Iowa Community College Employment Outcomes

Noncredit Career and Technical Education (CTE)

Academic Year 2018-2019

Released 2022

Community Colleges & Workforce Preparation

Iowa Department of Education

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Iowa Community Colleges Employment Outcomes: Noncredit Career and Technical Education (CTE) Programs

A statewide overview of education and employment outcomes of individuals enrolled in community college noncredit programs.

Prepared by

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COMMUNITY COLLEGES & WORKFORCE PREPARATION
PROSPERITY THROUGH EDUCATION

IOWA WORKFORCE DEVELOPMENT

Letter from the Director

Dear Education Stakeholders,

One of the critical functions of the Iowa Department of Education Is to provide and interpret educational data. We do this to support accountability, transparency and the ongoing improvement of our educational institutions. Staff in the Division of Community Colleges and Workforce Preparation continue to refine and improve the methods in which we collect, analyze and report data to ensure that it is both meaningful and easily understood. We trust the reader will find that to be the case in this edition of *Iowa's Community Colleges: Noncredit Career and Technical Education (CTE) Employment Outcomes Report*.

The Department annually publishes a number of education outcomes reports for credit-bearing CTE programs and noncredit programs designed to improve Iowa's talent pipeline to meet future employment demands. Noncredit programs often lead to state licensure, industry certification or further postsecondary training in related credit programs. In all such cases, they help to reach the state's Future Ready Iowa goal of having 70 percent of Iowans in the workforce with postsecondary education or training by 2025.

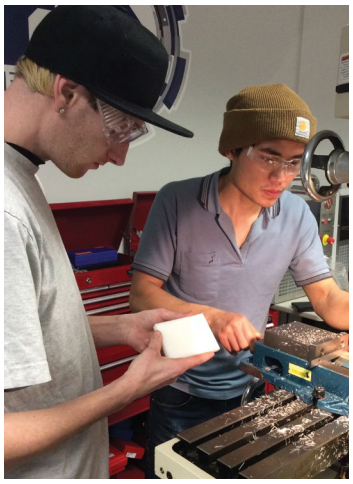
Over 145,000 Iowans each year receive industry-specific training through the noncredit CTE programs offered at Iowa's 15 public community colleges. This training is designed to develop technical and practical skills that employers require of today's workforce, as well as to prepare students for further education.

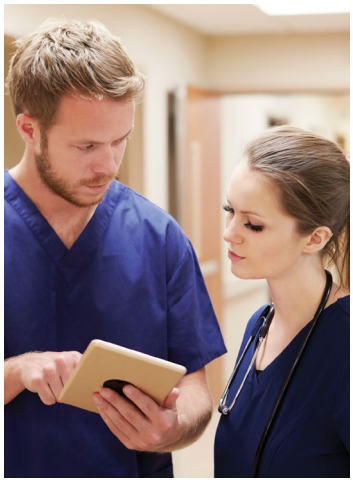
In this report you will find information about noncredit CTE program enrollment, completion, continuation into further education and training, employment, wages and in- and out-of-state migration. It also maps each of the 16 CTE career clusters to the industry of employment for those students who completed noncredit training programs in Academic Year (AY) 2017-2018 and matches to 2019 wage records.

Thank you for taking the time to review this report and for your ongoing support of career and technical education in Iowa. I look forward to working with you on statewide collaborative efforts to provide quality education and training programs designed to equip Iowans with the skills and knowledge to meet their career and educational goals. Only through the success of our students will Iowa's workforce be ready for future jobs and economic prosperity.

Sincerely,

Ann Lebo
Director
Iowa Department of Education





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Report Highlights

Noncredit Outcomes

Iowa Community College Noncredit Career and Technical Education (CTE) Programs

Academic Year 2018/2019

Programs Benefit Individuals, Employers and the State

The noncredit career and technical education (CTE) programs offered by Iowa's 15 community colleges provide targeted pathways that expedite the attainment of marketplace skills that benefit individuals, employers and the state.

These market-driven programs are highly responsive to regional workforce needs. They provide a starting point for individuals to acquire skills needed for high-demand job opportunities as well as satisfy continuing education units (CEUs) required of certain occupations. These programs also offer continuing education for individuals to stay current in their jobs, meet local employer needs with custom job training designed for workplace preparation and provide a pathway to further postsecondary education.

Student Demographics

As compared to credit-bearing students, noncredit CTE students at Iowa community colleges tend to be male, older and more racially diverse.

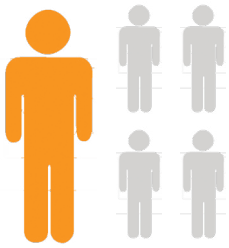
57.5% of noncredit CTE students were male compared to **43.9%** of credit students.

64.7% of noncredit CTE students were 25 years or older compared to **42.0%** of credit students.

24.8% of noncredit students were of a racial or ethnic minority group compared to **23.3%** of credit students.

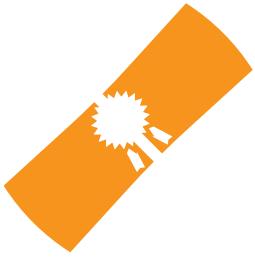
Continue Education

Noncredit CTE programs often lead to enrollment in credit programs, support credit students on their educational journey and help degree holders build and enhance current marketplace skills.



21.0% of noncredit students continue into credit-bearing programs.

Of those who continue into credit programs **85.0%** did so at an Iowa college or university.



4.2% of noncredit students hold previously earned postsecondary degrees.

Top 10 Noncredit Programs

Health care and transportation programs comprised the highest noncredit CTE enrollments at Iowa community colleges in AY 2018/2019.

Top Career Clusters

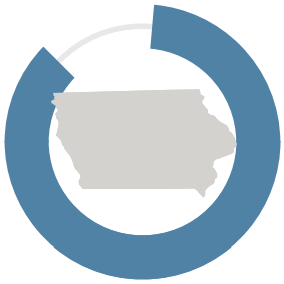
The National Career Clusters Framework organizes CTE programs into 16 career clusters. The top career clusters by noncredit enrollment are health science and transportation, distribution and logistics.

- 39.1% Health Science (3,380)
- 33.6% Transportation, Distribution & Logistics (2,903)
- 7.4% Manufacturing (643)
- 5.9% Architecture & Construction (512)
- 3.9% Business, Management & Administration (333)
- 2.8% Law, Public Safety, Corrections & Security (245)

Employment

The majority of students in noncredit CTE programs stay in Iowa and are employed the first year following exit from their programs.

90.4% of noncredit students were employed in the first year following exit from their programs.



80.6% of noncredit students were employed in the state of Iowa.

Top Industries for Employment

Of the noncredit students employed the year following program exit, over 72 percent work in the following top six industries:

- 28.3% Health Care & Social Assistance (2,172)
- 12.6% Manufacturing (965)
- 10.7% Transportation & Warehousing (824)
- 8.2% Construction (627)
- 6.8% Retail Trade (525)
- 5.6% Public Administration (470)

Earnings

Earnings in the first year following program completion vary based on a variety of factors, including the number of contact hours required by the program, employer demand and whether or not the programs were for continuing education credits. The following examples provide median annual wages for in-demand occupations by number of required contact hours.

Industrial Machinery Maintenance Technology

$81,552

32 to 99 Contact Hours

HVAC Installation & Repair

$57,808

100 to 200 Contact Hours

Precision Metal Working

$57,468

200+ Contact Hours

Read the full report and access the interactive dashboard:

Iowa Community Colleges Employment Outcomes: Noncredit Career and Technical Education Programs

Community Colleges & Workforce Preparation
Prosperity Through Education

Iowa Workforce Development

Introduction

Iowa's Community Colleges: Noncredit Career and Technical Education (CTE) Employment Outcomes Report, is a statewide analysis on the outcomes of students enrolled in community college noncredit programs. Additional data tables at the institutional level are also provided to colleges for administrators and policymakers to use as they engage in planning and program approval. According to the Community College Research Center (CCRC):

> *"Substantive information is needed on outcomes to assess fully the contributions of noncredit workforce education to students, employers and the community…it is crucial to document the value of noncredit workforce education for individuals and to determine which recorded outcomes have the most value for individuals in different occupations, industries and labor markets,"[1] (pg. 4, CCRC, 2008).*

In this report, employment and wages are analyzed to illustrate the important impact that the noncredit education and training provided by Iowa's community colleges has on the state's economy. Following students on the individual level is the preferred method of reporting education outcomes by program. Confidentiality laws, however, restrict the ability to link individual student records to employment and wages for most researchers. In addition, educational records and employment records are held in two different state agencies, the Iowa Department of Education (Department) and the Iowa Workforce Development (IWD).

The Department and IWD have overcome this hurdle by forming a partnership dedicated to evaluating and reporting education outcomes (i.e., continued education, employment and wages) for community college credit certificate, diploma and associate degree awards, as well as noncredit programs through strict data sharing agreements and confidentiality agreements.

NONCREDIT CTE PROGRAMS

Noncredit CTE programs offered by Iowa's 15 community colleges are market-driven programs that are highly responsive to regional workforce needs. These programs expedite the attainment of marketplace skills, equipping individuals to enter the labor market and secure gainful employment.

DATA ANALYSIS

Noncredit CTE programs were analyzed separately, by Classification of Instructional Program (CIP), in order to assess the benefits of each. To ensure a uniform approach to research, only programs consisting of 32 or more contact hours were analyzed, which is comparable to two credit hours and is the equivalent of the shortest credit certificate program in Iowa that has proven labor market value.

AGENCY PARTNERSHIP

The Iowa Department of Education and Iowa Workforce Development partnered to evaluate and report education, employment, and wage outcomes for individuals in noncredit CTE community college programs. This partnership has allowed for data sharing through agreements that adhere to all Unemployment Insurance (UI) and Family Educational Rights and Privacy Act (FERPA) regulations and rules. Research objectives are clearly stated in the agreements and limited staff have access. In addition, staff from both agencies signed confidentiality agreements pertaining to the reporting and use of student records.

[1] Van Noy, M., Jacobs, J., Korey, S., Bailey, T. & Hughes, K. L. (2008, March). *The Landscape of Noncredit Workforce Education: State Policies and Community College Practices*, CCRC Brief Number 38. NY, NY: Community College Research Center.

Future Ready Iowa

"Future Ready Iowa" is Governor Kim Reynolds' initiative designed to build Iowa's talent pipeline for the careers of tomorrow. The initiative was created after Iowa received a National Governors' Association grant in 2014 to develop strategies to improve the educational and training attainment of its citizens and to align degree and credential programs with employer demand.

Education and training beyond high school has become the new minimum threshold for Americans to earn a living wage and attain middle-class status. In 1973, only 28.0 percent of U.S. jobs required education beyond a high school diploma; by 2025, almost two out of three jobs in the nation are projected to require at least some postsecondary education or training [2]. Iowa's economy reflects this national trend and has seen a steady increase in the demand for postsecondary education and training in the industries that form the mainstay of the economy.

To address the demand for a more skilled workforce, Future Ready Iowa set a goal for 70 percent of Iowa's workforce to have education or training beyond high school by 2025. In 2016, a Future Ready Alliance was formed to develop a strategic plan for meeting this goal.

In 2017, the Future Ready Iowa Act, which addresses the Alliance's recommendations, was signed by Governor Reynolds via House File 2458. This act is designed to strengthen Iowa's talent pipeline by establishing a registered apprenticeship development program, a volunteer mentoring program, summer youth internships, summer postsecondary courses for high school students aligned with high-demand career pathways, an employer innovation fund and skilled workforce scholarship and grant programs.

[2] Carnevale, A.P., Smith, N., Gulish, A., and Hanson, A.R. (2015). *Iowa: Education and Workforce Trends through 2015.* Washington D.C. Georgetown University Center on Education and the Workforce.

FUTURE READY IOWA GOAL

The goal of Future Ready Iowa is for 70 percent of Iowa's workforce to have education or training beyond high school by 2025.

FUTURE READY IOWA

The Future Ready Iowa initiative:

- builds Iowa's talent pipeline to ensure the state has a workforce ready to fill the high-quality, well-paying jobs of today and tomorrow;
- aligns Iowa's education, workforce, and economic developmental efforts to overcome skills gaps; and
- assesses workforce demands and aligns programming to ensure Iowans have the skills necessary to obtain employment in high-demand occupations.

A Collaborative Approach

Future Ready Iowa is not an isolated program, but rather a collaborative approach to highlighting best practices, nurturing high-quality partnerships, and ensuring taxpayer dollars are focused on those areas that will maximize progress toward our shared goal.

Iowa's CTE Programs

A study published by the American Association of Community Colleges (AACC) [3] indicates that the following overarching issues affect community college noncredit workforce education:

1. the extent to which noncredit workforce education and state policies play a role in workforce development, provide disadvantaged groups with access to higher education and generate revenue for colleges;
2. how colleges organize their noncredit workforce programs to balance the tradeoffs between the desired flexibility of noncredit education and the integration of credit and noncredit programs; and
3. the extent to which noncredit workforce education provides recorded outcomes for students, such as transcripts or industry certifications, and the extent to which outcome data are available.

RESEARCH HIGHLIGHTS

Noncredit CTE Enrollment

Of the 199,611 noncredit program enrollments at Iowa's community colleges during AY 2018/2019, over half (52.3 percent), or 104,346, were in noncredit career and technical education programs.

Iowa community colleges offer both credit-bearing and noncredit CTE programs throughout the state. Programs vary based on the demand for particular skill sets identified through sector boards, employer relationships and local labor market data. In some portions of the state, noncredit enrollment represents the highest percentage of all CTE enrollment. Figure 1, on the following page, illustrates the percentage of noncredit enrollments (including those less than 32 contact hours) as it relates to total credit and noncredit CTE enrollment by college. For example, the number of total credit and noncredit enrollments during AY 2018-2019, for Des Moines Area Community College (DMACC), was 35,961 credit students, and noncredit enrollments 20,699 students, representing 36.5 percent of students, whereas the noncredit enrollments for North Iowa Area Community College (NIACC) represent 74.8 percent (11,497 of 15,363) of the total enrollments.

[3] Van Noy, M., Jacobs, J., Korey, S., Bailey, T. & Hughes, K. L. (2008). *Noncredit Enrollment in Workforce Education: State Policies and Community College Practices.*

FIGURE 1. PERCENTAGE OF NONCREDIT CTE ENROLLMENT TO TOTAL CTE ENROLLMENT (TOTAL OF ALL CREDIT AND NONCREDIT AY 2018-2019)

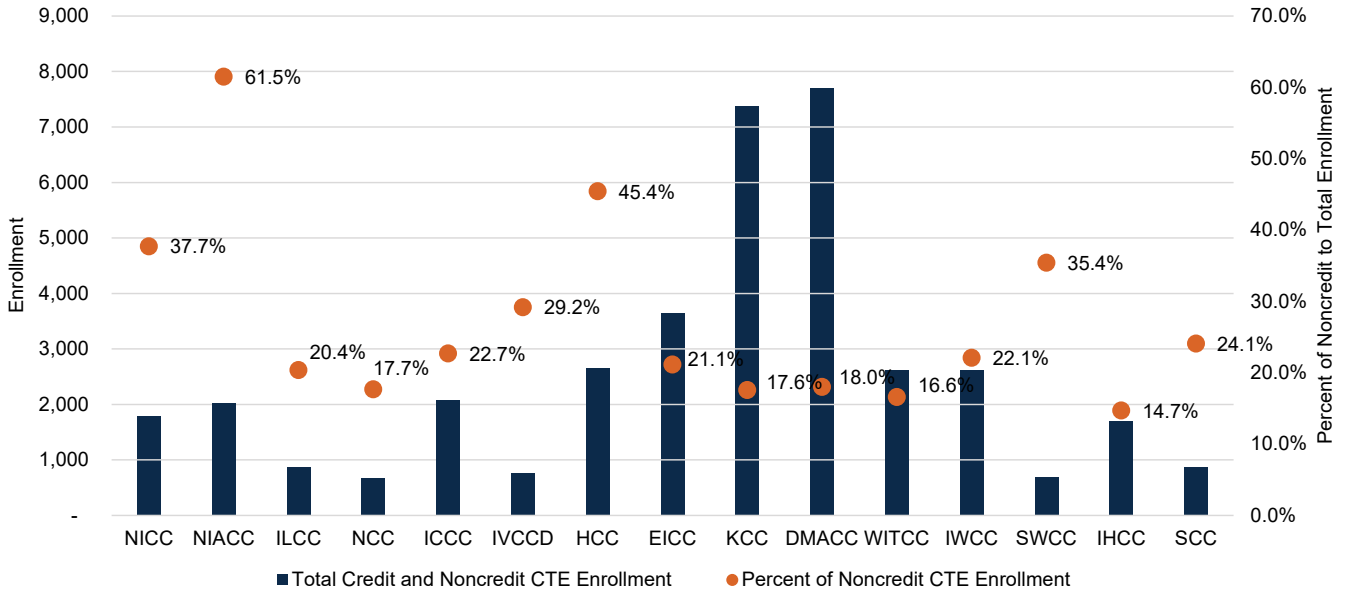


Figure 1 Abbreviation Key:

NICC - Northeast Iowa Community College

NIACC - North Iowa Area Community College

ILCC - Iowa Lakes Community College

NCC - Northwest Community College

ICCC - Iowa Central Community College

IVCCD - Iowa Valley Community College District

HCC - Hawkeye Community College

EICC - Eastern Iowa Community Colleges

KCC - Kirkwood Community College

DMACC - Des Moines Area Community College

WITCC - Western Iowa Tech Community College

IWCC - Iowa Western Community College

SWCC - Southwestern Community College

IHCC - Indian Hills Community College

SCC - Southeastern Community College

Overview of the Research

Noncredit coursework/programs are in high demand in Iowa, yielding 199,611 enrollments in the 2018-2019 academic year (AY 2018-2019). Of those, there were 104,346 noncredit career and technical education (CTE) enrollments (52.3 percent).

For data consistency, it was necessary to establish criteria to define noncredit programs [4]. Thirty-two (32) contact hours was determined to be comparable to two credits, which is the equivalent of the shortest credit certificate program in Iowa that has proven labor market value. Additionally, programs are grouped by those containing 32 to 99, 100 to 200 and more than 200 contact hours to further distinguish among programs and their impact on the workforce. All data were extracted from the Management Information System (MIS) based on these criteria.

Compared to credit enrollment, noncredit students are more likely to be enrolled in multiple programs and less likely to provide personal identification such as social security number (SSN), race/ethnicity or date of birth. Therefore, prior to following the students into the workforce and further education, students without SSNs and/or birthdates were excluded from the analysis due to matching restrictions. Matching to Unemployment Insurance (UI) wage records is conducted using SSNs, and birthdates are needed to match to the National Student Clearinghouse (NSC). This process limited the analysis to 8,647 students out of the 9,555 enrolled in noncredit CTE programs with at least 32 contact hours in AY 2018-2019.

Once extracted, data were sent to the NSC to identify students who enrolled in credit-bearing programs after their noncredit CTE programs at the community college. These individuals may have transferred from one community college to another, continued their education at their current locations or transferred to four-year institutions. Transfer students were analyzed by college type (two- or four-year, and private or public) and by transfer location, allowing for the study of graduate out-migration (leaving Iowa).

Next, data were sent via secure file transfer to IWD to match the records to the UI wage records. This match provided employment, wage and industry data by quarter using the following timeframes:

- Quarter 1: January 1 to March 31
- Quarter 2: April 1 to June 30
- Quarter 3: July 1 to September 30
- Quarter 4: October 1 to December 31

Four different cohorts (AY 2015-2016, AY 2016-2017, AY 2017-2018 and AY 2018-2019) were analyzed in this report:

Year Prior to Enrollment in Noncredit - The four full quarters prior to the quarter in which the individual started his or her earliest noncredit course.

During Enrollment in Noncredit - All quarters, including and between the quarter in which the individual started his or her earliest noncredit course and exited his or her latest noncredit course.

Year Following Enrollment in Noncredit - The four full quarters following the quarter in which the individual exited his or her last noncredit course.

Due to the confidentiality of the wage record data, IWD processed the records and returned aggregate data for the Department to analyze and use in this report. Data was thoroughly scrutinized to maintain confidentiality and all rules, regulations and restrictions for each of the data sources was strictly followed. Additionally, data-sharing agreements have gone through comprehensive legal review.

[4] Iowa Department of Education, Division of Community Colleges and Workforce Preparation, Methodology and Research Limitations, Data Field Formation, Program of Study (POS).

Demographics of Noncredit CTE Students

This annual report contains four cohorts of data with the intention to longitudinally study students from AY 2015-2016 forward. Of the 37,947 noncredit CTE students in aggregate studied, over half (55.1 percent) were male (N=20.921) and 16,001 were female. Additionally, there was a small number of students who did not indicate gender (N=1,025).

The students were divided into two age groups, under 25 years of age and 25 years or older. Nearly two-thirds (62.6 percent) of noncredit students studied were age 25 years or older (N=23,771) and 14,176 were under the age of 25.

Race/ethnicity was also identified; however, a significant number of students (N=15,100) did not report race/ethnicity. Of the 22,847 who did report, 73.2 percent were white/non-Hispanic (N=16,716) and 6,131 were minority students.

FIGURE 2. AGE GROUPS BY GENDER

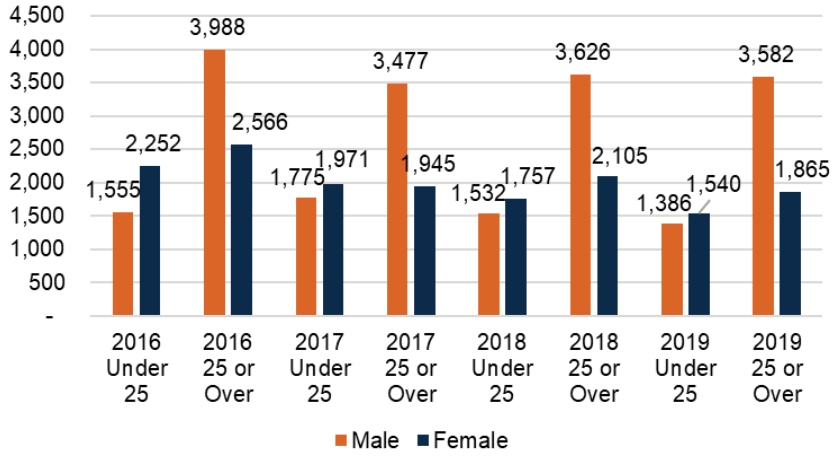
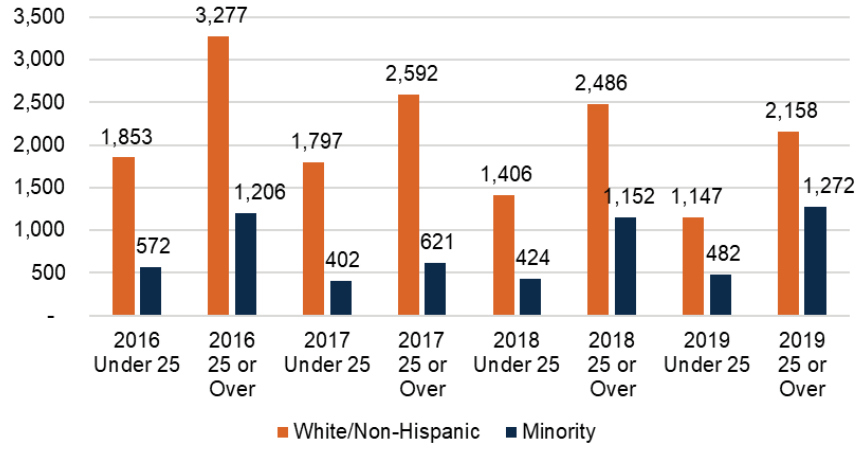


FIGURE 3. AGE GROUPS BY RACE/ETHNICITY



DEMOGRAPHICS

Overall, the majority of community college noncredit CTE students were 25 years of age and older, white/non-Hispanic and male.

AGE

- 62.6 percent of students were 25 years of age and older.
- 69.3 percent of all students who self-identified as being a minority were 25 years of age and older.

GENDER

- 55.1 percent of students who indicated their gender were male.

RACE/ETHNICITY

- 26.8 percent of students who indicated their race/ethnicity identified themselves as being minorities.

Noncredit CTE Programs by Gender and Age

Classification of Instructional Program (CIP) codes reported through the MIS are six digits in length and used to categorize programs. These codes, for purposes of simplicity, have been aggregated to the first two digits (series), which represents the overarching program title.

Table 1 illustrates the noncredit CTE programs by two-digit CIP, with the number of students in each, reported by gender and age grouping. The largest program by enrollment encompasses training in the Health Professions and Related (N=15,779), followed by Transportation and Materials Moving (N=9,635).

RESEARCH HIGHLIGHTS

High Program Enrollments

Of the 37,947 noncredit students (academic years 2016 to 2019), 41.6 percent were enrolled in health-related noncredit CTE programs, followed by 25.4 percent in noncredit CTE transportation and materials moving programs.

TABLE 1. NONCREDIT CTE PROGRAMS BY 2-DIGIT CIP GENDER & AGE

CIP Description	Under Age 25			Age 25 and Older			Total
	Male	Female	Unknown	Male	Female	Unknown	
Health Professions & Related	1,269	6,908	325	1,586	5,399	292	15,779
Transportation & Materials Moving	2,694	148	14	5,969	756	54	9,635
Business Management, Marketing & Related	138	152	10	1,034	1,275	49	2,658
Mechanics & Repairers, General	525	24	12	1,742	73	48	2,424
Engineering Technologies & Engineering Related	296	34	4	1,519	210	35	2,098
Precision Production Trades	508	59	19	1,176	164	33	1,959
Homeland Security, Law Enforcement, Firefighting & Related Protective Services	487	64	15	857	92	45	1,560
Construction Trades	215	12	-	357	21	12	617
Computer & Information Sciences & Support Services	33	8	-	175	88	21	325
Family & Consumer Sciences/Human Sciences	7	36	4	37	141	10	235
Education	5	27	2	62	129	1	226
Agriculture	22	3	2	55	12	14	108
Communications Technologies/Technicians & Support Services	9	17	-	27	33	-	86
Foreign Languages, Literatures & Linguistics	1	8	1	17	45	-	72
Personal & Culinary Services	12	9	-	32	8	1	62
Visual & Performing Arts	23	6	-	18	9	-	56
Communication, Journalism & Related Programs	1	1	-	5	12	1	20
Parks, Recreation, Leisure & Fitness Studies	2	2	-	4	4	-	12
Legal Professions & Studies	1	1	-	1	8	-	11
Human Services	-	1	-	-	2	1	4
Total	**6,248**	**7,520**	**408**	**14,673**	**8,481**	**617**	**37,947**

Female students dominate enrollment in the health profession programs (81.2 percent), whereas male students represent 90.6 percent in the transportation-related CIPs. Interestingly, enrollment quadruples for female students entering transportation programs when looking at the age group of those who are 25 years of age or over (N=148 to N=756).

RESEARCH HIGHLIGHTS

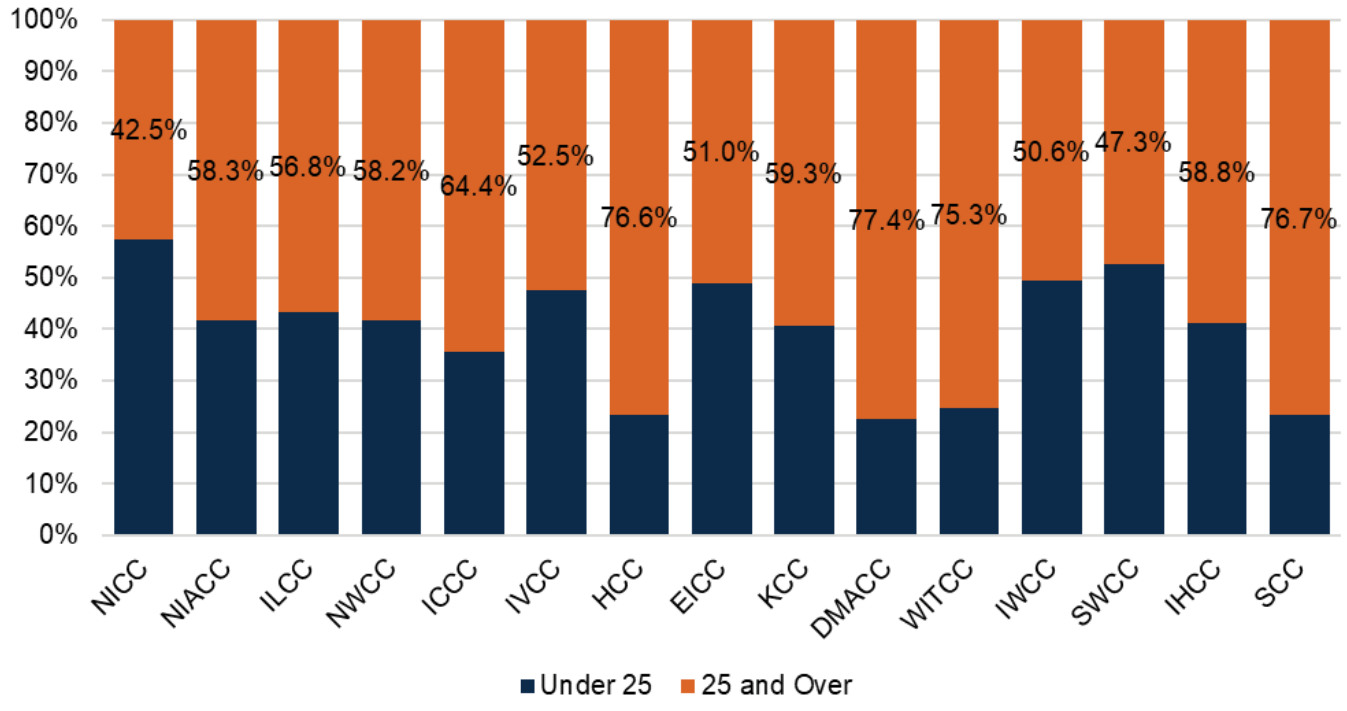
Number of Contact Hours

The majority of students, 63.1 percent, enroll in noncredit CTE programs that require between 32 to 99 hours to complete.

An additional point that is noteworthy is the difference in number of enrollments by program for the younger students versus older students. In previous years, higher numbers of students 25 or older enrolled in transportation, business management, mechanics/repair and engineering technology programs, while more students under 25 enrolled in a variety of high demand occupations such as precision trades, transportation, construction and law enforcement. This report reflects that the proportion of students was very similar.

Figure 4 illustrates the proportion of noncredit students by age group for each college. In four colleges, over 70 percent of the students enrolled in noncredit programs were age 25 years or older. The distribution of age does not seem to be contingent on geography as there are both urban and rural colleges that enrolled high proportions of noncredit students over the age of 25.

FIGURE 4: PROPORTION OF NONCREDIT STUDENTS BY AGE GROUP AND BY COLLEGE



Note: *College abbreviations are defined under Figure 1, Page 4.*

Additional analysis was conducted to determine whether age played a role in relation to the length of the program in which the noncredit students enrolled. There was little difference in the percentage of enrollees when cross-tabulated by age (Table 2). Two-thirds (65.0 percent) of those under the age of 25 were enrolled in programs with 32 to 99 contact hours, 24.8 percent in 100 to 200 contact hours and 10.2 percent in programs that were over 200 contact hours. Similarly, 62.0 percent of those 25 years of age or older enrolled in programs that were 32 to 99 contact hours, 23.4 percent enrolled in 100 to 200 contact hours and 14.6 percent in programs that were over 200 contact hours in length.

TABLE 2. CONTACT HOURS BY AGE GROUP

Student Age Group	32 to 99 Contact Hours		100 to 200 Contact Hours		Over 200 Contact Hours	
	#	%	#	%	#	%
Under 25 Years of Age	9,216	65.0	3,509	24.8	1,451	10.2
25 Years of Age and Older	14,740	62.0	5,568	23.4	3,463	14.6
Total	**23,956**	**63.1**	**9,077**	**23.9**	**4,914**	**12.9**

Pursuing Credit-Bearing Education

Using the NSC database, the Department was able to identify whether noncredit students transferred to or continued at postsecondary institutions that were in- or out-of-state, two- or four-year or private or public. Table 3 illustrates the distribution of students from the AY 2018-2019 cohort who enrolled in credit programs the first year following exit from their noncredit program (N=1,618). This distribution includes students who were enrolled in credit programs previously, during and following their noncredit program enrollment.

RESEARCH HIGHLIGHTS

High Program Enrollment

Of the 23,771 noncredit students (academic years 2016 to 2019), 41.6 percent were enrolled in health-related noncredit CTE programs, followed by 25.4 percent in noncredit CTE transportation and materials moving programs.

The majority of students (62.5 percent) who continued their education were under age 25 (N=1,011). Most of this group went on to credit-bearing programs at an in-state institution (N=906), while only 7.8 percent (N=105) of students continued their education at out-of-state institutions.

Of those under age 25 who continued their education in-state, 425 (70.0 percent) continued their education at a two-year public college and 5.6 percent transferred to public four-year institutions.

TABLE 3. FURTHER CREDIT EDUCATION, FIRST YEAR FOLLOWING NONCREDIT EXIT: AY 2020 COHORT

Year Following Noncredit Program at Community College	Characteristics of Institution		Continued Education In-State		Continued Education Out-of-State	
	2yr/4yr	Public/ Private	#	%	#	%
Under 25 Years of Age						
2020	2 yr	Private	0	0.0	0	0.0
		Public	553	41.1	39	2.9
	4 yr	Private	138	10.3	23	1.7
		Public	215	16.0	43	3.2
Total 2020 Cohort Under 25			**906**	**67.4**	**105**	**7.8**
25 Years of Age and Older						
2019	2 yr	Private	0	0.0	0	0.0
		Public	425	70.0	34	5.6
	4 yr	Private	45	7.4	33	5.4
		Public	34	5.6	36	5.9
Total 2020 Cohort 25 and Older			**504**	**83.0**	**103**	**17.0**

The out-of-state enrollment percentage of students age 25 and over is greater than that of students under age 25 with 17.0 percent of students continuing their education at out-of-state institutions, in aggregate. However, when analyzing the in-state data for students 25 years of age or older, 425 (70.0 percent) continued their education at one of Iowa's community colleges and only 5.6 percent transferred to a public four-year institution (Table 3).

Overall, the majority of students from the academic year 2019 cohort (85.0 percent), continued their education in credit-bearing programs in Iowa.

RESEARCH HIGHLIGHTS

Credit-Bearing Programs

Of the students in academic year 2018-2019, more than one-fifth (21.0 percent) of all noncredit CTE students continued their education in credit-bearing programs.

Noncredit students fall into multiple categories when it comes to engagement with educational opportunities at Iowa's community colleges. There are those who were enrolled in a credit program prior to enrollment in the noncredit program, those who enrolled in noncredit while in credit programs (concurrently) and those who continued their education by entering a credit program following their experience with a noncredit program.

There are many reasons for the variety of enrollment patterns when it comes to noncredit CTE. Some students attend a noncredit program for continuing education credits or to gain additional skills during enrollment in a credit program, while others enroll to prepare for employment in a specific field.

Figure 5 shows that in AY 2018-2019 there were 2,048 students enrolled in a credit program prior to enrollment in noncredit compared to AY 2016-2018 which had 2,137 students enrolled in a credit program the year prior to enrolling in their noncredit program. However, there were a few more students enrolled during their noncredit program in AY 2018-2019 (2,155 compared to 2,130), but a decline in those who enrolled the year following the completion of their noncredit program (1,952 compared to 2,059). There were 1,191 students enrolled in credit programs both preceding and following their noncredit enrollment in AY 2018-2019, however of those there were 511 students who were not enrolled in credit programs before yet enrolled in a credit program following completion, showing an increase in new credit students of 50.3 percent over the prior year.

FIGURE 5. NUMBER OF NONCREDIT CTE STUDENTS ENROLLED IN CREDIT PROGRAMS

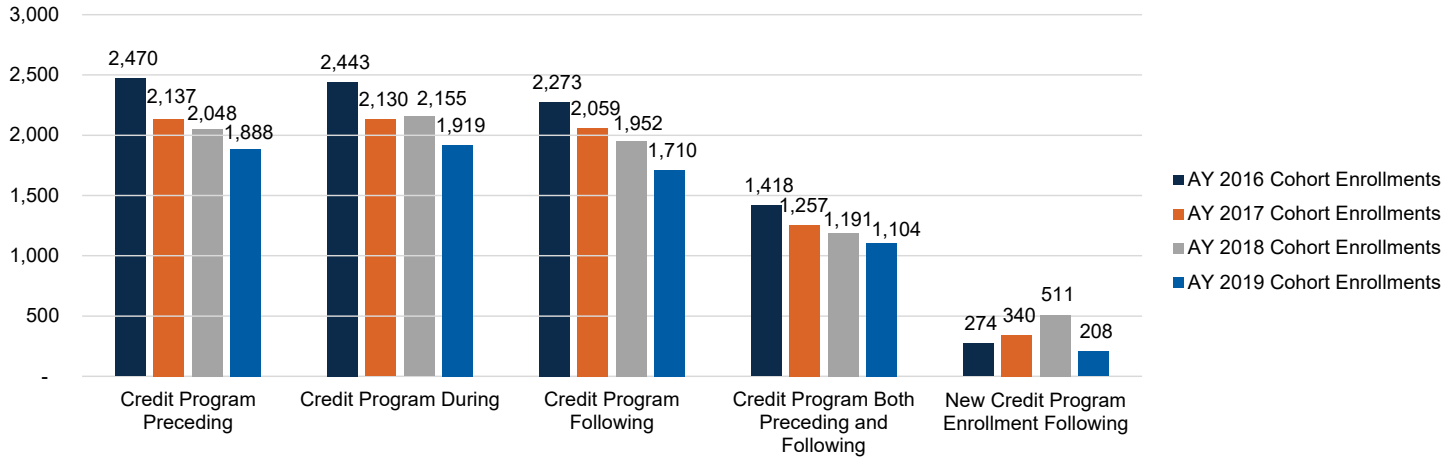
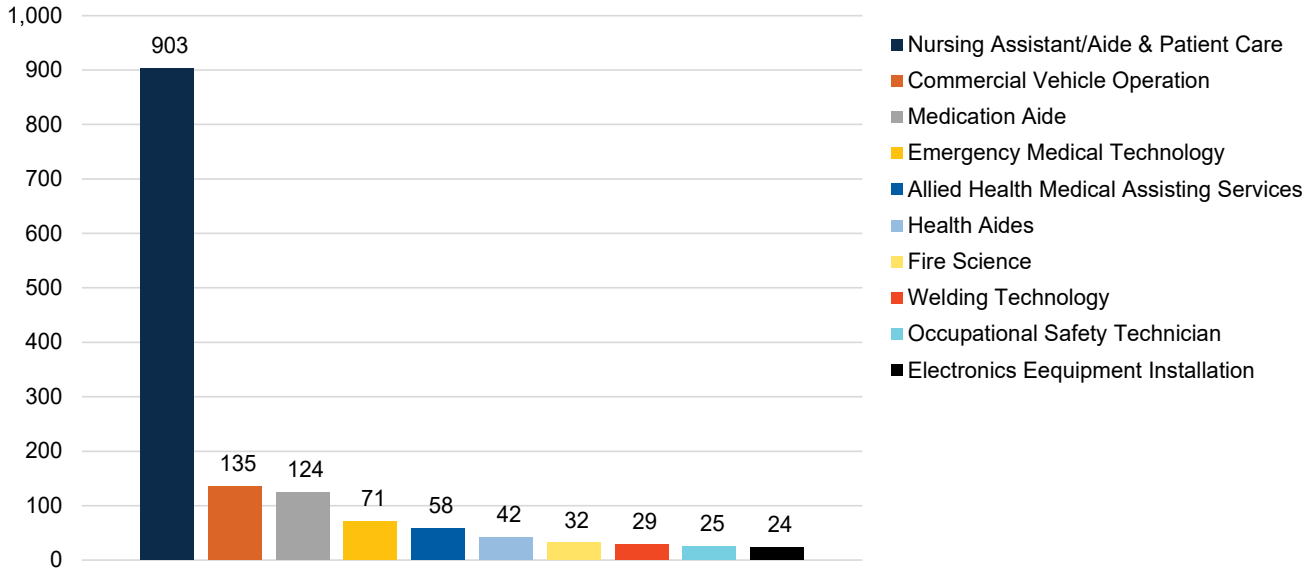


Figure 6 shows the top ten noncredit programs that this group of students completed before continuing on with their credit-bearing program. The majority (N=1,088) of noncredit students were enrolled in the Nursing Assistant/Aide program and 178 others in the commercial vehicle operation program.

FIGURE 6. TOP 10 NONCREDIT PROGRAMS COMPLETED BY THOSE WHO CONTINUED CREDIT-BEARING PROGRAMS, NOT PREVIOUSLY ENROLLED



Supplementary data were collected regarding previous credit-bearing education completed by noncredit students. Overall, there were 432 students in the AY 2018-2019 cohort who had previous awards/degrees. Of those students who had degrees, there were 162 (37.5 percent) who had a bachelor's degree and 270 (62.5 percent) had a two-year degree, certificate or diploma.

Education Retention and Migration

RESEARCH HIGHLIGHTS

Continued Education in Iowa

Of the 1,952 noncredit students who continued into a credit-bearing program, 85.0 percent enrolled at an Iowa college or university.

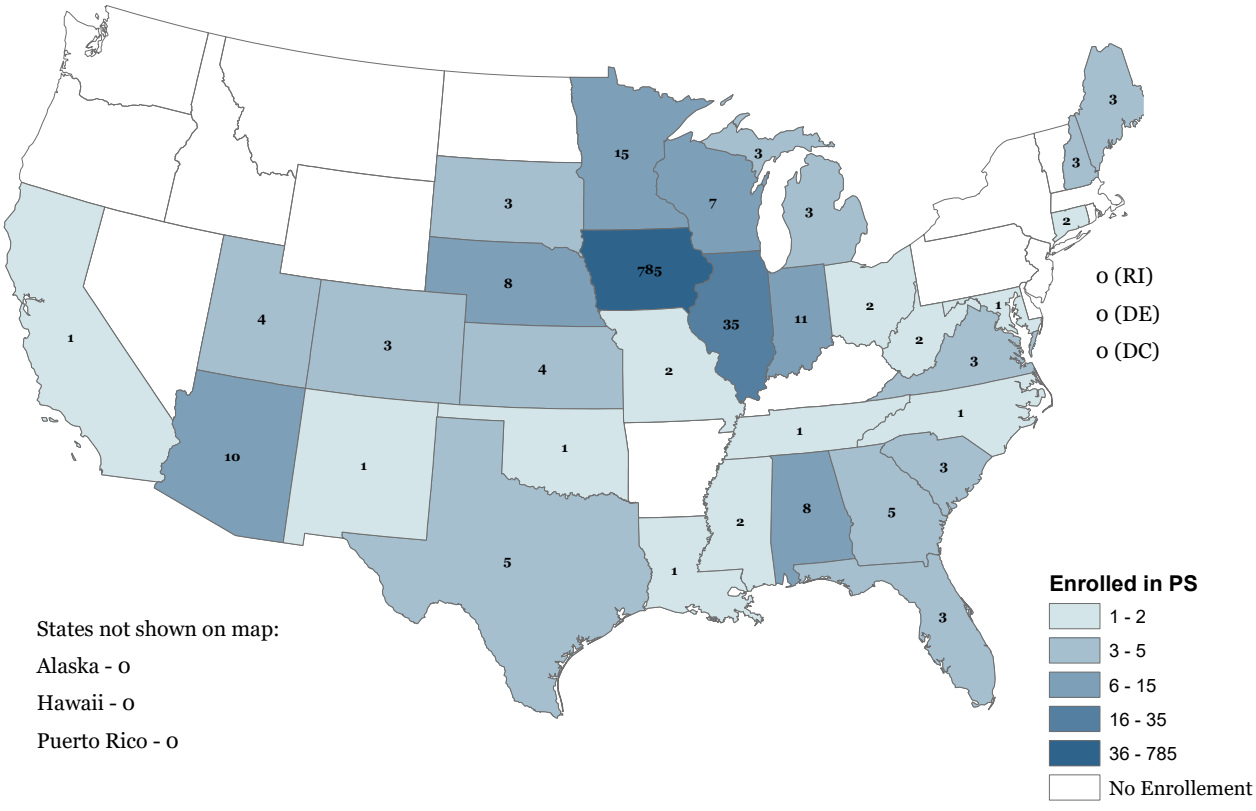
The vast majority (85.0 percent) of noncredit students who enrolled in a credit-bearing program after exiting their noncredit program remained in Iowa (N=1,952). Of those students who continued their education at an institution outside of Iowa, most enrolled in one of Iowa's contiguous states such as Illinois (N=64), Nebraska (N=49) or Minnesota (N=32). For those who ventured farther away, the highest concentrations of migrating students enrolled at institutions in Arizona (N=9), California (N=8) or Utah (N=8) within one year after exiting their noncredit program.

Figure 7 represents aggregate numbers for those who continued their education either in- or out-of-state one year after exit (AY 2018-2019 only).

When looking at migration patterns, whether it be students who transferred to an out-of-state college or sought employment outside of Iowa, percentages are relatively small (15.0 and 16.9 percent, respectively). Those employed are studied in subsequent sections of this report.

Note: *If students were enrolled in different colleges at the same time, we report the college based on hierarchy with preference to four-year institutions.*

FIGURE 7. AY 2018-2019 COHORT EDUCATIONAL MIGRATION, FIRST YEAR FOLLOWING NONCREDIT PROGRAM EXIT



Workforce Cohort

When analyzing wage and employment data, it is important to note the restrictions and limitations of the Iowa UI and State Wage Interchange System (SWIS) data, as explained in the Methodology and Research Limitations section of this report. Three important factors that impact the data are: (1) the wage data only represents employees of companies that pay UI tax; (2) the number of hours worked are not reported within the data, making it impossible to identify part- versus full-time employment; and (3) data are not reported by occupation, only by industry. The unmatched records from both data sources encompass graduates who may be employed by employers that do not pay UI tax or those who were unemployed for the described periods of time.

RESEARCH HIGHLIGHTS

Employment and Wages

In the year following exit from a noncredit program, the percent of individuals who were employed increased by 18.5 percentage points and median wages increased 16.0 percent from the year prior to entry.

Some noncredit students were employed prior to, during or after enrolling in their programs. In order to measure the increase of employment percentage and overall wages, Figures 8 and 9 were created to illustrate the overall impact of noncredit training. Since students enter and complete noncredit programs at different times throughout the academic year, their wages were captured based on their college start and exit date independently, then aggregated relative to those dates.

The AY 2015-2016 cohort has a total of 90 students who were enrolled while incarcerated, in AY 2016-2017 there were an additional 45 students, in AY 2017-2018 there were 55 students and in 2018/2019 there were 141 students. Therefore, all 331 students were removed for employment and wage calculations based on their inability to be gainfully employed during incarceration. Previously incarcerated students, once released, are analyzed for employment and recidivism outcomes annually and the report can be found at: https://educateiowa.gov/sites/files/ed/documents/IowaEmploymentandRecidivismOutcomes2021.pdf

Using the adjusted total of 8,506 students in the AY 2018-2019 cohort, a total of 6,117 (71.9 percent) matched employment in the year prior to enrollment in noncredit programs while 7,686 students (90.4 percent) matched employment in the year following exit. This represents an 18.5 percent percentage point increase in employment. Figure 8 illustrates these percentages of students who matched employment prior to, during and following enrollment in noncredit programs. Wage and employment data and accompanying tables for the AY 2015-2016 to 2018-2019 cohorts can be accessed on the Iowa Department of Education's website: https://www.educateiowa.gov/iowa-community-college-program-outcomes.

In order to compare and aggregate wages across the quarters being analyzed, a cost of living adjustment was applied to quarterly median wages and documented as the Adjusted Median Wage in Figure 9 (a detailed explanation is contained in the Methodology and Research Limitations section of this report). This adjustment is used to standardize wages in order to determine whether "real" wages have increased over the study period. The primary reason for utilizing the median quarterly wage for analysis (rather than mean) is that it mitigates the effects of outliers to provide a more accurate representation of the typical employee's wages.

Figure 9 provides wage data by quarter from the first year following completion of the cohort. The adjusted median quarterly wage increased from $7,411 in the year prior to enrollment in noncredit CTE programs to $8,596 in the year following exit for the AY 2018-2019 cohort, which represents a 16.0 percent increase in median wages. This data is reflective of the cohort in its entirety and will vary based on the program completed, which is studied further in the following pages.

FIGURE 8. OVERALL PERCENT MATCHED TO EMPLOYMENT: AY 2018-2019 COHORT

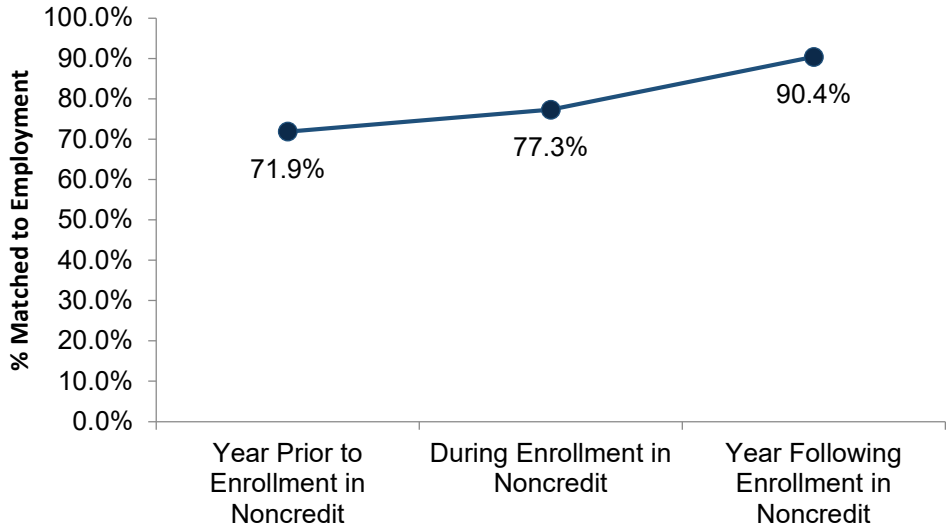
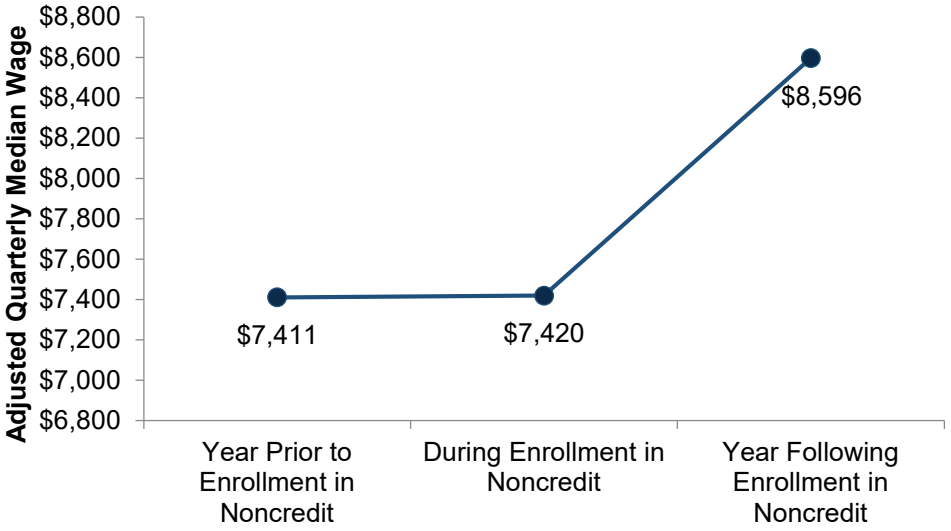


FIGURE 9. OVERALL ADJUSTED QUARTERLY MEDIAN WAGES: AY 2018-2019 COHORT



Employment and Wages by State

The SWIS was used to identify individuals who were employed out-of-state the year following exit from their noncredit program based on primary employment. Though the records do not identify hours worked (i.e., full- or part-time), overtime or occupation, they do identify the number of graduates working in other states.

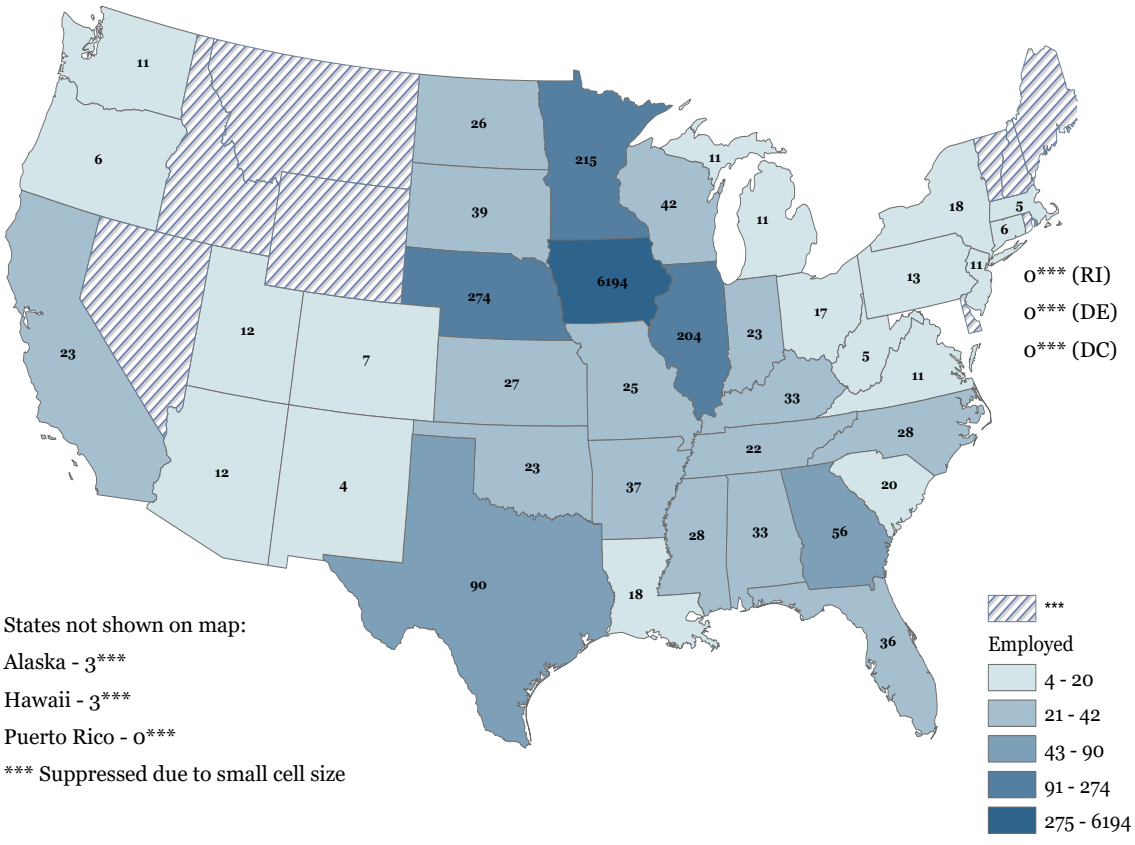
RESEARCH HIGHLIGHTS

Employment in Iowa

80.6 percent of individuals matched to employment records in the first year following exit from a noncredit program were employed in Iowa.

Figure 10 illustrates that the majority of those who exited a noncredit CTE program in AY 2018-2019 and matched to employment data in the first year following exit, remained in Iowa (80.6 percent). Similar to those who continued their education, most graduates who were employed outside of Iowa were employed in bordering states, such as Nebraska and Minnesota. There were, however, notable numbers of students who were employed in Texas (N=90), Georgia (N=56) and Arkansas (N=37) the first year following exit.

FIGURE 10. PRIMARY EMPLOYMENT BY STATE, FIRST YEAR FOLLOWING COMPLETION: AY 2018-2019 COHORT



Employment and Wages by Age and Gender

As previously reported, there were more male students enrolled in noncredit programs in Iowa community colleges than female students. Similarly, of the students eligible for employment analysis that reported their gender in the AY 2018-2019 cohort, 58.6 percent identified themselves as male (Figure 11).

Table 4 provides the employment and wages of AY 2018-2019 program exiters by age group and gender. Female students under 25 years of age matched employment at a higher rate (94.7 percent) than male students in the same age group (88.9 percent), but their adjusted quarterly median wage was much lower than that of the male students, ($4,637 to $9,094, respectively). The data in the table also shows that 11.5 percent of male students under 25 years of age held a previously earned degree.

When analyzing the gender disparity for the 25 years and older group who had previous degrees (N=104), a smaller proportion of male students held previous degrees (1.8 percent) than female students (2.3 percent). However, the wage disparity between female students and male students still exists, with women earning $4,583 per quarter less than men.

To do a more in-depth analysis of the gender wage gap among recent Iowa community college noncredit exiters, other factors would need to be controlled, such as program and industry type. Industry of employment by gender data is available in Appendix A (data tables) and can be accessed through the Department's website at: https://www.educateiowa.gov/iowa-community-college-program-outcomes.

FIGURE 11. PERCENT OF STUDENTS BY GENDER: AY 2018/2019 COHORT

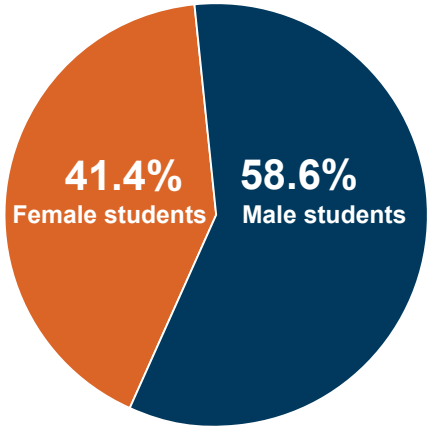


TABLE 4. EMPLOYMENT AND WAGES BY AGE & GENDER, FIRST YEAR FOLLOWING EXIT: AY 2018-2019 COHORT

Age	Gender	Number in Cohort	Previous Degree		Matched to Employment		Adjusted Quarterly Median Wage
			#	%	#	%	$
Under 25	Female	1,540	84	5.5	1,459	94.7	$4,637
Under 25	Male	1,362	157	11.5	1,211	88.9	$9,094
Under 25	Unknown/Not Reported	123	10	8.1	110	89.4	$4,814
25 and Over	Female	1,865	42	2.3	1,727	92.6	$7,871
25 and Over	Male	3,466	62	1.8	3,058	88.2	$12,454
25 and Over	Unknown/Not Reported	150	0	0.0	121	80.7	$9,817

Note: *2019 wages defined as October 1, 2018, through September 30, 2019.*

Employment and Wages by Age and Race/Ethnicity

Figure 12 shows the breakdown of those who identified their race/ethnicity for the AY 2018-2019 cohorts. Nearly two-thirds (65.4 percent) of the noncredit students identified themselves as white/non-Hispanic, while 34.6 percent identified themselves in a racial/ethnic minority category (an increase of 5.9 percent from AY 2017/2018). There were 3,585 students who did not report this data element and were excluded from Figure 12.

Table 5 probes into the data further by breaking out the employment and wages associated with these groups by age. As illustrated below, wages vary substantially for those students over the age of 25 when the race/ethnicity cross-tabulation is applied. The white/non-Hispanic group earned an adjusted quarterly median wage of $11,734, whereas the racial/ethnic minority group had an adjusted quarterly median wage of $7,493 per quarter (36.1 percent less). The disparity is smaller for the under 25 age group, but the white/non-Hispanic group ($6,321) still has a higher quarterly median wage than those in the racial/ethnic minority group ($5,233). Previous degrees held, for both age groups, were higher for white/non-Hispanic students than the racial/ethnic minority students, which could account for a portion of the wage disparity.

FIGURE 12. PERCENT OF ENROLLMENTS BY RACE/ETHNICITY: AY 2018-2019 COHORT

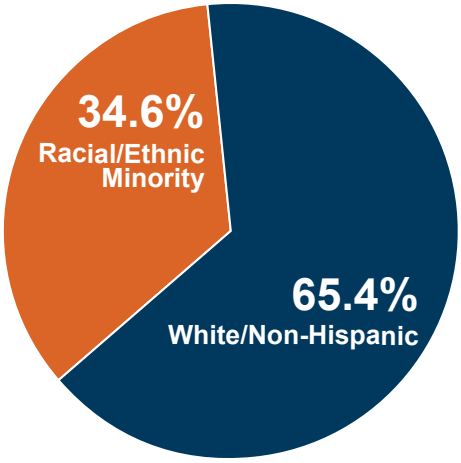


TABLE 5. EMPLOYMENT AND WAGES BY AGE AND RACE/ETHNICITY, FIRST YEAR FOLLOWING EXIT: AY 2018-2019 COHORT

Age	Race/Ethnicity	Number in Cohort	Previous Degree		Matched to Employment		Adjusted Quarterly Median Wage
			#	%	#	%	$
Under 25	Racial/Ethnic Minority	469	14	3.0	430	91.7	$5,233
Under 25	White/Non-Hispanic	1,137	96	8.4	1,063	93.5	$6,321
Under 25	Unknown/Not Reported	1,419	141	9.9	1,287	90.7	$6,087
25 and Over	Racial/Ethnic Minority	1,235	22	1.8	1,063	86.1	$7,493
25 and Over	White/Non-Hispanic	2,080	49	2.4	1,930	92.8	$11,734
25 and Over	Unknown/Not Reported	2,166	33	1.5	1,913	88.3	$10,691

Employment and Wages by Industry Sector

Table 6 shows the number of students, percentage of employment and quarterly median wages by industry sector for the AY 2018-2019 cohort in the first quarter prior to entry and the first quarter after completion of a noncredit CTE program. The industry sectors displayed are based on the North American Industry Classification System (NAICS) code included in the Iowa and SWIS wage data.

Industry sectors are defined by the type of business that an employer engages in, not the occupation of an employee (defined by the day-to-day tasks the employee performs). Occupational data is not included in the UI wage records, so there is no way to determine if the student actually acquired or transferred to a job which matched her or his training, but assumptions can be made by industry staffing patterns and wages.

TABLE 6. MEDIAN WAGES BY INDUSTRY, YEAR PRIOR TO ENROLLMENT AND FOLLOWING EXIT: AY 2018-2019 COHORT (TOP TEN INDUSTRIES BY EMPLOYMENT)

Industry Sector of Employment	Year Prior to Noncredit Enrollment			Year Following Noncredit Enrollment		
	Matched to Employment		Adjusted Quarterly Median Wage	Matched to Employment		Adjusted Quarterly Median Wage
	#	%	$	#	%	$
Health Care & Social Assistance	1,462	23.9	$6,223	2,172	28.3	$6,831
Manufacturing	878	14.4	$11,351	965	12.6	$13,623
Transportation & Warehousing	117	1.9	$7,634	824	10.7	$7,154
Construction	515	8.4	$8,577	627	8.2	$11,474
Retail Trade	723	11.8	$3,415	525	6.8	$6,200
Public Administration	388	6.3	$12,522	470	6.1	$14,317
Wholesale Trade	294	4.8	$9,568	417	5.4	$11,534
Administrative & Support Services	395	6.5	$3,675	409	5.3	$5,459
Educational Services	232	3.8	$5,921	294	3.8	$6,452
Accommodation & Food Services	393	6.4	$2,143	234	3.0	$2,905
Professional, Scientific & Technical Services	137	2.2	$9,865	177	2.3	$12,257
Finance & Insurance	143	2.3	$12,252	118	1.5	$15,277
Agriculture, Forestry, Fishing & Hunting	97	1.6	$6,439	96	1.2	$9,709
Other Services	106	1.7	$5,401	94	1.2	$6,907
Utilities	42	0.7	$20,018	52	0.7	$19,195
Management of Companies & Enterprises	33	0.5	$9,887	49	0.6	$12,916
Real Estate, Rental & Leasing	48	0.8	$6,407	47	0.6	$8,293
Mining	*****	*****	*****	38	0.5	$14,404
Arts, Entertainment & Recreation	46	0.8	$1,457	30	0.4	$2,380
Information	46	0.8	$8,332	30	0.4	$9,715

The industry sector that employed the largest number of the noncredit students in the AY 2018-2019 cohort was the Health Care and Social Assistance industry. Health Care and Social Assistance showed a gain in the number of employees (1,462 to 2,172), followed by Transportation and Warehousing (117 to 824). Conversely, the Retail Trade and Accommodation and Food Services industries show the largest loss of employees (723 employed to 525 in retail and 393 employed to 234 in food service).

The industries with the highest quarterly median wages in the year following completion with more than 100 employed were Finance and Insurance ($15,277), Public Administration ($14,317), Manufacturing ($12,274) and Professional, Scientific and Technical Services ($12,257).

Some of the quarterly median wages show a slight decrease following the completion of the program. However, this is most likely explained by new employment and starting wages, which are less than wages of experienced workers. This is especially true when the number of those with new employment is dramatically larger (i.e., Transportation and Warehousing).

A link to complete industry employment and wage data can be found in Appendix A.

Employment and Wages by Contact Hours and CIP

Table 7 reflects the employment and wages, by number of contact hours for those in the AY 2018-2019 cohort who were employed in the year following graduation. For example, of the 5,352 students who enrolled in 32 to 99 contact hours of noncredit courses and exited in AY 2018-2019, 90.8 percent matched employment records within the year following exit and earned a quarterly median wage of $9,138. Additionally, 4.8 percent had previously earned a degree prior to enrolling in the noncredit program. Those with over 200 contact hours matched employment at a rate of 89.5 percent and the wages were slightly higher than those is shorter term programs, with an adjusted quarterly median wage of $9,421.

TABLE 7. EMPLOYMENT, WAGES, AND PREVIOUS DEGREE EARNED BY CONTACT HOUR, FIRST YEAR FOLLOWING COMPLETION: AY 2018-2019 COHORT

Size of Award	Number in Cohort	Previous Degree		Matched to Employment		Adjusted Quarterly Median Wage
		#	%	#	%	$
32 to 99 Contact Hours	5,352	257	4.8	4,861	90.8	$9,138
100 to 200 Contact Hours	2,033	63	3.1	1,822	89.6	$6,718
Over 200 Contact Hours	1,121	35	3.1	1,003	89.5	$9,421

Figure 13 illustrates the employment and wages by CIP for the 10 largest programs (by enrollment) consisting of 32 to 99 contact hours. The bar in the figure represents the percentage of those who matched employment within the first year following program exit and the dot illustrates the quarterly median wage.

The highest percentage of employment (99.0) was for those who exited from the Hospital and Health Care Facilities Administration/ Management noncredit program (CIP 510702). This group earned a quarterly median wage of $7,916. The highest quarterly median wage ($18,864) was for the students who exited from the Business Administration and Management program (CIP 520201) and the employment match rate the first year following exit for this group 98.0 percent.

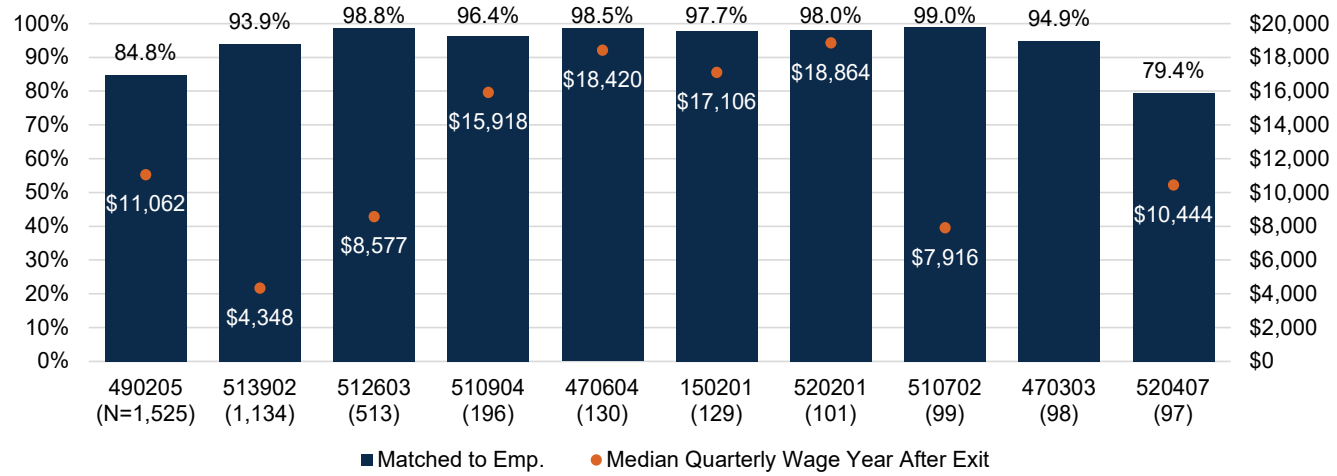
RESEARCH HIGHLIGHTS

Employment First Year Following Exit

More than 90 percent of individuals in the following noncredit programs, requiring between 32 and 99 contact hours, were employed the year following program completion:

- Nursing Assistant/Aide and Patient Care Assistant/Aide
- Medication Aide
- Emergency Medical Technology/Technician (EMT Paramedic)
- Automobile/Automotive Mechanics Technology/Technician
- Civil Engineering Technology/Technician
- Business Administration and Management, General
- Hospital and Health Care Facilities Administration/Management
- Industrial Mechanics and Maintenance Technology

FIGURE 13. EMPLOYMENT AND WAGES BY PROGRAM BETWEEN 32 AND 99 CONTACT HOURS, FIRST YEAR FOLLOWING EXIT: AY 2018-2019 COHORT



Program Legend:

490205: Truck and Bus Driver/Comm. Vehicle Operator/Instructor

513902: Nursing Assistant/Aide and Patient Care Assistant/Aide

512603: Medication Aide

510904: Emergency Medical Technology/Technician (EMT Paramedic)

470604: Automobile/Automotive Technology/Technician

150201: Civil Engineering Technology/Technician

520201: Business Administration and Management, General

510702: Health Care Facilities Management

470303: Industrial Mechanics Technology

520407: Business/Office Automation/Technology/Data Entry

Figure 14 shows the outcomes by CIP for the 10 largest programs (by enrollment) consisting of 100 to 200 contact hours. The employment percentages the first year following completion ranged from 64.5 percent (Business/Office Automation/ Technology/Data Entry - CIP 520407) to 100 percent (Occupational Safety and Health Technology/Technician program - CIP 150701).

A complete listing of programs containing wage and employment data can be found in Appendix A.

Note: *Some of the noncredit programs have enrollment primarily from established professionals in need of continuing education credits which may skew median wages.*

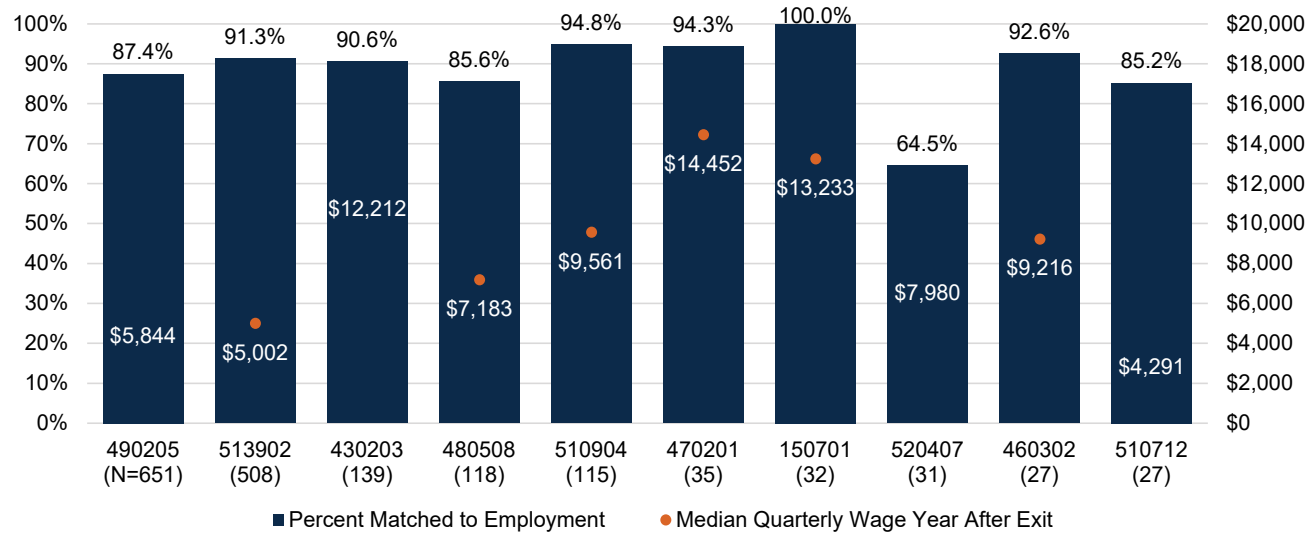
RESEARCH HIGHLIGHTS

Employment First Year Following Exit

More than 90 percent of individuals in the following noncredit programs, requiring between 100 and 200 contact hours, were employed the year following program completion:

- Nursing Assistant/Aide and Patient Care Assistant/Aide
- Fire Science/Firefighting
- Emergency Medical Technology/ Technician (EMT Paramedic
- Heating, Air Conditioning, Ventilation and Refrigeration Maintenance Technology/Technician
- Occupational Safety and Health Technology/Technician
- Electrician

FIGURE 14. EMPLOYMENT AND WAGES BY PROGRAM BETWEEN 100 AND 200 CONTACT HOURS, FIRST YEAR FOLLOWING EXIT: AY 2018-2019 COHORT



Program Legend:

490205: Truck and Bus Driver/Comm. Vehicle Operator/Instructor
513902: Nursing Assistant/Aide and Patient Care Assistant/Aide
430203: Fire Science/Firefighting
480508: Welding Technology/Welder
510904: Emergency Medical Technology/Technician (EMT Paramedic)
470201: HVAC/R Maintenance Technology/Technician
150701 :Occupational Safety/Health Technology/Technician
520407: Business/Office Automation
460302: Electrician
510712: Medical Reception/Receptionist

A sample of the programs consisting of 200 or more contact hours are illustrated in Figure 15. The employment percentage for those who exited from the precision metal working program (CIP 480599), electrical/electronic equipment installation/repair program (CIP 470101) were the highest at over 95 percent. The highest quarterly median wage of $14,367 was earned by those who exited from the precision metal working program as well.

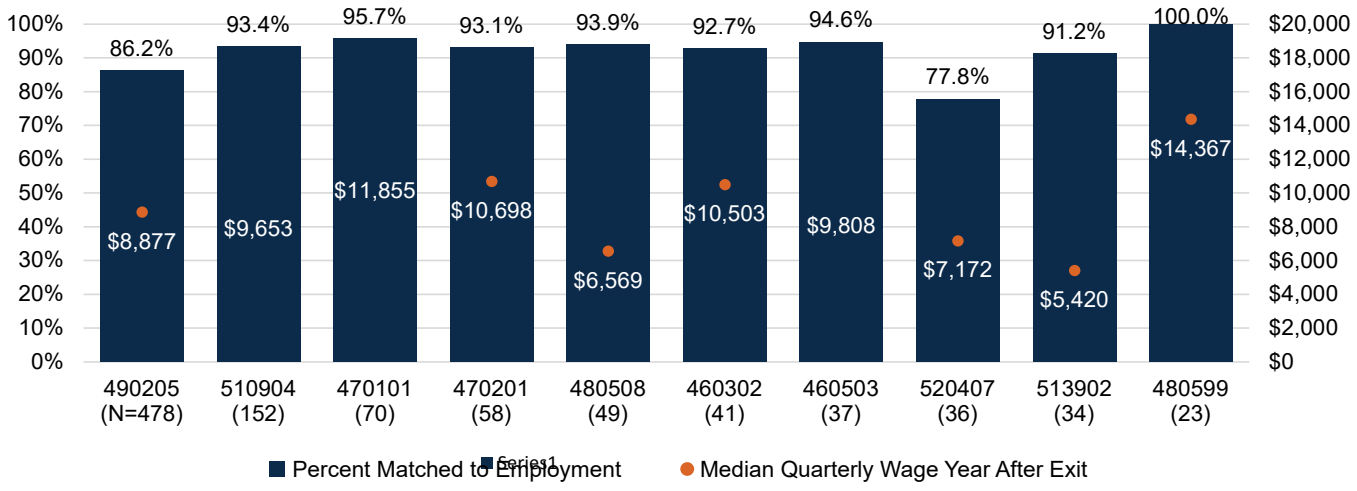
RESEARCH HIGHLIGHTS

Employment First Year Following Exit

More than 90 percent of individuals in the following noncredit programs, requiring 200 or more contact hours, were employed the year following program completion:

- Emergency Medical Technology/ Technician (EMT Paramedic)
- Electrical/Electronic Equipment Installation and Repair, General
- Heating, Air Conditioning, Ventilation and Refrigeration Maintenance Technology/Technician.
- Welding Technology/Welder.
- Electrician
- Plumbing Technology/Plumber..
- Nursing Assistant/Aide and Patient Care Assistant/Aide.
- Precision Metal Working, Other.

FIGURE 15. EMPLOYMENT AND WAGES BY PROGRAM MORE THAN 200 CONTACT HOURS, FIRST YEAR FOLLOWING EXIT: AY 2018-2019 COHORT



Program Legend:

490205: Truck and Bus Driver/Comm. Vehicle Operator/Instructor

510904: Emergency Medical Technology/Technician (EMT Paramedic)

480508: Welding Technology/Welder

480501: Machine Tool Technology/Machinist

470101: Electrical/Electronics Equipment Installation/Repair, General

470303: Industrial Mechanics and Maintenance Technology

520411: Customer Service Support/Call Center/Teleservice Operation

520407: Business/Office Automation/Technology/Data Entry

510805: Pharmacy Technician/Assistant

430203: Fire Science/Firefighting

Career Clusters

Career and technical education (CTE) in Iowa consists of educational programs offering courses designed to prepare individuals for immediate employment in current or emerging occupations. These programs consist of competency-based, applied learning opportunities that contribute to a student's academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability and occupational-specific skills.

CTE programs at the community college level can be presented as a part of the national career cluster framework. Each career cluster represents a distinct grouping of occupations and industries based on the knowledge and skills required. The following 16 career clusters and related career pathways provide an important organizing tool for schools to develop more effective programs of study and curriculum.

Agriculture, Food and Natural Resources
Producing, processing, marketing, distribution, financing and development of agricultural commodities and resources.

Architecture and Construction
Designing, planning, managing, building and maintaining the built environment.

Arts, A/V Technology and Communications
Designing, producing, exhibiting, performing, writing and publishing multimedia content.

Business, Management and Administration
Planning, organizing, directing and evaluating business functions essential to efficient and productive business operations.

Education and Training
Planning, managing and providing education, training and related learning support services.

Finance
Planning and related services for financial and investment planning, banking, insurance and business financial management.

Government and Public Administration
Planning and executing government functions at the local, state and federal levels.

Health Science
Planning, managing and providing therapeutic and diagnostic services, health informatics and biotechnology research and development.

Hospitality and Tourism
Preparing individuals for employment related to restaurant and food/beverage services, lodging, travel and tourism, recreation, amusement and attractions.

Human Services
Preparing individuals for employment that relates to families and human needs such as counseling and mental health services, family and community services, personal care and consumer services.

Information Technology (IT)
Building linkages in IT occupations for entry level, technical and professional careers related to the design, development, support and management of hardware, software, multimedia and systems integration services.

Law, Public Safety, Corrections and Security
Planning, managing and providing legal, public safety, protective services and homeland security.

Marketing
Planning, managing and performing marketing activities to reach organizational objectives such as brand management, professional sales, merchandising, marketing, communications and market research.

Manufacturing
Planning, managing and performing the processing of materials into intermediate or final products and related professional and technical support activities.

Science, Technology, Engineering and Mathematics (STEM)
Planning, managing and providing scientific research and professional and technical services, including laboratory and testing and research and development services. Please note that most STEM occupations are embedded in other career clusters.

Transportation, Distribution and Logistics
Planning, managing and moving people, materials and goods by road, pipeline, air, rail and water, and related professional and technical support services such as transportation infrastructure planning, management, logistics services, mobile equipment and facility maintenance.

Enrollment by Career Cluster

Career clusters represent groupings of occupational programs designed to prepare students for success in the workforce by developing particular skill sets required of the trade or profession. However, when researching career clusters, it is important to note that each cluster represents multiple industries and a variety of occupations within those industries.

Another challenge of researching outcomes based on career clusters is that when a student continues his or her education into a credit-bearing program after completing a noncredit program, there is not always a clear or direct path. In addition, many of the noncredit programs are designed to enhance skills for reemployment opportunities, not necessarily for transfer to credit-bearing programs.

TABLE 7. NONCREDIT ENROLLMENT BY CAREER CLUSTER AND CREDIT PROGRAM CAREER CLUSTERS FOR THOSE WHO CONTINUED EDUCATION

Noncredit Cluster	Credit Cluster															
AY 2016-2019	1	2	3	4	5	6	7	8	9	10	11	12	13	14	16	Total
1 - Agriculture, Food & Natural Resources	0	4	0	1	0	0	0	7	0	0	0	4	3	0	131	150
2 - Architecture & Construction	0	8	0	0	0	0	0	9	0	1	0	1	8	0	22	49
3 - Arts, Audio/Video Technology & Communications	0	1	7	2	0	0	0	28	0	0	0	0	3	1	3	44
4 - Business Management & Administration	2	8	2	36	3	3	5	85	3	1	2	14	21	3	54	240
5 - Education & Training	3	25	11	63	23	5	4	977	4	13	9	27	52	0	85	1,304
6 - Finance	0	0	0	13	1	2	0	24	0	0	2	2	2	0	6	53
7 - Government & Public Administration	0	1	0	0	0	0	7	8	0	0	0	3	0	0	1	22
8 - Health Science	0	4	0	14	7	0	0	1,675	2	15	2	48	2	5	10	1,779
9 - Hospitality & Tourism	0	0	0	1	0	0	0	4	0	0	0	0	2	0	2	9
10 - Human Services	0	1	0	7	1	1	0	133	0	5	0	3	4	0	6	161
11 - Information Technology	0	6	6	10	0	0	0	17	0	1	10	2	3	0	12	67
12 - Law, Public Safety, Corrections & Security	0	2	0	1	0	0	3	52	0	0	3	46	1	0	13	121
13 - Manufacturing	0	9	1	3	0	0	1	5	1	0	0	6	56	0	21	103
14 - Marketing	0	0	1	3	0	0	0	7	0	0	0	0	0	0	2	13
15 - Science, Technology, Engineering & Math*	1	23	4	5	0	0	0	268	0	0	3	6	76	0	32	418
16 - Transportation, Distribution & Logistics	0	2	0	5	0	0	1	6	0	0	0	7	5	1	36	62
Total	**6**	**94**	**32**	**164**	**35**	**11**	**21**	**3,305**	**10**	**36**	**31**	**169**	**238**	**10**	**436**	**4,595**

*No match to credit cluster year following completion for STEM

Table 7 on the previous page illustrates the number of students in noncredit programs by career cluster (indicated by number) in the AY 2015-2016, AY 2016-2017, AY 2017-2018 and AY 2018-2019 cohorts in aggregate, and the subsequent enrollment in credit-bearing programs the year following completion. For example, the majority of students who continued education in credit programs were in the noncredit health science cluster (N=1,779) and 1,675 (94.2 percent) of these remained in the health science cluster upon enrolling in a credit program. The remaining were sprinkled across other credit clusters such as education and training (N=1,304), STEM (N=418) or business management and administration (N=240).

One notable limitation to identifying the path to a credit program is that there are a number of colleges that do not report the credit program CIP code in the NSC system. Though the institution name, type and state are contained in the data, the CIP code and/or program title variables are left empty, and are therefore unknown. Of the 7,995 students who were enrolled in credit-bearing programs following completion of the noncredit program, 3,400 did not have a record that contained CIP data for the credit program and are not included in this table.

Note: The national career cluster system identifies liberal arts programs as a part of the education and training career cluster.

Transition into the Workforce

In the previous sections, career clusters and primary industry sectors of employment were analyzed independently; however, of particular interest is the cross-tabulation of these two variables, accomplished by tracking program exiters within each career cluster to the industry sectors in which they secured employment.

Figure 16 provides a visualization used to relate these two variables. Circos, software that uses polar coordinate mapping to illustrate data relationships, maps the career clusters to primary industry employment information for each graduate in the study.

The colored bars on the left side of the circle represent the career clusters for the noncredit program in the study. Each colored bar corresponds to one of the 16 career clusters listed on the left. The gray bars on the right side represent the industry sectors in which the exiters secured employment. Each gray bar corresponds to one of the 20 industry sectors listed on the right.

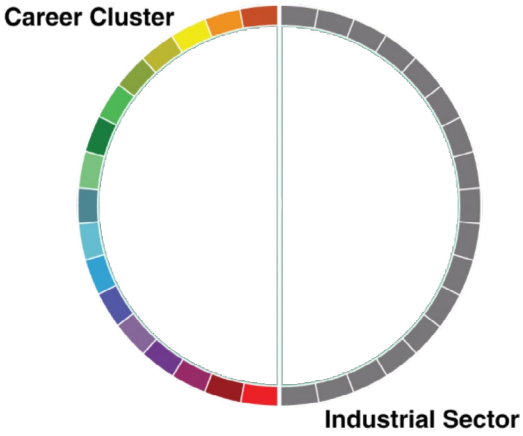
Figure 17, on the next page, illustrates the relationship between career clusters and industry sectors for the AY 2016-2018 cohort via hundreds of ribbons connecting the career cluster exiters (left bars) to their industry sector of employment (right bars). The width of the bars on each side depicts the overall number of exiters in each cluster and those employed within each sector. When the number of students was too low for reporting, the ribbons associated with them were removed from Figure 17, resulting in fewer ribbons.

Another important limitation to consider is that this data show the industry sectors in which exiters were primarily employed, not their actual occupations. For instance, a health science exiter may be a pharmaceutical technician employed by a pharmacy within a large retail store. While they are doing work related to health care, they are reported as employed in the retail trade sector. This distinction between occupation and industry sector is important to note when analyzing the flow from education to industry as illustrated in Figures 17 and 18.

FIGURE 16. CIRCOS VISUALIZATIONS

Career Cluster

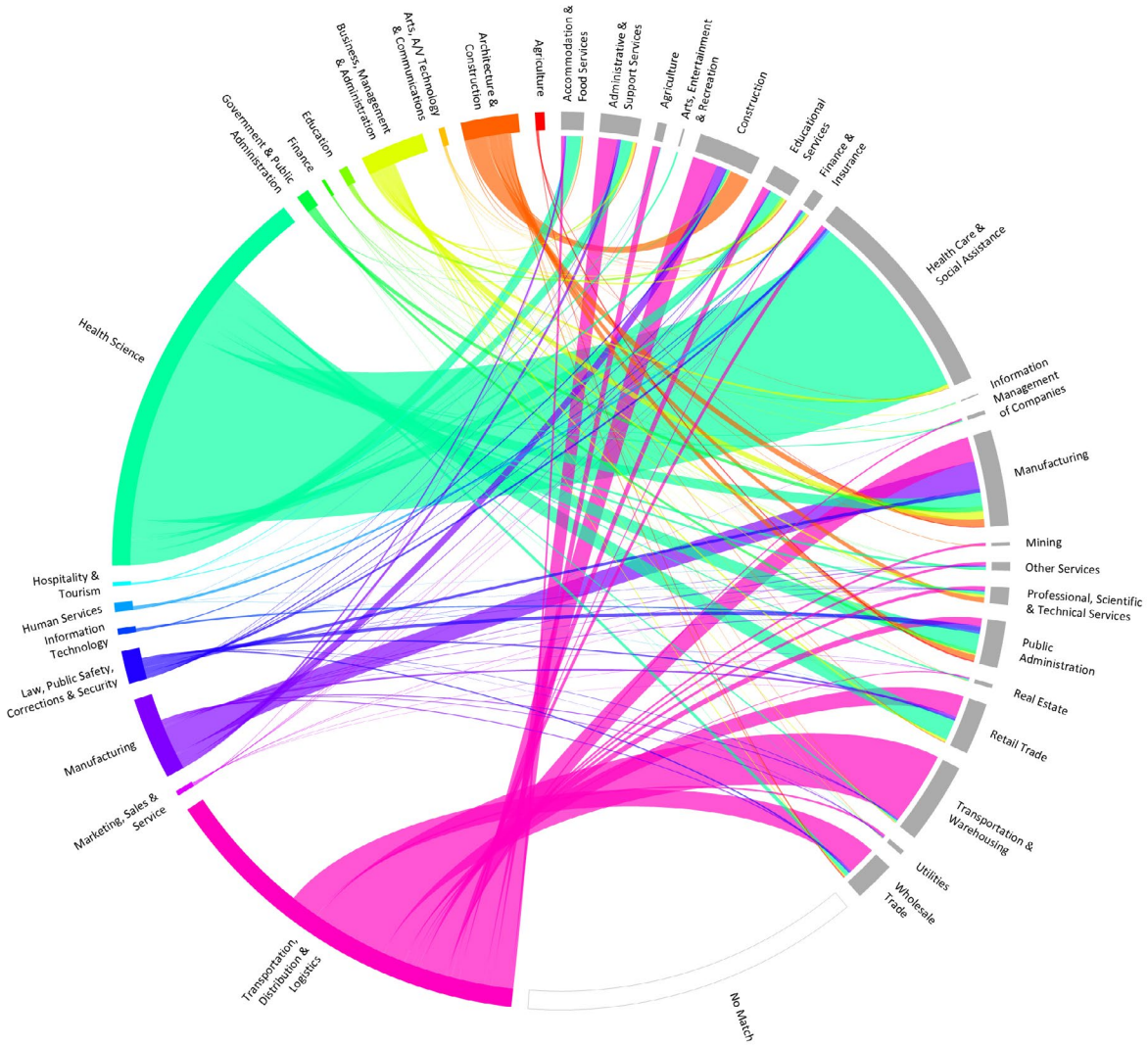
Agriculture, Food, and Natural Resource
Architecture and Construction
Arts, Audio/Video Technology, and Communications
Business, Management and Administration
Education and Training
Finance
Government and Public Administration
Health Science
Hospitality and Tourism
Human Services
Information Technology
Law, Public Safety, Corrections and Security
Manufacturing Career
Marketing Sales and Service
Science, Technology, Engineering and Mathematics
Transportation, Distribution, and Logistics



Industry Cluster

Accommodation and Food Services
Admin. Support, Waste Mgmt. and Remediation
Agriculture, Forestry, Fishing and Hunting
Arts, Entertainment and Recreation
Construction
Educational Services
Finance and Insurance
Health Care and Social Assistance
Information Technology
Management of Companies and Enterprises
Manufacturing
Mining
Other Services
Professional, Scientific and Tech. Services
Public Administration
Real Estate, Rental and Leasing
Retail Trade
Transportation and Warehousing
Utilities

FIGURE 17. CLUSTER TO INDUSTRY MAPPING FOR AY 2016-2018 NONCREDIT EXITERS



Note: *Ribbons representing cells that are suppressed in the data are not shown in this visualization.*

Cluster to Industry

As mentioned previously, students enrolled in the health science career cluster represent the largest portion of the AY 2016-2018 cohort, which explains why the aqua (mid left) sector of Figure 17 is so wide. All exiters are graphically represented in this figure, with the "No Match" (mid-bottom) section corresponding to those exiters who did not match UI wage records.

This diagram illustrates that the majority of health science exiters obtained employment within the health care and social assistance industry; however, this career cluster provided workers in nearly every industry. The transportation and logistics completers were largely disbursed as well, with their largest industry sectors of employment being transportation and warehousing, wholesale trade and manufacturing.

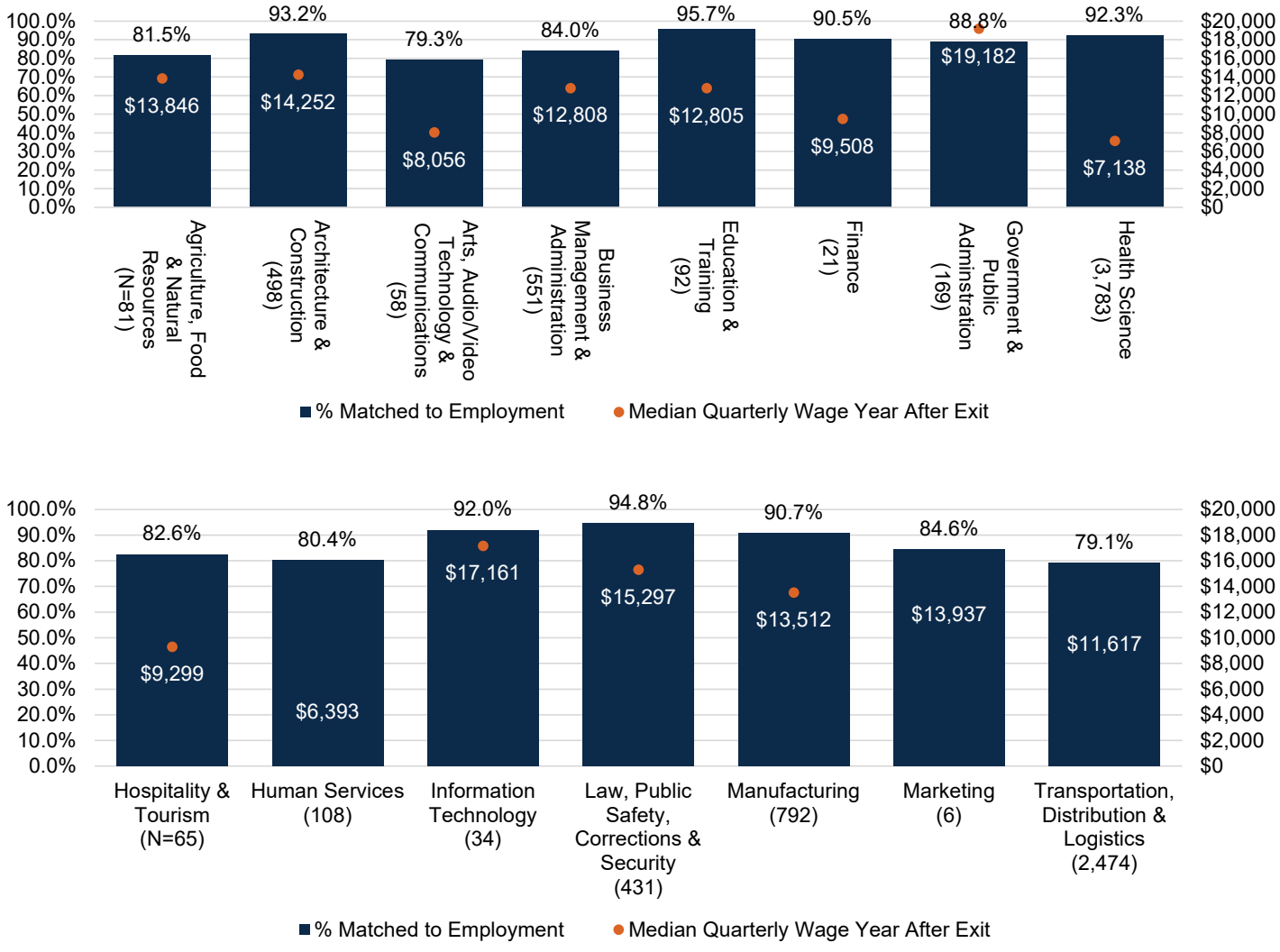
FIGURE 18. INDUSTRY MAPPING BY CLUSTER, AY 2018-2019, COMMUNITY COLLEGE GRADUATES

Employment by Career Cluster

Figure 19 illustrates the employment and wage outcomes of the AY 2018-2019 noncredit students by career cluster in the first year following exit. The 34 program exiters in the hospitality and tourism cluster had the highest employment match rate with 100 percent and earned a median quarterly wage of $6,285. The next highest employment percentage was achieved by the 512 students in the architecture and construction career cluster (94.7 percent) who earned a median quarterly wage of $13,898. In the most popular health science cluster, 94.1 percent of the 3,380 program exiters matched employment and earned a quarterly median wage of $6,406, which is less than half of those in the architecture and construction cluster.

One of the lower rates of matching employment was for students from the agriculture, food and natural resources cluster (80.0 percent). For this cluster, it is important to keep the limitations of the UI wage data in mind, as most family farming operations do not pay UI tax and therefore are not included. More specifics on the UI wage records can be found in methodology section of this report.

FIGURE 19. EMPLOYMENT AND WAGES BY CAREER CLUSTER, FIRST YEAR FOLLOWING EXIT: AY 2018-2019 COHORT



Methodology and Research Limitations

Noncredit Cohort Formation

1. Starting Cohort: Iowa Community College Management Information Systems (MIS) database of Noncredit Enrollments for AY 2015-2016 - We use the latest available data that allows for at least 12 months past enrollment for tracking students into further education and/or employment one year after finishing cohort formation year.
2. Exclude students without valid SSNs, first and last names, and dates of birth (DOB) - We have to limit our research to students with valid SSNs, first and last names and DOBs, since tracking students into the workforce involves SSNs and tracking students to further education involves names and DOBs as required data elements.
3. Identify Career and Technical Education (CTE) enrollees - We identify CTE enrollees utilizing data codes for Career/Vocational Training and Upgrading and Economic Development programs with National Center for Educational Statistics (NCES) Classification of Instructional Program codes (CIP) listed under the Advance CTE 16 National Career Clusters®.
4. Establish CTE enrollees with sizable CTE education, resulting in labor market value credential/experience - The minimum acceptable noncredit educational level is established at 32 CTE contact hours. This threshold is established to match the minimum existing CTE credit credential approved for Iowa community colleges. This threshold allows for justified comparability of the value of non-credit CTE education to corresponding credit CTE education, thus providing comparable material for measuring educational and employment outcomes. The same logic is being used in the MIS data reporting manual and, subsequently, for data reporting to third parties (e.g., Voluntary Framework of Accountability).

Data Fields Formation (for calculated fields)

Some data fields are reported at face value, as they were reported to us in the MIS (e.g., gender, race/ethnicity), and some data fields contain imputed values. Below is the description of calculation methods for such fields:

1. Program of Study (POS) - POS is established based on students' enrollment CIP codes. If a student has been reported under more than one CIP code during the cohort formation year, his or her POS determination is based on the POS with the majority of contact hours. In cases of multiple CIP codes of enrollments obtained from external sources (e.g., National Student Clearinghouse [NSC], for previous, concurrent or subsequent credit enrollments), a method of random CIP number selection has been applied.
2. Age - We use "under 25" and "25 and older" categories based on each student's age as of the middle of the AY 2015-2016 (January 1, 2016) year.
3. Correctional Facilities - We use MIS data codes to establish whether a noncredit student was enrolled while in a correctional facility.
4. Previously Received Credit Award - We utilize a five-year timeframe and NSC data to establish if a student has been enrolled in noncredit education with an existing postsecondary credit award.
5. POS Length - As the length of POS in noncredit enrollments varies from a couple of weeks to a full year, we explored preceding and consecutive credit and noncredit enrollments based on a full preceding or following academic year, regardless of the length of noncredit enrollments within cohort year.

Employment and Wage Records

- All wages for this report originate either from the Iowa Unemployment Insurance (UI) wage database or the State Wage Interchange System (SWIS) network of state UI wage databases.
- The use of the SWIS database for program evaluation purposes is limited, and allowable uses include obtaining data on out-of-state wages during the 2nd quarter after exiting a program and status of employment for the 2nd and 4th quarter after exit. For more information, see https://www.dol.gov/agencies/eta/performance/performance-indicators#WIOA%20PIP
- Both the actual wage earned ("Unadjusted Median Wage") and the wage adjusted for inflation ("Adjusted Median Wage") are included in all tables. Wages were adjusted for inflation to 2020 Q3 (July 2020 - September 2020) levels (CPI-u = 259.7663333) in order to make longitudinal comparisons more legitimate using the Consumer Price Index (CPI-u) as calculated by the U.S. Bureau of Labor Statistics. The formula used for adjusting wages is as follows:

$$W_{adj} = \left(\frac{CPI_t}{CPI_{base}}\right) * W_t$$

  where *CPI_base* is the CPI value of the base time period (2018Q3), *CPI_t* is the CPI value of the time period being adjusted from, and *W_t* is the wage of the time period being adjusted from. Wages are adjusted after they have been aggregated by academic year (using academic year average CPI values).
- The aggregate wages reported throughout this report do not include those graduates who did not match the UI wage database (i.e., the median wages only include those who had wages covered by UI tax during that period of time). The UI wage records do not cover those employers exempt from paying UI tax such as federal employees, members of the armed forces, the self-employed, proprietors, unpaid family workers, church employees, railroad workers covered by the railroad unemployment insurance system and students employed at a college or university as part of a financial aid package.
- All wage estimates in the report include ALL wages in the UI wage database for that person in that year. Each individual is associated with just one industry sector and state in each time period, and that assignment is based on the industry sector/state of the employer they earned the most wages with in that period. So, for example, if Lincoln earned $5,000 in the manufacturing industry sector and $2,000 in the retail trade industry sector per quarter following enrollment, Lincoln would be included in the overall employment and wages table with a gross wage of $7,000 per quarter. In the employment and wages by industry sector table, he would be included under the manufacturing industry sector with a gross wage of $7,000 per quarter (he would not be counted in retail trade, but the wages he earned in that sector would still be counted).
- Median wages are used in this report rather than average wages to mitigate the effect of outliers. Wage distributions are typically right-skewed and so the median is a better measure of center than the mean which is pulled in the direction of the skew (and is more affected by outliers, particularly with small sample sizes).
- To protect individual identities, some cells in this report are suppressed due to small cell size using the following rules:
  - Suppress the cell if number of employed in cell is less than three.
  - If the sum of employed individuals across all suppressed subgroups is less than three, suppress the next smallest subgroup (to ensure the number of suppressed individuals is three or greater).
- Individuals who were identified as being in a correctional facility while taking noncredit courses are excluded from analysis due to a lack of information on when they exited the facility.

References

Institute of Educational Sciences, National Center for Education Statistics, Classification of Instructional Programs. Retrieved from http://nces.ed.gov/.

Iowa Department of Education, Division of Community Colleges and Workforce Preparation, (2022). Education Outcomes: Certificate, Diploma, and Associate Degree Programs. Retrieved from https://educateiowa.gov/documents/program-outcomes/2022/04/iowa-community-college-credit-education-outcomes-ay-2015-ay-2019

Krzywinski, M. I., Schein, J.E., Birol, I., Connors, J., Gascoyne, R., Horsman, D., Jones, S.J., and Marra, M.A. (2009). Circos: an Information Aesthetic for Comparative Genomics. Retrieved from http://www.circos.ca/.

Van Noy, M., Jacobs, J., Korey, S., Bailey, T. & Hughes, K. L. (2008, March). The Landscape of Noncredit Workforce Education: State Policies and Community College Practices, CCRC Brief Number 38. New York, NY: Community College Research Center.

Van Noy, M., Jacobs, J., Korey, S., Bailey, T. & Hughes, K. L. (2008). Noncredit Enrollment in Workforce Education: State Policies and Community College Practices. Washington DC: American Association of Community Colleges and Community College Research Center.

Xu, D. and Ran, X. (2015). Noncredit Education in Community College: Students, Course Enrollments, and Academic Outcomes. Retrieved from https://ccrc.tc.columbia.edu/media/k2/attachments/noncredit-education-in-community-college.pdf.

Appendix A—Contents

Below is a list of the detailed data tables for this report which can be accessed at: https://www.educateiowa.gov/iowa-community-college-program-outcomes.

Community Colleges & Workforce Preparation

Prosperity Through Education

The Division of Community Colleges and Workforce Preparation within the Iowa Department of Education administers a variety of diverse programs that enhance Iowa's educational system and help to prepare a skilled and knowledgeable workforce. Divided between two bureaus — the Bureau of Community Colleges and the Bureau of Career and Technical Education — the Division is committed to providing and supporting opportunities for lifelong learning. In addition to working with Iowa's 15 public community colleges on state accreditation, program approval, equity review, and data reporting, guidance is also provided in the areas of career and technical education, workforce training and economic development, adult education and literacy, military education, the state mandated OWI education program, the GAP Tuition and PACE programs, Senior Year Plus and the Statewide Intermediary Network program.