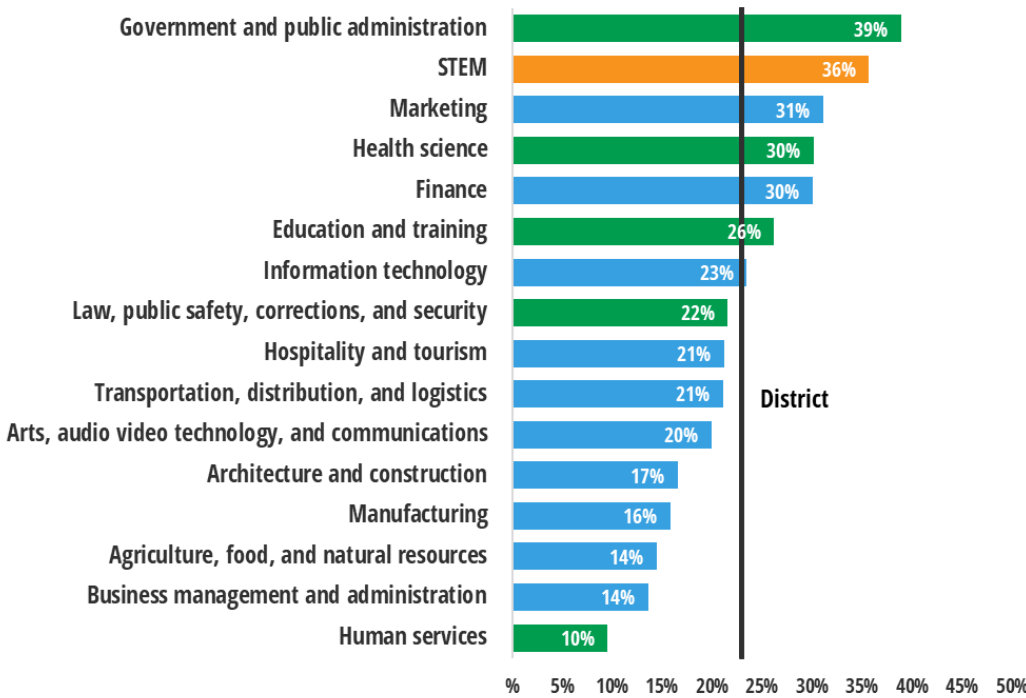
Overall, the percentages of students earning dual credits or industry certification varied across clusters. Of 22,732 students enrolled in 9th through 12th grades, 13,106 students (58%) were enrolled in CTE career clusters. Across clusters, the percentage of CTE students earning dual credits (23%) was typically greater than that of CTE students who earned certifications (19%). Additionally, students enrolled in the human services; transportation, distribution, and logistics; and education and training career clusters had highest rates of earning at least one certification; but information technology, manufacturing, and architecture and construction had lowest rates (Figure 4). Students enrolled in government and public administration, STEM, and education and training clusters had the highest rates of earning at least one dual credit, while agriculture, food and natural resources; business management and administration; and human services had the lowest (Figure 5).

Figure 4
Students in human services, transportation, distribution and logistics, and education and training clusters had highest rates of earning at least one certification and were above the district average of 19%.



Source. AISD student enrollment records, 2017–2018

Figure 5
 Students in **government and public administration**, **STEM**, and **marketing** clusters had highest rates of earning at least one dual credit and were above district average of 23%.



Source: AISD student enrollment records, 2017–2018

Program Alignment

In this evaluation, DRE staff used two measures to assess alignment with the 5-Year Plan. Earning industry certifications and/or dual credits helped to gauge whether the CTE program provided opportunities for students to prepare for career and/or college after high school.

Industry Certification

Industry certifications are credentials earned by passing an assessment administered by a certifying agency that is recognized by business and industry. Industry credentials put CTE students a step ahead in their chosen career fields. Earning certification credentials shows students are experienced and dedicated, and gives them a competitive edge in the job market. Certifications may have age and/or experience requirements; not all certifications are available for every cluster and/or campus.

Dual Credit

Dual credit refers to college courses students take during high school. Students enrolled in dual credit courses earn college credit for little or no cost, and get an early start in postsecondary education. CTE dual credit courses involve rigorous academic and technical foundations that prepare students for college and the workplace. Additionally, dual credit course enrollment is an effective strategy to promote student access and persistence in postsecondary education (Karp & Hughes, 2008).

Access and Equity

To measure access and equity, AISD information systems supplied baseline AISD and CTE student demographic information from the 2017–2018 school year.

How did demographics of students enrolled in clusters compare with demographics of students enrolled in the district?

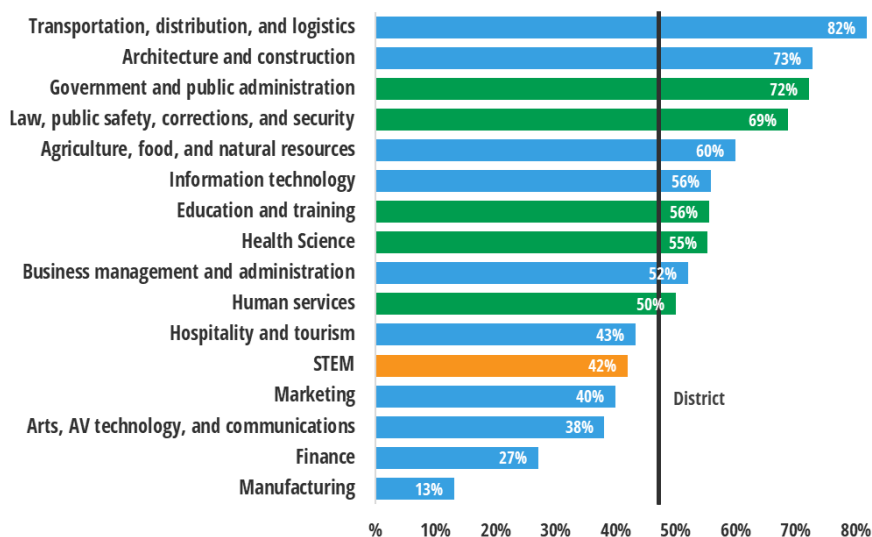
Student demographic and enrollment in career clusters and the district was reported for students who were economically disadvantaged, English learner (EL), special education (SPED), or enrolled in a nontraditional course by gender (Figures 6-10).

Cluster Enrollment by Economically Disadvantaged, EL, and SPED

The percentage of economically disadvantaged students enrolled in career clusters varied in comparison with the overall district percentage of economically disadvantaged students (47%). More than half of career clusters were above district average with respect to enrollment of economically disadvantaged students (Figure 5). Career clusters with highest enrollment of economically disadvantaged students were transportation, distribution, and logistics, architecture and construction, and government and public administration; however, arts, audio video (AV) technology and communications, finance, and manufacturing had lowest enrollments.

Figure 6

Across all clusters, **transportation, distribution and logistics, architecture and construction, and government and public administration** had highest rates of enrollment of economically disadvantaged students above district average (47%).



Source. AISD student enrollment records, 2017-2018 .

Note. District average only includes students in grades 9 through 12

The percentages of EL and SPED students enrolled in clusters were below district averages for EL (15%) and SPED (11%) in most instances (Figures 7 and 8). For EL, highest enrollments were in transportation, distribution and logistics, architecture and construction, and business management and administration; whereas lowest rates of EL enrollment were STEM, finance, and manufacturing (Figure 7). Five of 10 clusters in the business and industry endorsement had the greatest percentages of SPED students enrolled and exceeded district average (11%) (Figure 8).

Endorsements & Clusters

Endorsements

Endorsements represent coherent sequences or series of courses in one of five areas including: Arts and Humanities, Business and Industry, Multidisciplinary Studies, STEM, and Public Service. CTE offers endorsements in Business and Industry, Public Service, and STEM.

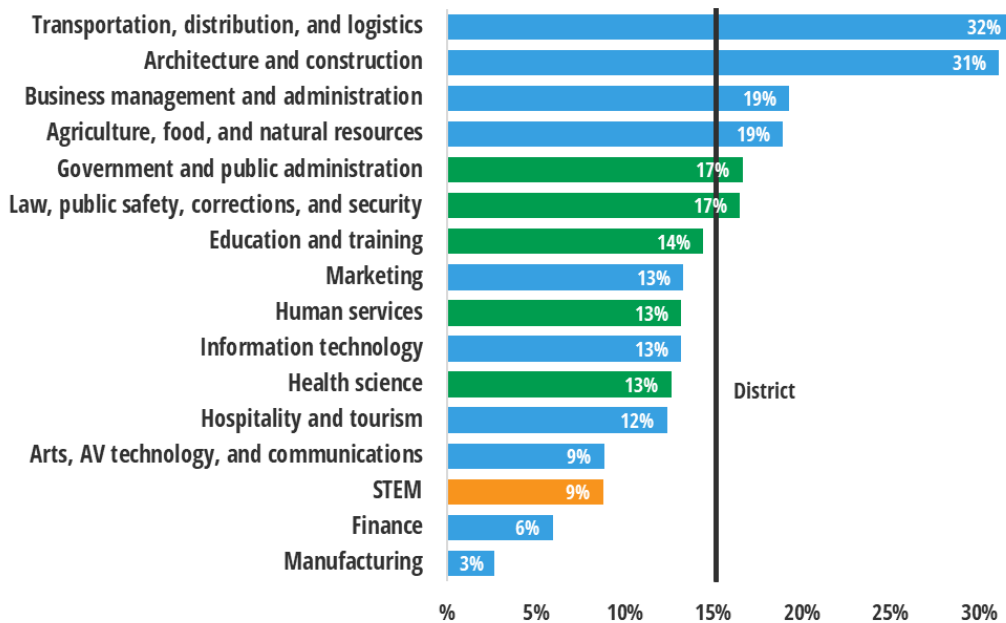
Clusters

Clusters are groups of careers with similar skills and themes based on industry. There are 16 clusters which correspond to designated endorsements. CTE offers programs of study for all 16 clusters across the district.

Career clusters and endorsements AISD align with state and federal standards.

Figure 7

Across all clusters, **transportation, distribution and logistics, architecture and construction, and business management and administration** had highest rates of EL student enrollment above district average (15%).

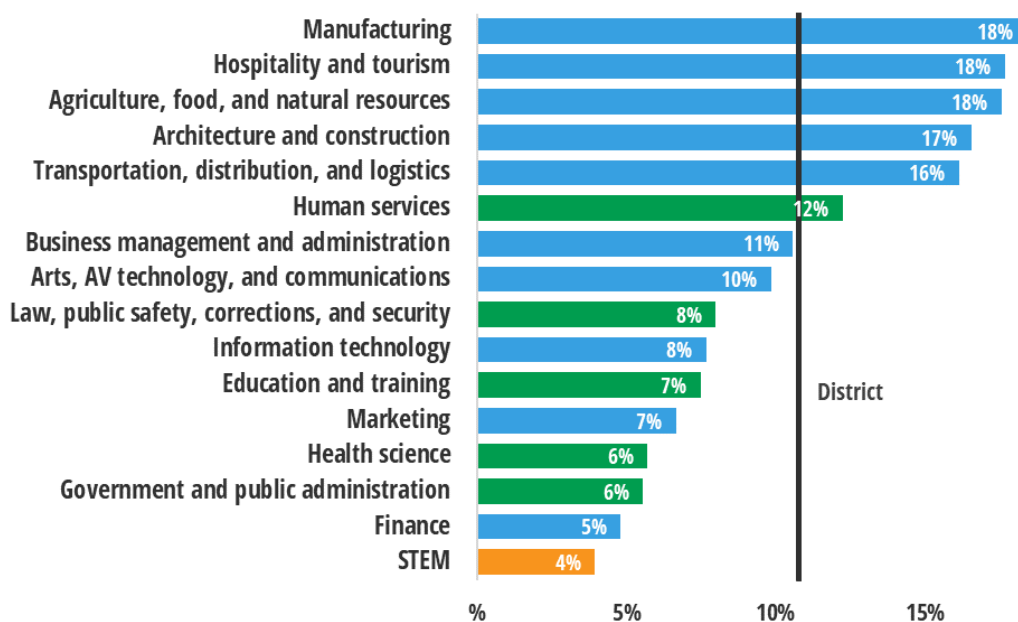


Source. AISD student enrollment records, 2017-2018.

Note. District average only includes students in grades 9 through 12

Figure 8

Across clusters, **manufacturing, hospitality, and tourism and agriculture, food, and natural resources** had highest rates of SPED student enrollment above district average (11%).



Source. AISD student enrollment records, 2017-2018.

Note. District average only includes students in grades 9 through 12

STEM Endorsement

- STEM

Business and Industry Endorsement

- Agriculture, Food, and Natural Resources
- Architecture and Construction
- Arts, AV Technology, and Communications
- Business Management and Administration
- Finance
- Hospitality and Tourism
- Information Technology
- Marketing
- Manufacturing
- Transportation, Distribution, and Logistics

Arts and Humanities Endorsement

- None

Public Service Endorsement

- Education and Training
- Government and Public Administration
- Health Science
- Human Services
- Law, Public Safety, Corrections, and Security

Multidisciplinary Studies Endorsement

- All Career Clusters

Nontraditional Courses

The Texas Education Agency (TEA) identified courses in specific career clusters in which underrepresented gender groups participate that may lead to employment in nontraditional fields (2019).

Some clusters have nontraditional courses for both males and females.

Refer to Appendix B for the TEA list of nontraditional courses for females.

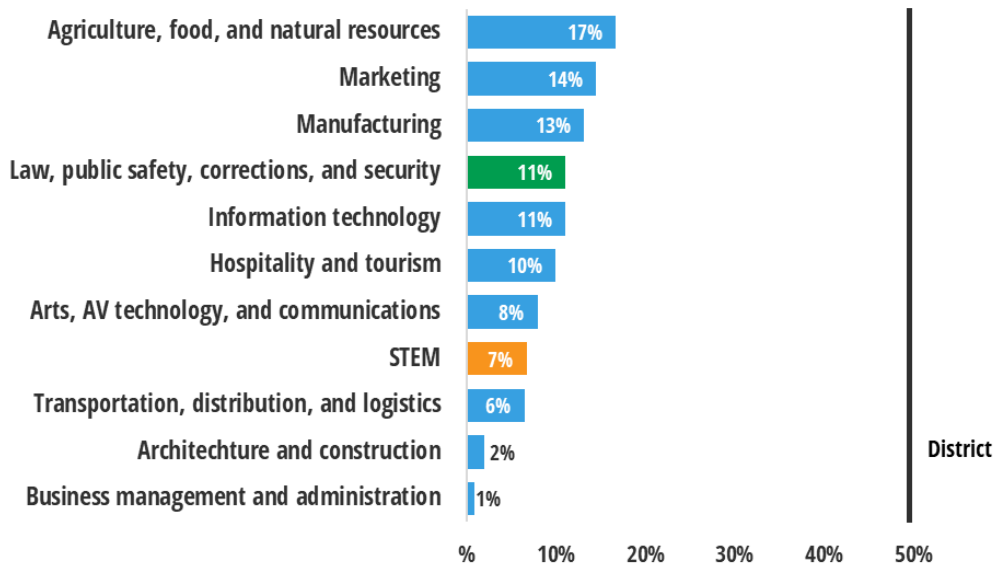
Appendix C lists the nontraditional courses for males according to TEA.



Nontraditional Course Cluster Enrollment by Gender

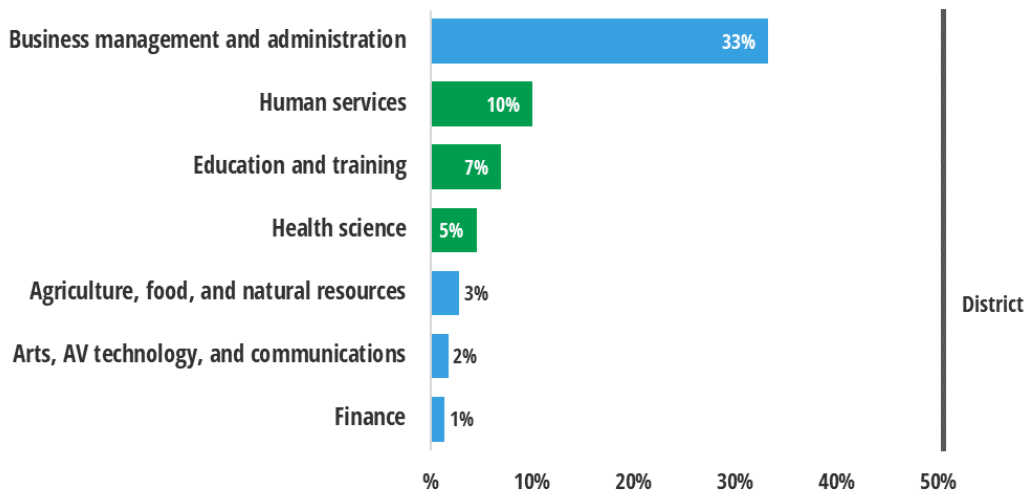
Nontraditional course taking was mixed across clusters for female and male students. Clusters within the business and industry endorsement had highest representation of female nontraditional students (Figure 8). In addition, business and industry had the highest representation of male nontraditional students (Figure 9). Note, considerably fewer courses were identified as nontraditional for males than for females.

Figure 9
Clusters with highest rates of female nontraditional students were agriculture, food, and natural resources; marketing; and, manufacturing. Fifty percent of the district was female.



Source. AISD student enrollment records, 2017–2018

Figure 10
Clusters with the highest rates of male nontraditional students were business management and administration; human services; and, education and training. Fifty percent of the district was male.



Source. AISD student enrollment records, 2017–2018

Summary of Baseline Data

This report summarizes baseline data from the 2017-2018 CTE Program Analysis Scorecard to report on indicators related to quality of instruction, program alignment, and access and equity. Teacher self-assessment of their program helped to determine perceived quality of instruction in career clusters. Teacher ratings varied, but most clusters were rated as quality programs. Student certification and dual credit earnings helped to measure program alignment. Students' completion of certifications and dual credits varied, and it is not clear whether the current baseline meets program expectations.

Disaggregating student enrollment demographics in the career clusters helped to gauge access to the CTE programs offered throughout the district. Demographic characteristics of CTE student enrollment varied across clusters, and enrollment in agriculture, food, and natural resources and transportation, distribution, and logistics suggested that these clusters are doing well in providing access to students who are economically disadvantaged, EL, and SPED.

Data presented in this report indicated that the CTE Program is establishing a baseline of data with respect to its 5-Year Plan. It is recommended that CTE Program staff meet with career cluster programs to discuss the results.

According to the 5-Year Plan, CTE Program staff will work with campuses to develop and implement a high-quality program development plan for each career cluster. Next, teachers will participate in targeted professional learning designed to support implementation of high-quality program indicators. Finally, CTE Program staff will work on the curriculum map and seek input from industry and postsecondary partners.

References

- Imperatore, C., & Hyslop, A. (2018). *2018 ACTE quality CTE: Program of study framework*. Retrieved from <https://www.acteonline.org/wp-content/uploads/2019/01/HighQualityCTEFramework2018.pdf>
- Karp, M. M., & Hughes, K. (2008). *Dual enrollment can benefit a broad range of students*. Alexandria, VA: Association for Career and Technical Education. Retrieved from https://www.acteonline.org/uploadedfiles/publications_and_online_media/files/octstudy_theme.pdf
- Texas Education Agency. (2019). *Career and technical education*. Retrieved from https://tea.texas.gov/Academics/College_Career_and_Military_Prep/Career_and_Technical_Education/Career_and_Technical_Education

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Appendix A

Evaluation Methodology

Data Collection

To establish a baseline of data in which CTE Program staff could measure progress with the 5-Year Plan, quantitative and qualitative analyses were conducted using various forms of data. Staff used district information systems to obtain demographics, course enrollments, dual credits, and certifications. CTE teachers submitted self-assessment surveys about their experiences with their CTE program.

Survey

Teachers completed a self-assessment surveys to rate the quality of instruction in their respective career clusters.

CTE High-Quality Rubric Survey. Teachers were asked to rate themselves on 10 elements from a modified version of the *2018 ACTE Quality CTE: Program of Study Framework*, which identifies what a high-quality CTE program should include (Imperatore & Hyslop, 2018). Teachers were asked to rate themselves on the 10 elements of a high-quality program, from 1 through 4 (1 = minimal, 2 = emerging, 3 = quality, 4 = exemplary). After each rating, teachers were asked to write a justification of why they chose the rating.

Data Analysis

DRE staff used quantitative data to summarize the outcomes for CTE's 16 career clusters. Data (e.g., self-assessment) were summarized using descriptive statistics (e.g., numbers and percentages). Qualitative data from open ended questions in the rubric were used by a CTE specialist to determine whether teachers' rational for choosing a specific rating matched the evidence they provided. Because it was the baseline year for data collection, no comparisons were made in the analyses.

Appendix B

Nontraditional Occupations for Males

CODE	COURSE NAME
AGRICULTURE, FOOD, AND NATURAL RESOURCES CAREER CLUSTER	
13000600	VETERINARY MEDICAL APPLICATIONS
ARTS, AUDIO VIDEO TECHNOLOGY AND COMMUNICATIONS CAREER CLUSTER	
13009600	PRINTING AND IMAGING TECHNOLOGY
13009700	ADVANCED PRINTING AND IMAGING TECHNOLOGY
13009800	PRACTICUM IN PRINTING AND IMAGING TECHNOLOGY
13009810	PRACTICUM IN PRINTING AND IMAGING TECHNOLOGY II
BUSINESS MANAGEMENT AND ADMINISTRATION CAREER CLUSTER	
13011300	TOUCH SYSTEM DATA ENTRY
13011400	BUSINESS INFORMATION MANAGEMENT I
13011500	BUSINESS INFORMATION MANAGEMENT II
EDUCATION AND TRAINING	
13014400	INSTRUCTIONAL PRACTICES IN EDUCATION AND TRAINING
13014500	PRACTICUM IN EDUCATION AND TRAINING
13014510	PRACTICUM IN EDUCATION AND TRAINING II
FINANCE CAREER CLUSTER	
13016300	BANKING AND FINANCIAL SERVICES
HEALTH SCIENCE CAREER CLUSTER	
13020300	MEDICAL TERMINOLOGY
13020400	HEALTH SCIENCE
13020700	MEDICAL MICROBIOLOGY
HUMAN SERVICES CAREER CLUSTER	
13024500	LIFETIME NUTRITION AND WELLNESS
13024800	CHILD GUIDANCE
13025100	INTRODUCTION TO COSMETOLOGY
13025200	COSMETOLOGY I
13025300	COSMETOLOGY II

Source: Texas - Perkins IV

Appendix C

Nontraditional Occupations for Females

CODE	COURSE NAME
AGRICULTURE, FOOD, AND NATURAL RESOURCES CAREER CLUSTER	
13000300	LIVESTOCK PRODUCTION
13000400	SMALL ANIMAL MANAGEMENT
13000500	EQUINE SCIENCE
13000700	ADVANCED ANIMAL SCIENCE
13000900	AGRIBUSINESS MANAGEMENT AND MARKETING
13001200	ADVANCED ENVIRONMENTAL TECHNOLOGY
13001300	FOOD TECHNOLOGY AND SAFETY
13001400	FOOD PROCESSING
13001500	WILDLIFE, FISHERIES, AND ECOLOGY MANAGEMENT
13001600	RANGE ECOLOGY AND MANAGEMENT
13001700	FORESTRY AND WOODLAND ECOSYSTEMS
13001900	LANDSCAPE DESIGN AND TURF GRASS MANAGEMENT
13002000	HORTICULTURE SCIENCE
13002100	ADVANCED PLANT AND SOIL SCIENCE
13002200	AGRICULTURAL MECHANICS AND METAL TECHNOLOGIES
13002300	AGRICULTURAL FACILITIES DESIGN AND FABRICATION
13002400	AGRICULTURAL POWER SYSTEMS
ARCHITECTURE AND CONSTRUCTION CAREER CLUSTER	
13004600	ARCHITECTURAL DESIGN
13004700	ADVANCED ARCHITECTURAL DESIGN
13004800	PRACTICUM IN ARCHITECTURAL DESIGN
13004810	PRACTICUM IN ARCHITECTURAL DESIGN II
13004900	CONSTRUCTION MANAGEMENT
13005000	ADVANCED CONSTRUCTION MANAGEMENT
13005100	CONSTRUCTION TECHNOLOGY
13005200	ADVANCED CONSTRUCTION TECHNOLOGY
13005300	MILL AND CABINETMAKING TECHNOLOGY
13005400	BUILDING MAINTENANCE TECHNOLOGY
13005500	ADVANCED BUILDING MAINTENANCE TECHNOLOGY

13005600	ELECTRICAL TECHNOLOGY
13005700	ADVANCED ELECTRICAL TECHNOLOGY
13005800	HVAC AND REFRIGERATION TECHNOLOGY
13005900	ADVANCED HVAC AND REFRIGERATION TECHNOLOGY
13006000	PIPING AND PLUMBING TECHNOLOGY
13006100	ADVANCED PIPING AND PLUMBING TECHNOLOGY
13006200	PRACTICUM IN CONSTRUCTION MANAGEMENT
13006210	PRACTICUM IN CONSTRUCTION MANAGEMENT II

ARTS, AUDIO VIDEO TECHNOLOGY, AND COMMUNICATIONS CAREER CLUSTER	
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13008500	AUDIO VIDEO PRODUCTION
13008600	ADVANCED AUDIO VIDEO PRODUCTION
13008700	PRACTICUM IN AUDIO VIDEO PRODUCTION
13008710	PRACTICUM IN AUDIO VIDEO PRODUCTION II

BUSINESS MANAGEMENT AND ADMINISTRATION	
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13011800	GLOBAL BUSINESS
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HOSPITALITY AND TOURISM CAREER CLUSTER	
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13022600	CULINARY ARTS
13022700	PRACTICUM IN CULINARY ARTS
13022710	PRACTICUM IN CULINARY ARTS II
13023000	FOOD SCIENCE

INFORMATION TECHNOLOGY CAREER CLUSTER	
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13027300	COMPUTER MAINTENANCE
13027400	TELECOMMUNICATIONS AND NETWORKING
13027500	COMPUTER TECHNICIAN
13027600	COMPUTER PROGRAMMING
13027700	ADVANCED COMPUTER PROGRAMMING

LAW, PUBLIC SAFETY, CORRECTIONS, AND SECURITY CAREER CLUSTER	
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13029300	LAW ENFORCEMENT I
13029400	LAW ENFORCEMENT II
13029600	COURT SYSTEMS AND PRACTICES
13029800	SECURITY SERVICES
13029900	FIREFIGHTER I
13030000	FIREFIGHTER II

MANUFACTURING CAREER CLUSTER	
13032200	PRINCIPLES OF MANUFACTURING
13032300	WELDING
13032400	ADVANCED WELDING
13032500	PRECISION METAL MANUFACTURING
13032600	ADVANCED PRECISION METAL MANUFACTURING
13032700	FLEXIBLE MANUFACTURING
13032800	ADVANCED FLEXIBLE MANUFACTURING
13032900	MANUFACTURING ENGINEERING
13033000	PRACTICUM IN MANUFACTURING
13033010	PRACTICUM IN MANUFACTURING II
MARKETING CAREER CLUSTER	
13034400	ENTREPRENEURSHIP
SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS (STEM) CAREER CLUSTER	
13036500	ENGINEERING DESIGN AND PRESENTATION
13036600	ADVANCED ENGINEERING DESIGN AND PRESENTATION
13036800	ELECTRONICS
13036900	ADVANCED ELECTRONICS
13037000	ROBOTICS AND AUTOMATION
13036500	ENGINEERING DESIGN AND PROBLEM SOLVING
13037500	PRINCIPLES OF ENGINEERING
13037600	DIGITAL ELECTRONICS
TRANSPORTATION, DISTRIBUTION, AND LOGISTICS CAREER CLUSTER	
13039300	ENERGY, POWER, AND TRANSPORTATION SYSTEMS
13039400	AIRCRAFT TECHNOLOGY
13039500	ADVANCED AIRCRAFT TECHNOLOGY
13039600	AUTOMOTIVE TECHNOLOGY
13039700	ADVANCED AUTOMOTIVE TECHNOLOGY
13039800	COLLISION REPAIR AND REFINISHING
13039900	ADVANCED COLLISION REPAIR AND REFINISHING
13040000	SMALL ENGINE TECHNOLOGY
13040100	ADVANCED SMALL ENGINE TECHNOLOGY
13040200	TRANSPORTATION SYSTEMS MANAGEMENT
13040300	LOGISTICS, PLANNING, AND MANAGEMENT SYSTEMS
13040400	PRACTICUM IN TRANSPORTATION, DISTRIBUTION, AND LOGISTICS
13040410	PRACTICUM IN TRANSPORTATION, DISTRIBUTION, AND LOGISTICS II

Source: Texas - Perkins IV