



Department of Education

# Iowa Community College Education Outcomes

Certificate, Diploma and Associate Degree Programs

Academic Year 2022-2023

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## Iowa Community Colleges Employment Outcomes: Certificate, Diploma and Associate Degree Programs

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

### Prepared by:

**Iowa Department of Education  
Division of Higher Education  
Grimes State Office Building  
400 E 14th Street  
Des Moines, IA 50319-0146**

Phone: 515-281-8260

Fax: 515-242-5988

<https://educate.iowa.gov/>

Amy Gieseke, Chief  
Community Colleges  
515-858-2234

[amy.gieseke@iowa.gov](mailto:amy.gieseke@iowa.gov)

Vladimir Bassis, Administrative Consultant  
Community Colleges  
515-281-3671

[vladimir.bassis@iowa.gov](mailto:vladimir.bassis@iowa.gov)

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## Table of Contents

Introduction.....	4
Overview of Reporting.....	5
Credit Programs .....	6
Student Demographics.....	7
Awards and Programs by Gender.....	8
Awards and Programs by Age Group .....	9
Programs by Race/Ethnicity.....	9
Awards by Classification of Instructional Program (CIP) .....	10
Associate Degrees by CIP - AY 2018 to AY 2022 Totals .....	12
Career and Technical Education Diplomas by CIP.....	14
Certificates by CIP .....	15
Time-to-Degree .....	16
Joint Enrollment .....	19
Student Retention .....	20
Retention and Migration .....	21
Further Education Cohort.....	22
Workforce Cohort .....	23
Employment and Wages by State.....	24
Employment and Wages by Award Type.....	25
Employment and Wages by Gender .....	26
Employment and Wages by Race/Ethnicity .....	27
Employment and Wages by Industry Sector.....	28
Employment and Wages by Award Type and Industry.....	29
Employment and Wages by CIP .....	30
Career Clusters .....	33
Awards by Career Cluster .....	34
Employment and Education by Career Cluster.....	35
Transition into the Workforce .....	36
Cluster to Industry .....	37
Employment and Wage Record Methodology .....	38
References .....	39
Appendix A.....	40



## Introduction

*The Iowa Community Colleges Education Outcomes: Certificate, Diploma and Associate Degree Programs Report*, published annually, analyzes the outcomes of students completing community college programs. This report, and other related resources, provide institutional data designed to inform community college administrators and policymakers as they engage in planning and program improvement.

Throughout this report, employment and wages are analyzed to illustrate the significant impact education and training provided by Iowa's community colleges have on the economy. Programs and award levels are analyzed separately in order to assess the benefits of each. Research parameters were set to distinguish between programs consisting of 22 credit hours or more, (considered "long-term" awards), and those consisting of less than 22 credit hours (considered "short-term" awards). These parameters, which are applied by credit-hour definition, ensure a uniform approach to the data analysis in this report.

Coinciding with the programs, five annualized cohorts of student award recipients were studied regarding their subsequent employment and wages (academic years (AY) 2018, 2019, 2020, 2021 and 2022). These cohorts will be studied longitudinally for five years after graduation. The research is limited to five years because previous program outcomes research regarding two-year college education revealed that wage growth slows within a five-year period.

Unit record tracking of student data is the preferred method of reporting education outcomes by program. However, the inability to access and link individual student records to employment and wages has been a challenge for most researchers, because of confidentiality laws restricting the use of unit-level data. The Iowa Department of Education (Department) and Iowa Workforce Development (IWD) have overcome this hurdle by forming a partnership dedicated to evaluating and reporting education outcomes (i.e., employment and wages) for community college programs.

In Iowa, as in many states throughout the nation, education and employer records are held in two different agencies of state government: The Department and IWD, respectively. This interagency partnership has allowed for data-sharing agreements with clearly stated research objectives that adhere to all Unemployment Insurance (UI) and Family Educational Rights and Privacy Act (FERPA) regulations and rules. Furthermore, access is limited to staff members who have signed confidentiality agreements regarding reporting and use of student records.

### CREDIT BEARING PROGRAMS

Credit programs offered by Iowa's 15 community colleges lead to a certificate, diploma, or associate degree and are designed to prepare students for immediate employment in occupations requiring less than a four-year degree or to transfer and satisfy credits toward a bachelor's degree at a four-year institution.



### Data Analysis

Program and award levels were analyzed separately to assess the benefits of each. To ensure a uniform approach to research, parameters were set to distinguish between programs consisting of 22 credit hours or more (considered "long-term" awards), and those consisting of less than 22 credit hours (considered "short-term" awards).

### Agency Partnership

The Iowa Department of Education and Iowa Workforce Development partnered to evaluate and report education, employment and wage outcomes for individuals in certificate, diploma, and associate degree programs. Research objectives are clearly stated in data-sharing agreements and limited staff have access to the data. In addition, staff from both agencies signed confidentiality agreements pertaining to the reporting and use of student records.

## Overview of Reporting

To properly conduct research for this report, data criteria were established based on less than 22 credit hours (“short-term”) or 22 or more credit hours (“long-term”) for associate, diploma, and certificate awards. All data were extracted from the Department’s Community College Management Information System (MIS) and grouped based on this threshold, along with each credential’s award date. The award date is referenced throughout this report as academic year (i.e., grouped September 1, 2021, to August 31, 2022, is AY 2022). Students who received awards in AY 2018, 2019, 2020, 2021 or 2022 were analyzed.

Once extracted from the MIS, data were sent by annual cohort to the National Student Clearinghouse (NSC) to identify which students continued their education after receiving a community college award. These individuals may have transferred from one community college to another, continued their education at their current location or transferred to a four-year institution. 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).

Students with multiple awards were flagged before tracking them into the workforce, and then unduplicated, so they could be tracked based on their highest award level. An exception was made for students who received more than one award at the same level for the completion of different programs. Such students were tracked based on all awards received.

Deduplication was conducted in the following hierarchal order: associate degree [Associate of Applied Science (AAS), Associate of Applied Arts (AAA), Associate of Professional Studies (APS), Associate of Science (AS) and Associate of Arts (AA)], diploma, certificate and short-term award (both diploma and certificate). Additionally, students without Social Security Numbers (SSN) were excluded from the workforce analysis due to matching restrictions. Matching to UI wage records\* was conducted using SSNs.

The data were then sent via secure file transfer to IWD to match the education records to the UI wage records. This match provided employment, wage and industry data by quarter for each award type and cohort 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

In an attempt to match the academic year for annual reporting, the quarterly wages were aggregated from October 1 (Quarter 4) to September 30 (Quarter 3), which are the dates that most closely align with the community colleges’ academic year.

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 and all rules, regulations and restrictions for each of the data sources were strictly followed. Additionally, data-sharing agreements went through a comprehensive legal review.

\* *The UI wage records do not cover 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 in a college or university as a part of a financial aid package.*

## Credit Programs

### Statewide Total Awards

For this portion of the report, an aggregate analysis was conducted on 73,865 short- and long-term credit awards received by Iowa community college graduates from AY 2018 through AY 2022. Though each college yielded a different number of total awards, in aggregate there were 49,950 associate degrees, 11,969 diplomas, 1,653 long-term certificates and 10,293 short-term certificates. Table 1 illustrates the awards at each of the community colleges during the noted timeframe.

Transfer status (further education), employment, wages and time-to-degree are reported by award type in addition to short- or long-term timeframes later in this report. If a student received more than one award, the highest award level was used for the analysis of employment and wage data (deduplication was conducted in the following hierarchical order: AAS-AAA-APS-AS-AA-diploma-certificate-short-term award (certificate). This information can be used to study the impact of each award type, and its correlation to the workforce and further education.

This comprehensive report and detailed spreadsheets for each academic year can be found at: <https://educate.iowa.gov/higher-ed/community-colleges/program-outcomes>

**Table 1. AY 2018 to AY 2022 Total Short- and Long-Term Awards**

College #	Community College	Long	Short	Total Awards
1	Northeast Iowa	3,168	36	3,204
2	North Iowa Area	2,733	1,108	3,841
3	Iowa Lakes	1,638	-	1,638
4	Northwest	1,723	3	1,726
5	Iowa Central	4,367	139	4,506
6	Iowa Valley	2,230	136	2,366
7	Hawkeye	4,205	118	4,323
9	Eastern Iowa	5,124	478	5,602
10	Kirkwood	9,652	443	10,095
11	Des Moines Area	11,897	3,236	15,133
12	Western Iowa Tech	4,196	3,372	7,568
13	Iowa Western	5,043	552	5,595
14	Southwestern	1,579	357	1,936
15	Indian Hills	3,327	76	3,403
16	Southwestern	2,651	278	2,929
	<b>Total</b>	<b>63,533</b>	<b>10,332</b>	<b>73,865</b>

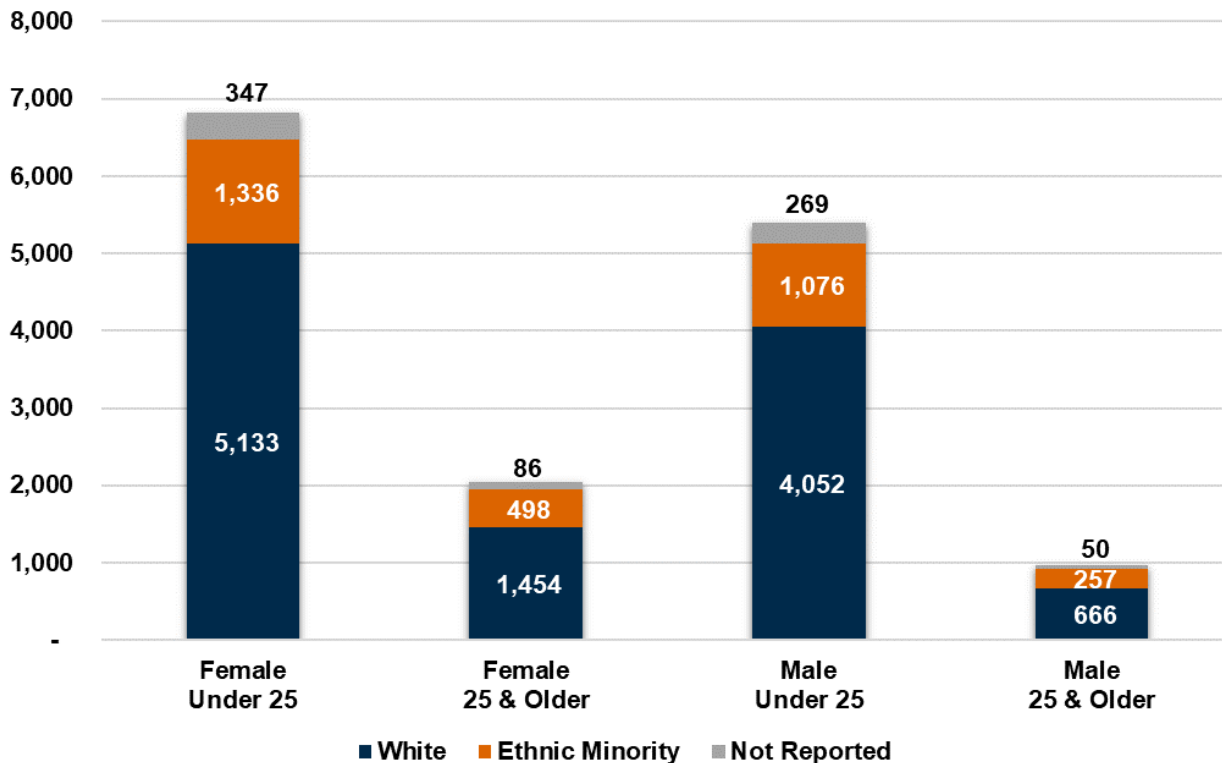
## Student Demographics

Demographics were added to the dataset in 2017 in order to study students by gender, race/ethnicity and age. Gender was defined as either male or female. Age groups were then aggregated by those under 25 years of age and those age 25 years and older. Race/ethnicity was grouped into two categories: white and racial/ethnic minority.

In AY 2022, there were a total of 8,854 female students and 6,370 male students. The majority of students in AY 2022 were under the age of 25 (12,213) and of those, 9,185 were white. However, there was a greater percentage of ethnic minority male students who were 25 years of age and older (27.8 percent), compared to those under 25 (21.0 percent). Ethnic minority female students also represented a greater percentage of those who were 25 years of age and older (25.5 compared to 20.7 percent).

Figure 1 below illustrates the Iowa community college student completer population demographics in AY 2022.

**FIGURE 1. AY 2022 Student Demographics for Completers**





## Awards and Programs by Gender

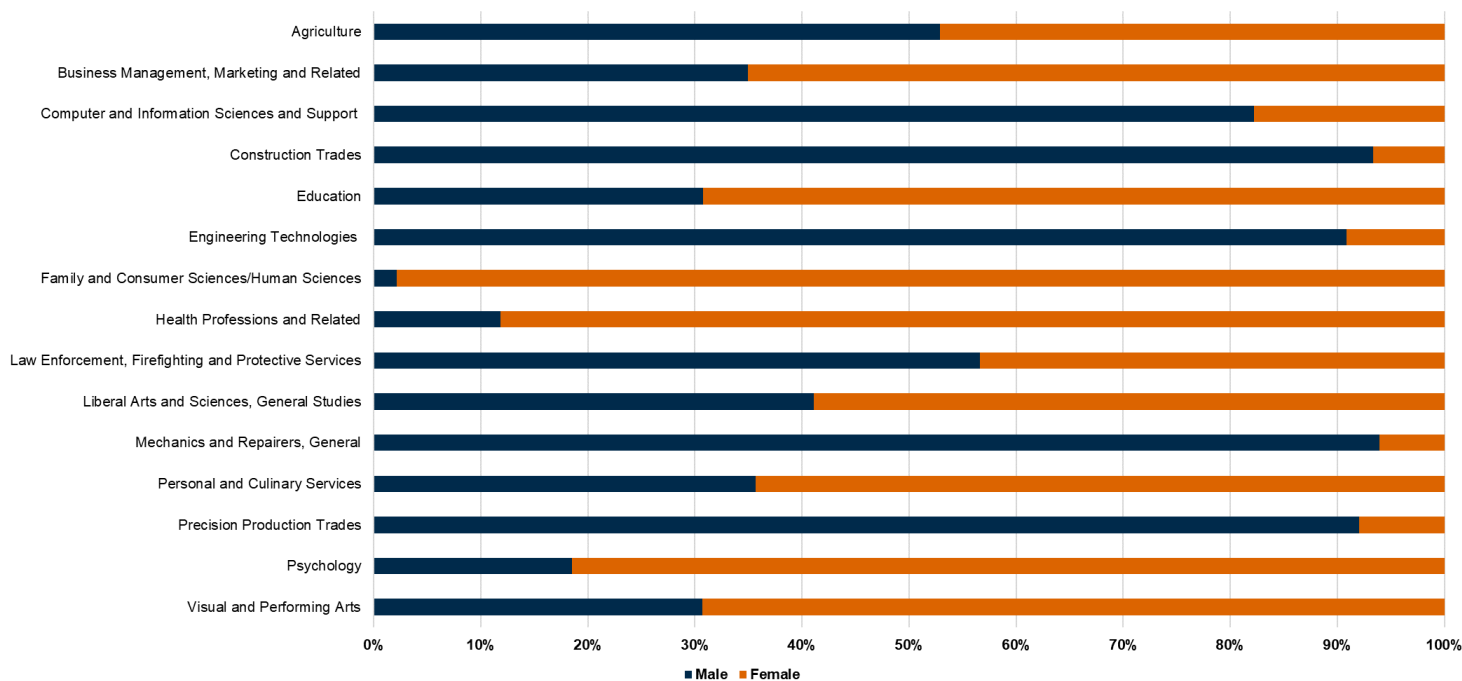
More female than male community college students received awards in AY 2022 (58.2 percent of all awards). Female students also represented higher percentages of those who earned associate degrees (58.4 percent), diplomas (56.8 percent) and certificates (58.5 percent). However, when each two-digit Classification of Instructional Program (CIP) is analyzed separately, there is a deviation based on the program, shown in the Figure 2 below.

Long-held views about the particular strengths, weaknesses and responsibilities of each gender have affected how people look for a job, train for a job and ultimately gain employment in a particular job. Though it is not something that holds true for every person, gender division still applies by occupation. Historically, females have held jobs in health care, administrative and human services-related occupations, whereas male students have been more apt to attain employment in occupations relating to engineering, manufacturing, construction and transportation.

Figure 2 illustrates the percentage of male and female students for the top programs completed in AY 2022. Female students dominated the training completion in family and consumer sciences/human sciences, health professions and related, psychology, education and visual and performing arts. Male students far outnumbered female students in construction trades, mechanics and repairers, and precision production trades. All program completions by gender can also be found on the credit program outcomes interactive dashboard at:

[https://iowastudentoutcomes.com/credit\\_program\\_outcomes](https://iowastudentoutcomes.com/credit_program_outcomes).

**FIGURE 2. Top 15 Programs Completed in AY 2022 by Number of Awards by Gender**



**Note:** Wages by gender are addressed in latter portions of this report.



## Awards and Programs by Age Group

As mentioned earlier in this report, students were separated into two age categories: those under the age of 25 and those 25 years of age and older. An analysis was conducted to see if there was a difference between the younger and older groups when it came to programs of study. Liberal arts and sciences were the most popular among the younger group (32.0 percent), whereas the older group predominately completed programs in health professions (38.7 percent).

There are a few differences in younger to older student percentages by program type for the remainder of the top 10 program classes. Students age 25 and over did, however, represent higher percentages in engineering technologies and business management (Table 2).

**TABLE 2. Top 10 Programs by Age Group, AY 2022**

Classification of Instructional Program (CIP)	Percent of Students Under Age 25	Percent of Students Age 25 and Over
Liberal Arts and Sciences, General Studies	32.0%	17.0%
Health Professions and Related	26.5%	38.7%
Business Management, Marketing and Related	5.7%	9.7%
Mechanics and Repairers, General	5.6%	3.5%
Agriculture	5.2%	2.0%
Engineering Technologies and Engineering Related	3.2%	9.9%
Precision Production Trades	4.2%	0.7%
Computer and Information Sciences and Support Services	2.9%	4.2%
Law Enforcement, Firefighting and Protective Services	2.5%	4.9%
Construction Trades	3.2%	1.1%

*Top 10 programs do not equal 100%, this is a representation of the percentage of students overall.*

There is no significant difference between age groups for the type of award earned through credit programming. Associate degrees reflected the highest percentage for both those under 25 and those age 25 and older, followed by certificate and diploma completion as noted in Table 3 below. However, adults, age 25 and over are more likely to earn short-term certificate credentials.

**TABLE 3. Award Type by Age Group, AY 2022**

Type of Awards	Percent of Students Under Age 25	Percent of Students Age 25 and Over
Associate Degree	65.2%	57.1%
Diploma	15.0%	20.5%
Certificate	19.7%	22.4%

*Detailed program completion by age group information can be explored using the link provided in Appendix A to the detailed data tables.*

## Programs by Race/Ethnicity

Throughout this report, race/ethnicity groups are defined as “white” or “racial/ethnic minority,” aggregating all students who self-identified with a race or ethnicity other than white into one category. In AY 2022 there were 3,053 students (21.5 percent) were in the racial/ethnic minority group, 10,970 students were white (78.5 percent) and the 753 students (4.9 percent) who did not report race/ethnicity were excluded from the analysis.

When analyzing the student population within the race/ethnicity categories, students in the racial/ethnic minority group predominately completed coursework in similar programs as white students. For example, within both groups, the largest percentage of students completed health professions and liberal arts and sciences programs. There was a higher percentage of minority students, however, who completed programs in law enforcement, firefighting and protective services, engineering technologies and computer and information sciences, as compared to white students. Table 4 below outlines these distributions.

**TABLE 4. Top 15 Programs by Two-Digit CIP by Race/Ethnicity, AY 2022**

Classification of Instructional Program (CIP)	# White	% White	# Racial/Ethnic Minority	% Racial/Ethnic Minority
Health Professions and Related	3,177	28.1%	997	31.5%
Liberal Arts and Sciences, General Studies	3,171	28.0%	996	31.4%
Business Management, Marketing and Related	767	6.8%	169	5.3%
Mechanics and Repairers, General	618	5.5%	141	4.5%
Precision Production Trades	547	4.8%	87	2.7%
Agriculture	497	4.4%	30	0.9%
Law Enforcement, Firefighting and Protective Services	437	3.9%	211	6.7%
Engineering Technologies and Engineering Related	352	3.1%	113	3.6%
Construction Trades	351	3.1%	62	2.0%
Computer and Information Sciences and Support Services	340	3.0%	99	3.1%
Education	226	2.0%	46	1.5%
Personal and Culinary Services	164	1.5%	45	1.4%
Family and Consumer Sciences/Human Sciences	127	1.1%	19	0.6%
Psychology	104	0.9%	18	0.6%
Visual and Performing Arts	92	0.8%	20	0.6%
<b>Total</b>	<b>10,970</b>	<b>97.0%</b>	<b>3,053</b>	<b>96.4%</b>

*Top 15 programs do not equal 100%, this is a representation of the percentage of students by race/ethnicity.*

## Awards by Classification of Instructional Program (CIP)

The CIP provides a taxonomic scheme that enables tracking, assessment and reporting of fields of study and program completion. This system was established by the U.S. Department of Education's National Center for Education Statistics in 1980. The data contained within this report are analyzed at the two- or six-digit CIP levels. Appendix A, the accompanying online tables and online dashboard, contain detailed information for six-digit program-level data. Table 5 lists the program descriptions at the two-digit CIP level and the corresponding number of awards earned by Iowa's community college students, in each academic year from 2018 to 2022. The majority of awards were earned in liberal arts and sciences, health professions, business management and marketing and mechanics and repairers' programs, as seen in previous years. It is important to note that not all community colleges offer the same number of programs within these CIP categories.

TABLE 5. AY 2018 to AY 2022 Statewide Awards by Two-Digit CIP

2-Digit CIP	Description	AY2018	AY2019	AY2020	AY2021	AY2022	Total
24	Liberal Arts and Sciences, General Studies	5,274	5,328	5,228	5,041	4,419	25,290
51	Health Professions and Related	3,959	4,065	3,890	4,283	4,400	20,597
52	Business Management, Marketing and Related	785	867	774	859	984	4,269
47	Mechanics and Repairers, General	843	784	731	776	794	3,928
48	Precision Production Trades	553	565	513	557	689	2,877
01	Agriculture	484	469	494	524	541	2,512
11	Computer and Information Sciences and Support Services	535	490	490	488	455	2,458
15	Engineering Technologies and Engineering Related	470	470	480	504	481	2,405
43	Law Enforcement, Firefighting and Protective Services	261	388	363	649	687	2,348
46	Construction Trades	313	302	293	264	422	1,594
12	Personal and Culinary Services	233	234	203	221	213	1,104
19	Family and Consumer Sciences/Human Sciences	202	194	163	170	184	913
50	Visual and Performing Arts	137	118	119	138	114	626
10	Communications Technologies/Technicians and Support Services	142	151	115	102	104	614
13	Education	28	71	71	107	283	560
44	Human Services	63	67	43	51	55	279
03	Natural Resources and Conservation	59	58	58	50	44	269
22	Legal Professions and Studies	40	60	47	76	38	261
49	Transportation and Materials Moving	89	81	44	13	8	235
42	Psychology	-	-	12	59	124	195
09	Communication, Journalism and Related Programs	21	26	27	31	31	136
31	Parks, Recreation, Leisure and Fitness Studies	15	13	17	13	36	94
30	Multi/Interdisciplinary Studies	20	19	11	14	21	85
16	Foreign Languages, Literature and Linguistics	17	20	13	13	12	75
26	Biological and Biomedical Sciences	6	2	0	12	23	43
45	Social Sciences	3	1	-	5	23	32
41	Science Technologies/Technicians	6	1	4	5	2	18
14	Engineering	1	-	2	4	9	16
54	History	-	-	-	-	8	8
23	English Language and Literature	-	-	-	-	8	8
30	Physical Sciences	-	-	-	-	9	9
27	Mathematics and Statistics	-	-	-	2	5	7
<b>Total</b>		<b>14,559</b>	<b>14,844</b>	<b>14,205</b>	<b>15,031</b>	<b>15,226</b>	<b>73,865</b>

## Associate Degrees by CIP - AY 2018 to AY 2022 Totals

During AY 2018 through AY 2022, Iowa community colleges awarded seven types of associate degrees. These award types are:

- Associate of Arts (AA)
- Associate of Science (AS)
- Associate of Applied Arts (AAA)
- Associate of Applied Science (AAS)
- Associate of General Studies (AGS)
- Associate of Professional Studies (APS)
- Transfer Majors (TM)

Table 6 below contains an aggregation of all associate degrees awarded in AY 2018 through AY 2022. Liberal arts and science degrees had consistently represented slightly more than 50 percent of all such degrees awarded until AY 2022 (52.1 percent in AY 2018, 52.3 percent in AY 2019, 53.0 percent in AY 2020, 50.1 percent in AY 2021 and 45.6 percent in AY 2022). Each award type has been analyzed separately and is available using the online interactive dashboard and accompanying tables at <https://iowastudentoutcomes.com/>.

TABLE 6. AY 2018 to AY 2022 Associate Degrees by Two-Digit CIP

2-Digit CIP	Description	AY2018	AY2019	AY2020	AY2021	AY2022	Total
24	Liberal Arts and Sciences, General Studies	5,274	5,328	5,228	5,041	4,419	25,290
51	Health Professions and Related	1,860	1,877	1,792	1,855	1,690	9,074
52	Business Management, Marketing and Related	465	554	521	594	722	2,856
01	Agriculture	414	399	418	455	384	2,201
47	Mechanics and Repairers, General	500	471	436	410	464	2,150
15	Engineering Technologies and Engineering Related	312	295	325	325	311	1,568
43	Law Enforcement, Firefighting and Protective Services	160	145	159	209	284	1,536
11	Computer and Information Sciences and Support	308	303	311	330	292	965
13	<b>Education</b>	-	-	-	31	100	538
42	Psychology	-	-	12	59	91	520
12	Personal and Culinary Services	126	114	83	115	99	506
46	Construction Trade	82	82	72	58	95	428
48	Precision Production Trades	116	100	93	98	101	395
50	Visual and Performing Arts	87	76	75	95	73	355
10	Communications Technologies and Support	121	126	92	90	55	272
19	Family and Consumer Sciences/Human Sciences	80	82	55	65	37	206
44	Human Services	61	65	42	49	124	195
03	Natural Resources and Conservation	46	47	41	35	25	183
31	Parks, Recreation, Leisure and Fitness Studies	10	9	11	11	143	174
09	Communication, Journalism and Related Programs	20	23	26	29	28	126
22	Legal Professions and Studies	29	49	32	48	21	85
45	Social Sciences	3	1	-	9	7	85
26	Biological and Biomedical Sciences	3	1	-	12	33	74
30	Multi/Interdisciplinary Studies	20	19	11	14	23	39
14	Engineering	1	-	2	2	6	38
54	History	-	-	-	-	23	36
49	Transportation and Materials Moving	25	21	20	12	9	14
23	English Language and Literature	-	-	-	-	9	9
30	Physical Sciences	-	-	-	-	-	9
16	Foreign Languages, Literatures and Linguistics	8	8	8	8	8	8
27	Mathematics and Statistics	-	-	-	2	8	8
41	Science Technologies/Technicians	6	1	-	2	5	7
<b>Total</b>		<b>10,137</b>	<b>10,195</b>	<b>9,865</b>	<b>10,063</b>	<b>9,689</b>	<b>49,950</b>

## Career and Technical Education Diplomas by CIP

In Iowa, diploma programs are designed to provide students with technical training and skill development leading to entry-level employment.

All 15 of Iowa's community colleges offer Career and Technical Education (CTE) diploma programs covering many different areas of study, with the majority in health care, skilled trades, engineering, management and computer-related fields. Since very few of Iowa's community colleges offered short-term diplomas during the five-year study period, both long- and short-term diplomas were combined in Table 7 below however each can be viewed on the interactive dashboard ([https://www.iowastudentoutcomes.com/credit\\_program\\_outcomes](https://www.iowastudentoutcomes.com/credit_program_outcomes)). The majority of CTE diplomas were awarded in health professions, followed by precision production trades and mechanics and repairers training. Health professions continue to far surpass all other diploma programs, making up 46.9 percent of all diplomas awarded in AY 2022.

**TABLE 7. AY 2018 to AY 2022 Diplomas by Two-Digit CIP**

2-Digit CIP	Description	AY2018	AY2019	AY2020	AY2021	AY2022	Total
51	Health Professions and Related	1,210	1,157	1,193	1,175	1,150	5,885
48	Precision Production Trades	263	266	188	249	283	1,249
47	Mechanics and Repairers, General	259	201	178	238	258	1,134
46	Construction Trades	194	166	168	170	232	930
52	Business Management, Marketing and Related	155	145	114	129	114	657
15	Engineering Technologies and Engineering Related	85	112	98	123	95	513
12	Personal and Culinary Services	89	100	97	82	91	459
01	<b>Agriculture</b>	59	54	43	52	56	264
11	Computer and Information Sciences and Support	62	58	55	67	71	313
19	Family and Consumer Sciences/Human Sciences	53	58	47	39	48	245
50	Visual and Performing Arts	38	20	24	25	10	117
10	Communications Technologies/Technicians & Support Services	19	23	22	10	11	85
43	Homeland Security, Law Enforcement, Firefighting and Related Protective Services	13	8	10	17	24	72
13	Education	2	4	1	3	6	16
22	Legal Professions and Studies	3	1	3	3	1	11
31	Parks, Recreation, Leisure and Fitness Studies	3	3	3	2	2	13
44	Human Services	2	1	-	1	-	4
49	Transportation and Materials Moving	-	-	-	-	-	-
03	Natural Resources and Conservation	-	-	-	-	-	-
09	Communication, Journalism and Related Programs	-	-	1	-	1	2
<b>Total</b>		<b>2,509</b>	<b>2,377</b>	<b>2,245</b>	<b>2,385</b>	<b>2,453</b>	<b>11,969</b>

## Certificates by CIP

Iowa community colleges design certificates to respond to business and industry workforce needs. These technical programs, classified as short-term (less than 22 credits) and long-term (22 credits or more), varying from one to 48 credits. As illustrated in Table 8, there were a total of 11,946 certificates awarded over the five-year study period (10,293 short-term and 1,653 long-term). The largest portion of these were awarded in the health professions (5,632). Notably, certificates awarded in AY 2022 increased dramatically compared to AY 2021 (by 501 certificates).

**TABLE 8. AY 2018 to AY 2022 Certificates by Two-Digit CIP**

Description	AY2018	AY2019	AY2020	AY2021	AY2022	Short-Term AY2018 to AY2022	Long-Term AY2018 to AY2022	Total AY2018 to AY2022
Health Professions and Related	889	1,031	905	1,247	1,560	5,263	369	5,632
Homeland Security, Law Enforcement, Firefighting and Related Protective Services	88	235	194	423	371	1,260	51	1,311
Precision Production Trades	174	199	232	210	307	886	236	1,122
Business Management, Marketing and Related	165	168	139	138	148	622	136	758
Computer and Information Sciences and Support Services	165	129	124	91	100	409	200	609
Mechanics and Repairers, General	84	112	117	125	152	312	278	590
Family and Consumer Sciences/Human Sciences	69	54	61	66	63	301	12	313
Engineering Technologies and Engineering Related	73	63	57	58	75	104	222	326
Education	26	67	70	73	134	370	-	370
Transportation and Materials Moving	64	60	24	1	1	150	-	150
Construction Trades	37	54	53	36	89	262	7	269
Personal and Culinary Services	18	20	23	24	22	107	-	107
Visual and Performing Arts	12	22	20	18	9	81	-	81
Agriculture	11	16	33	17	21	52	46	98
Natural Resources and Conservation	13	11	17	15	7	63	-	63
Legal Professions and Studies	8	10	12	25	12	-	67	67
Foreign Languages, Literature and Linguistics	9	12	5	8	6	26	14	40
Parks, Recreation, Leisure and Fitness	2	1	3	-	1	6	1	7
Biological and Biomedical Sciences	3	1	-	-	-	-	4	4
Communications Technologies/ Technicians and Support Services	2	2	-	2	2	9	-	8
Science Technologies/Technicians	-	-	4	3	2	-	9	9
Communication, Journalism and Related Programs	1	3	1	2	2	8	-	9
Human Services	-	1	1	1	-	2	1	3
<b>Total</b>	<b>1,913</b>	<b>2,271</b>	<b>2,095</b>	<b>2,583</b>	<b>3,084</b>	<b>10,293</b>	<b>1,653</b>	<b>11,946</b>

**Note:** Noncredit CTE employment outcomes and data can be found at [https://www.iowastudentoutcomes.com/noncredit\\_program\\_outcomes](https://www.iowastudentoutcomes.com/noncredit_program_outcomes)



Iowa's community colleges also award noncredit certificates, which are analyzed in a separate report. Short-term career training opportunities, both credit and noncredit, have a significant impact on the skills workers need to be competitive in the workforce.

## Time-to-Degree

To measure the amount of time it took students to earn their awards (e.g., time-to-degree), enrollment data were extracted from the MIS for the six years prior to completion for students who received awards between AY 2018 and AY 2022. For example, data for AY 2018 graduates were extracted from AY 2017, 2016, 2015, 2014 and 2013 to determine if they were enrolled in their degree programs during these prior years.

There is a variance in completion time when looking at associate degrees independently. Table 9 below shows nearly three-fourths (73.8 percent) of students who received an AAA degree received their award by the end of year two. In comparison, just nearly two-thirds (63.0 percent) of students finished their AAS degree within the same period of time.

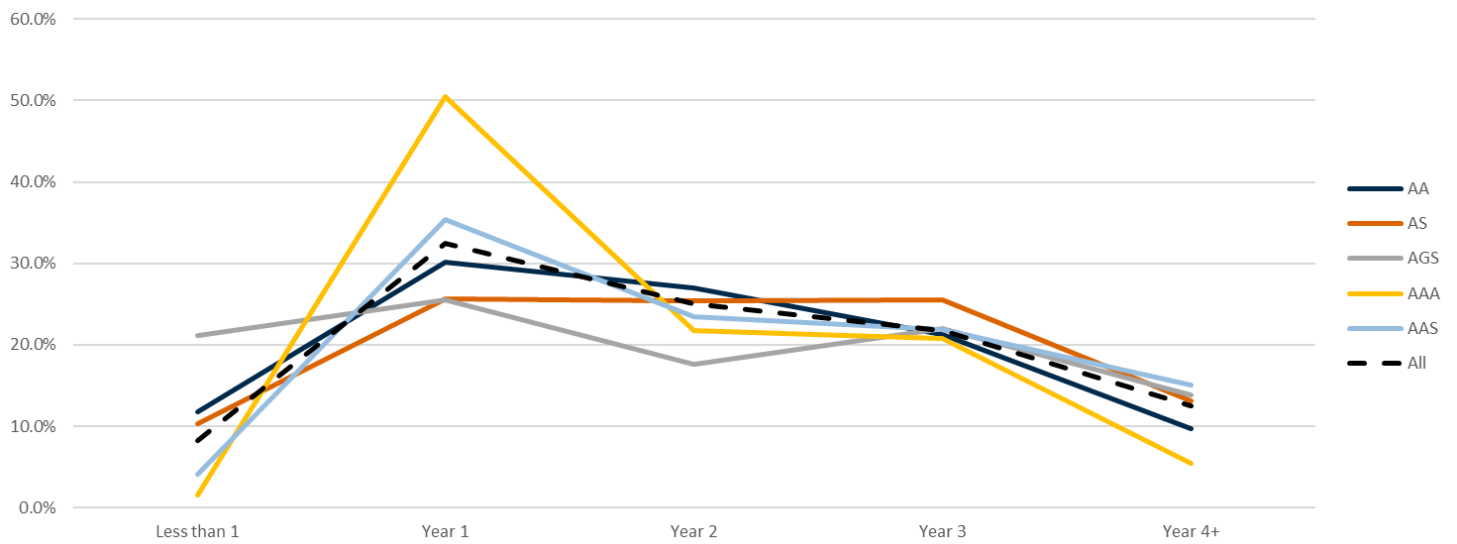
Figure 3, on the following page, represents the distribution of time-to-degree for each associate degree type. Figure 4 displays the time-to-degree in cumulative format, illustrating the total percentage of students who completed degrees in one to four years.

**TABLE 9. AY 2018 to AY 2022 Time-To-Degree for Associate Degree by Percent**

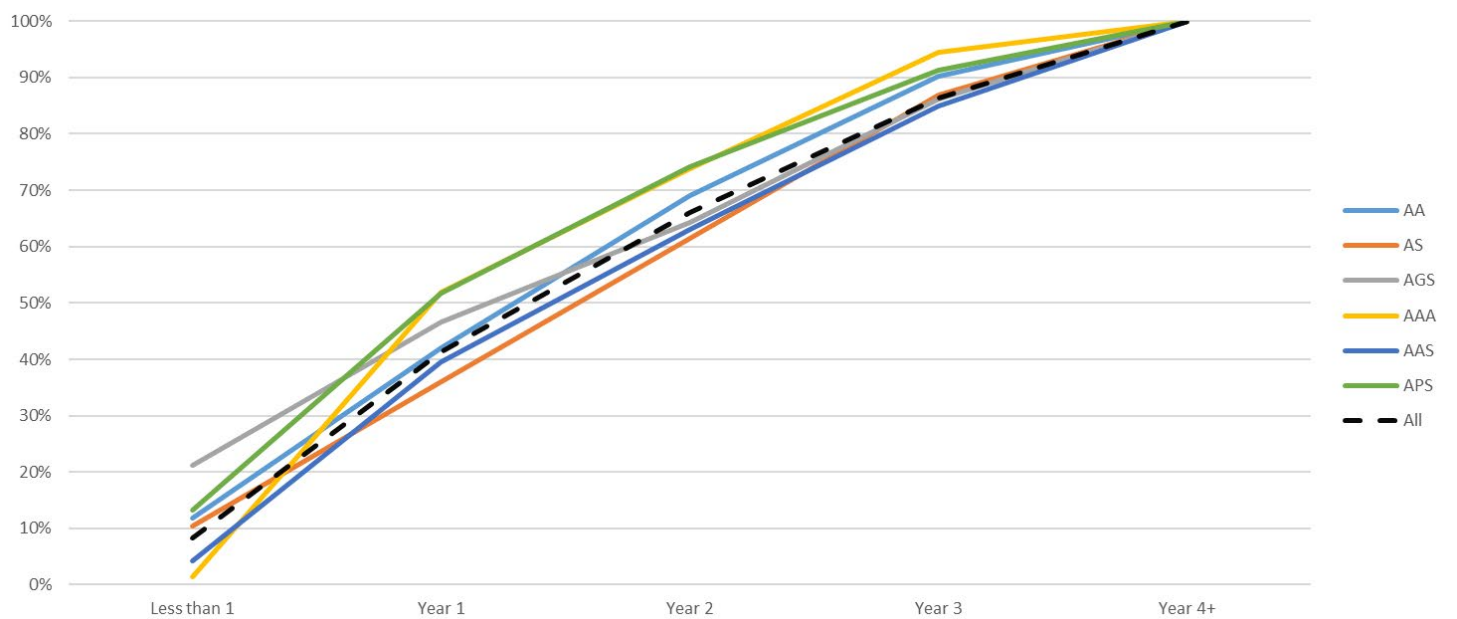
Years	AA	AS	AGS	AAA	AAS	APS	All
Less than 1	11.8%	10.3%	21.1%	1.5%	4.1%	13.3%	8.2%
Year 1	30.2%	25.7%	25.6%	50.5%	35.4%	38.5%	32.4%
Year 2	27.0%	25.4%	17.6%	21.8%	23.4%	22.4%	25.0%
Year 3	21.3%	25.5%	22.0%	20.8%	21.9%	17.2%	21.8%
Year 4	9.7%	13.1%	13.8%	5.4%	15.1%	8.6%	12.5%
Total	100%	100%	100%	100%	100%	100%	100%
First 2 Years	69.0%	61.4%	64.3%	73.8%	63.0%	74.1%	65.7%

*Totals may vary due to rounding*

**FIGURE 3. Time-To-Degree for Associate Degrees Earned, AY 2018 to AY 2022**



**FIGURE 4. Cumulative Time-To-Degree for Associate Degrees, AY 2018 to AY 2022**

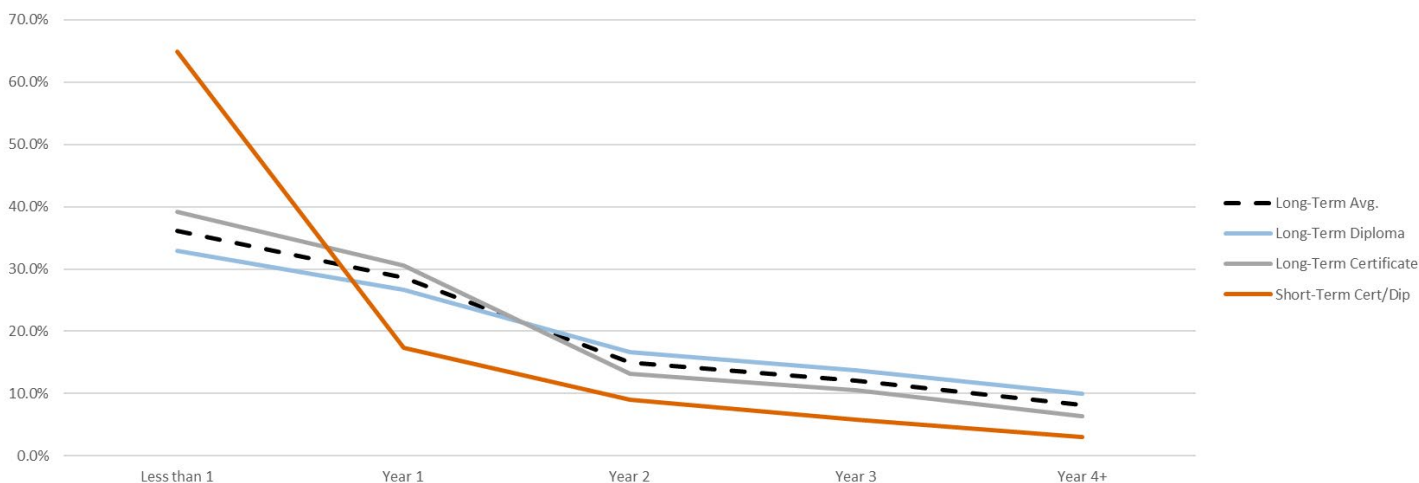


**Note:** Annual cohorts include students who entered an Iowa community college, in any term, within an academic year.

In Figure 5 below, certificates and diplomas were divided into three groups, long-term (LT) diplomas, LT certificates and an aggregation of both short-term (ST) diplomas and certificates. A diploma requires at least 15 semester credits, of which three credits must be general education, while a certificate can range from 1 to 48 credits, with no general education requirement. Long-term diploma and certificate programs consist of 22 or more credits, while short-term programs consist of less than 22 credits.

Table 10 illustrates why the LT and ST awards must be reported separately. Due to the acquisition of fewer credits, most (64.9 percent) ST diplomas and certificates were completed in less than one year, with another 17.3 percent completed by the end of year one (total 79.7 percent). In contrast, the majority of long-term certificates and diplomas were completed by year two (83.0 percent for certificates and 76.2 percent for diplomas).

**FIGURE 5. Time-To-Degree for Diploma and Certificate Awards, AY 2018 to AY 2022**



**TABLE 10. Time-To-Degree for Diploma and Certificate Awards by Percent, AY 2018 to AY 2022**

Years	Long-Term Avg.	Long-Term Dip.	Long-Term Cert.	Short-Term Cert./Dip.
Less than 1	36.1%	32.9%	39.2%	64.9%
Year 1	28.7%	26.7%	30.6%	17.3%
Year 2	14.9%	16.6%	13.2%	9.1%
Year 3	12.1%	13.7%	10.5%	5.8%
Year 4+	8.2%	10.0%	6.4%	3.0%

## Joint Enrollment

Each year, tens of thousands of Iowa high school students jointly enroll in college credit coursework through Iowa's 15 community colleges, three public universities and numerous private postsecondary institutions.

The Department defines joint enrollment as a high school student enrolled in a postsecondary course. Students may jointly enroll through contracted courses offered at the high school (concurrent enrollment), or at the college (postsecondary enrollment options). They may also enroll in non-contracted courses as a tuition-paying student. Since this section focuses on program completion, the students represented include only those who were jointly enrolled while in high school, continued their education at one of Iowa's community colleges and completed a degree, diploma or certificate during AY 2018 to AY 2022. Over the five-year study period, a total of 24,243 students earned an average of 18.9 college credits during high school. Additionally, AY 2022 saw a pronounced increase in jointly enrolled students, with an additional 644 students pursuing this option (Table 11).

**TABLE 11. Community College Awards Earned by Joint Enrollment (JE) Students, AY 2018 to AY 2022**

	AY2018	AY2019	AY2020	AY2021	AY2022	Total/ Average
Number of Students	4,308	4,479	4,582	5,115	5,759	24,243
Average Number of JE Years	1.7	1.7	1.7	1.7	1.7	1.7
Average Number of JE Credits	18.0	18.4	19.0	19.6	19.5	18.9

**Note:** The average number of JE years was calculated by counting students as jointly enrolled if they appeared in the MIS any time during that academic year, and were enrolled in a course through an Iowa community college.

Of the AY 2022 completers, many earned a short- or long-term award prior to graduation. For example, over one-third (31.8 percent) earned an AA degree and 20.3 percent earned an AAS degree in CTE programs. Another 42.5 percent earned diplomas and certificates (Table 12).

Other reports produced by the Department specific to joint enrollment can be found at: <https://educate.iowa.gov/highered/data-reporting/reports#iowa-community-colleges-joint-enrollment> and data visualization reports at: <https://iowastudentoutcomes.com/joint-enrollment>

**TABLE 12. AY 2022 Jointly Enrolled Students by Long- and Short-Term Award Types**

Award Type	# Long-Term Students	# Short-Term Students	Percent
AA	1,833	-	31.8%
AS	256	-	4.4%
AGS	42	-	0.7%
AAA	5	-	0.1%
AAS	1,171	-	20.3%
APS	2	-	0.0%
Diploma	728	4	12.7%
Certificate	119	1,599	29.8%
<b>Total</b>	<b>4,156</b>	<b>1,603</b>	<b>100%</b>

## Student Retention

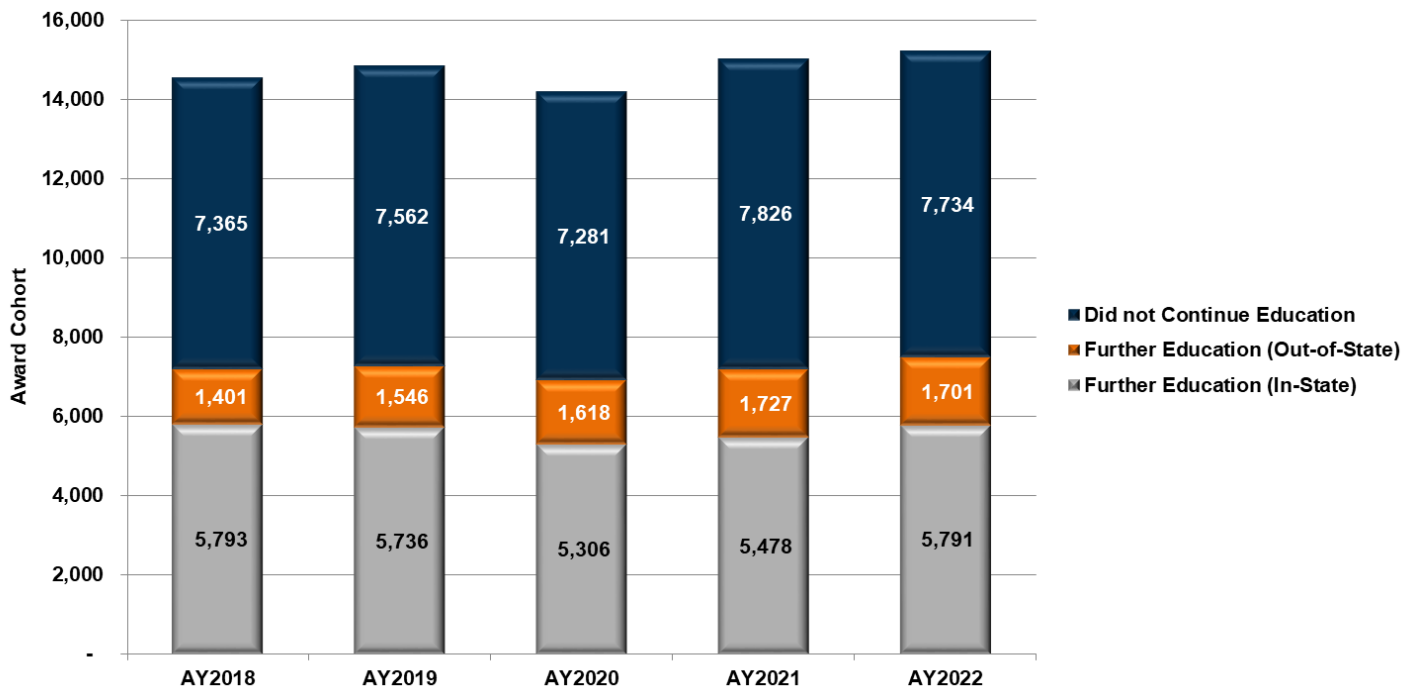
To study the various tracks community college students take after graduation, each cohort was split into three groups: 1) those who continued their education in Iowa, 2) those who continued out-of-state and 3) those who did not continue their education. Figure 7 below represents the five cohorts of graduates, delineated into these three groups by colored sections of each bar.

The majority of each cohort's graduates who continued their education did so within the state of Iowa, while a small portion transferred out-of-state. The remainder did not continue their education and were analyzed regarding in- and out-of-state employment as noted later in this report.

In order to identify these three groups within each student cohort, MIS data (individual student records) were matched with the National Student Clearinghouse (NSC) database to identify the student participation in two- or four-year, in- or out-of-state and public or private institutions during the year following the completion of a community college program. If a graduate was matched (e.g., found) within the NSC database, he or she was placed into the "Pursuing Further Education" cohort for further analysis. If a graduate was not matched within the NSC database, he or she was placed into the "Workforce" cohort. Since all of the student records had to contain an SSN in order to be used for the workforce cohort, the number of students will vary from previous portions of the report due to insufficient data. Furthermore, each of those who entered the workforce the year following his or her award was re-matched to the NSC database to ascertain whether he or she entered a postsecondary institution in subsequent years.

As illustrated in Figure 6 below, of the 15,226 students (deduplicated count) who received an award in AY 2022, 5,791 of the 7,492 (77.3 percent) who continued their education the year following their award did so in Iowa; however, 1,701 (22.7 percent) left Iowa to continue their education.

**FIGURE 6. Status of Graduates First Year After Award, AY 2018 to AY 2022**

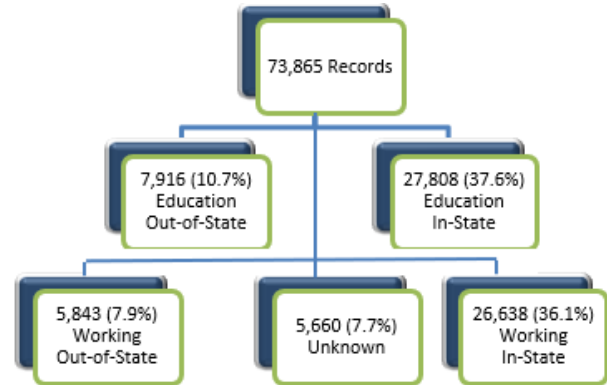


## Retention and Migration

Retaining community college graduates is important to the Iowa economy, and the vast majority of Iowa community college graduates remain in-state after completing their programs (79.8 percent\*), whether that be while continuing their education or becoming employed. Nearly half (48.5 percent) continued their education following completion of a community college award, with most students remaining in Iowa (37.6 percent). Of those students who continued their education at an institution outside Iowa, most enrolled in one of Iowa's contiguous states, such as Nebraska (1,419), Illinois (1,050) or Minnesota (648). For those who ventured farther away, the highest concentrations enrolled at institutions in Utah (419), Arizona (304) or Texas (219) within one year after graduation. Students who were neither found in further education nor employment were labeled as "unknown" for this report. When looking at migration patterns, whether it be students who transferred to an out-of-state college, or sought employment outside of Iowa, percentages were relatively small (10.7 percent and 7.9 percent, respectively). Each of these groups is studied in more detail in the subsequent sections of this report.

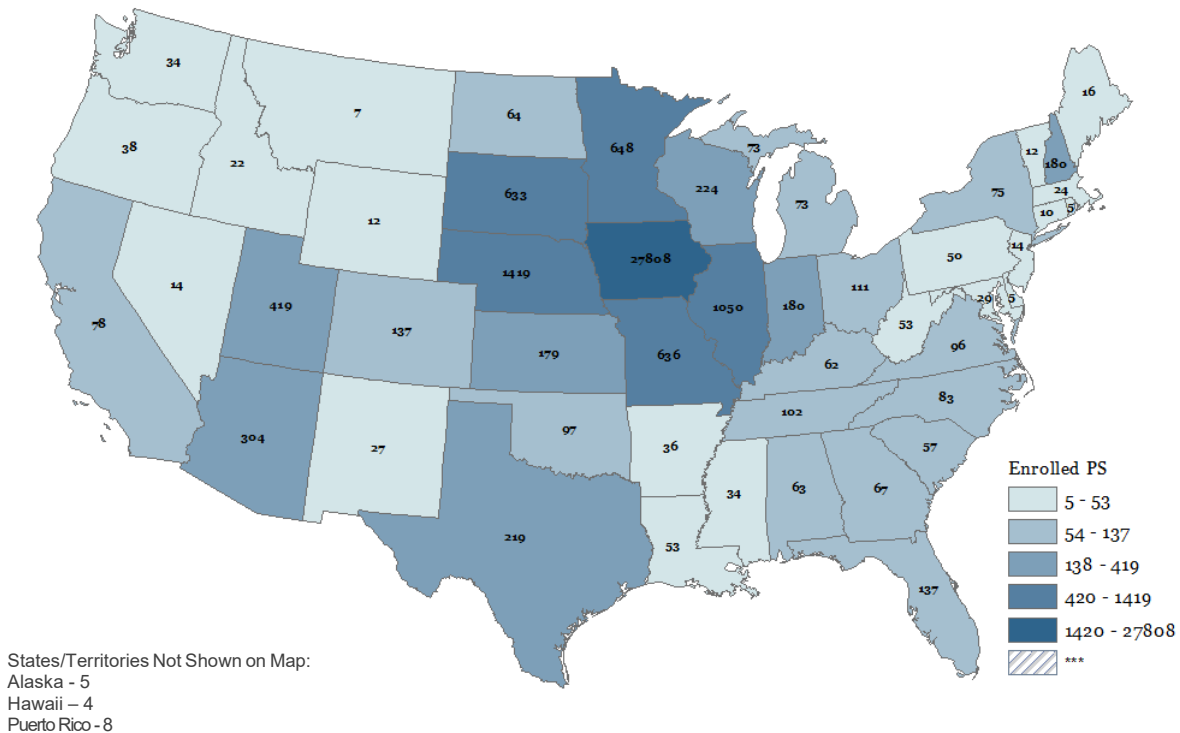
Figure 8 represents aggregate numbers by state for graduates who continued their education either in- or out-of-state one year after their award (AY 2018 to AY 2022). If students were enrolled in different colleges at the same time, the college with the most recent attendance date within that year was used.

**FIGURE 7. AY 2018 to AY 2022 Retention and Migration, First Year Following Award**



\*Percent was calculated using the 5-year cumulative totals in Figure 7, and excluding "unknown"

**FIGURE 8. Cohorts Educational Migration, First Year Following Award, AY 2018 to AY 2022**



## Further Education Cohort

Table 13 illustrates the distribution of these graduates based on their transfer institution types. Using the NSC database, the Department was able to identify Iowa community college graduates who transferred to other postsecondary institutions the first year after graduation.

Using the AY 2022 cohort as an example, 5,791 students continued their education at an in-state institution the academic year following graduation, whereas, 1,701 students continued their education at an out-of-state institution. Of those who continued their education in-state, 38.9 percent enrolled at a two-year public college, and 27.4 percent transferred to an in-state four-year public college.

**TABLE 13. Further Education First Year Following Award, AY 2018 to AY 2022**

Year Following Community College Award	# Continued Education In-State	% Continued Education In-State	# Continued Education Out-of-State	% Continued Education Out-of-State
<b>2018 Cohort (2019)</b>				
2 Year Private	0	0.0%	3	0.0%
2 Year Public	2,692	39.5%	72	1.1%
4 Year Private	915	13.4%	441	6.5%
4 Year Public	1,890	27.7%	807	11.8%
<b>Under 25 Total</b>	<b>5,497</b>	<b>80.6%</b>	<b>1,323</b>	<b>19.4%</b>
<b>2019 Cohort (2020)</b>				
2 Year Private	0	0.0%	1	0.0%
2 Year Public	2,775	38.1%	93	1.3%
4 Year Private	866	11.9%	565	7.8%
4 Year Public	2,095	28.8%	887	12.2%
<b>25 and Older Total</b>	<b>5,736</b>	<b>78.8</b>	<b>1,546</b>	<b>21.2%</b>
<b>2020 Cohort (2021)</b>				
2 Year Private	0	0.0%	2	0.0%
2 Year Public	2,442	35.3%	114	1.6%
4 Year Private	857	12.4%	550	7.9%
4 Year Public	2,007	29.0%	952	13.7%
<b>Under 25 Total</b>	<b>5,306</b>	<b>76.6%</b>	<b>1,618</b>	<b>23.4%</b>
<b>2021 Cohort (2022)</b>				
2 Year Private	0	0.0%	0	0.0%
2 Year Public	2,567	35.6%	102	1.4%
4 Year Private	819	11.4%	624	8.7%
4 Year Public	2,092	29.0%	1,001	13.9%
<b>Under 25 Total</b>	<b>5,478</b>	<b>76.0%</b>	<b>1,727</b>	<b>24.0%</b>
<b>2022 Cohort (20)</b>				
2 Year Private	0	0.0%	2	0.0%
2 Year Public	2,945	38.9%	107	1.4%
4 Year Private	773	10.2%	585	7.7%
4 Year Public	2,073	27.4%	1,007	13.3%
<b>Under 25 Total</b>	<b>5,791</b>	<b>74.3%</b>	<b>1,701</b>	<b>21.8%</b>



## Workforce Cohort

The following sections of this report analyze the annual employment and wage trends of graduates who did not continue their education. Students with previous degrees prior to the AY, and those who received multiple awards within the same AY, were also identified. Previous degrees and multiple awards may play a part in not only employability, but also in higher wages, though further research will be needed to validate this theory.

Both in- and out-of-state employment data were gathered using the UI database and the State Wage Interchange System (SWIS). Out-of-state employment was measured using SWIS. The number of unmatched records may include graduates employed by an employer that does not pay UI tax, or who were unemployed for the reporting period.

Because five years of wage data is available for the AY 2018 cohort, it is used as an example in Table 14 below. This table illustrates the aggregate employment and wages for the AY 2018 cohort in the first five years after graduation.

For example, in employment year 2019 (October 1, 2018 to September 30, 2019), 90.2 percent of those who did not continue their education were employed the year following program completion. In order to compare wages from 2018 to 2022 (most current available), a cost of living adjustment was applied and documented in the Adjusted Median Wage column in Tables 14 and 15 (a detailed explanation is contained in the Employment and Wage Record Methodology section). This adjustment was used to standardize wages in order to determine whether “real” wages increased over the study period.

**TABLE 14. Five-Year Employment and Wage Trends, AY 2018 Cohort**

Year of Employment <sup>1</sup>	% Matched to Employment	Adjusted Median Wages
2019	90.2%	\$43,140
2020	89.7%	\$45,172
2021	87.6%	\$48,831
2022	87.2%	\$50,748
2023	87.8%	\$51,743

**Note:** These values are taken from the extrapolated tables (estimated values). Wages were adjusted to four quarters.

1. Ex. 2019 defined as October 1, 2018, through September 30, 2019,
2. Percentage calculated of those matching employment in that year.

Table 15 shows employment and wage data from the first year following award for each of the most recent five cohorts. The adjusted median wage increased from \$40,180 for the AY 2018 cohort (2019 wages), to \$42,331 for the AY 2022 cohort (2023 wages), representing a 5.4 percent increase.

**TABLE 15. Employment and Wages by Cohort First Year Following Award**

Cohort Year	Year of Employment	% Matched to Employment	Adjusted Median Wages	% with Previous Degree	% Earning More than One Award
2018	2019	92.4%	\$40,180	7.2%	13.7%
2019	2020	91.3%	\$39,190	8.1%	12.6%
2020	2021	90.6%	\$40,756	8.6%	11.7%
2021	2022	91.6%	\$42,424	9.0%	13.1%
2022	2023	92.3%	\$42,331	9.3%	15.2%

## Employment and Wages by State

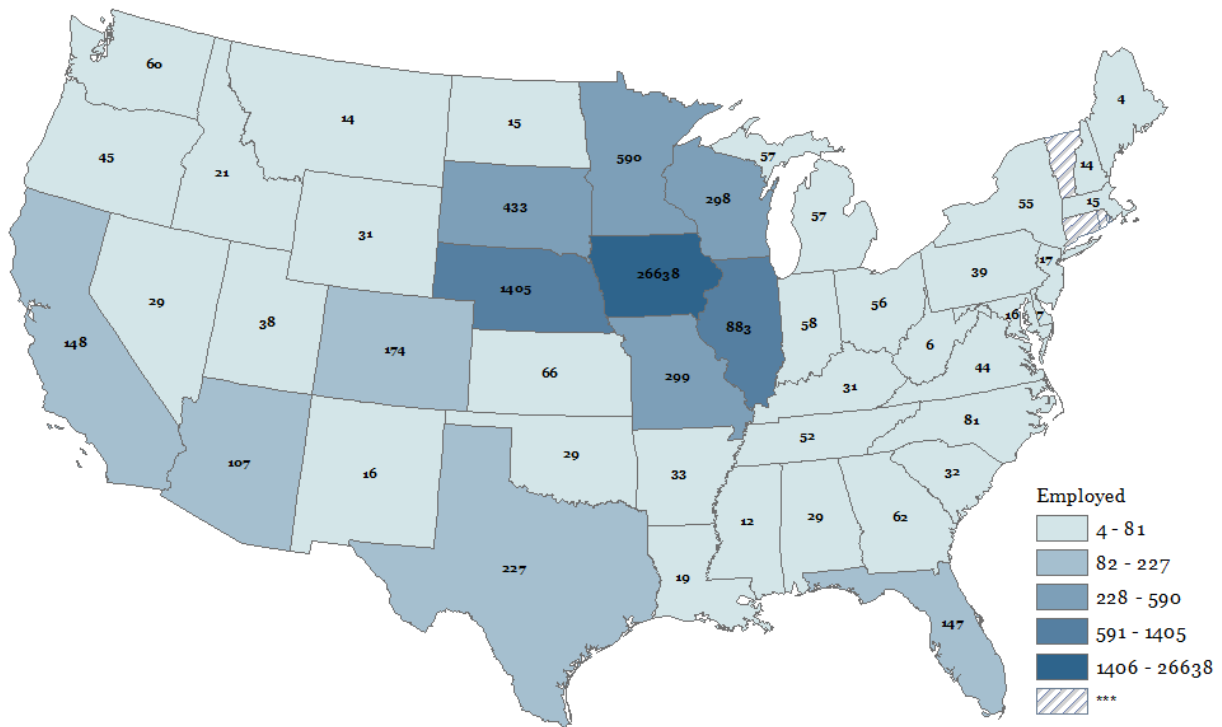
SWIS was used to identify individuals who were employed out-of-state the year following graduation based on primary employment. Though the records do not identify hours worked (i.e., full- or part-time), overtime, or occupation, they do identify the number of graduates working in other states.

Figure 9 illustrates that the majority (82.0 percent) of those who received an award in AY 2022, and who matched to employment data in the fourth quarter following the award (2023), remained in Iowa.

Similar to those who continued their education, most graduates who were employed outside of Iowa were employed in bordering states. The states that account for the most employment in the fourth quarter following award (other than Iowa) were Nebraska (1,405 matched employment), Illinois (883), Minnesota (590), South Dakota (433) and Missouri (299).

Detailed employment and wage information relating to all cohorts can be found using the link provided in Appendix A.

**FIGURE 9. Primary Employment by State First Year Following Award, AY 2018 to AY 2022 Cohorts**



States/Territories Not Shown on Map:  
Alaska - 15  
Hawaii - 10

\*\*\* Insufficient data

## Employment and Wages by Award Type

Tables 16 and 17 reflect the employment and wages, in aggregate, for those in the AY 2022 cohort who were employed in the year following graduation (2023). For example, of the 4,551 AAS graduates who did not continue their education the year after graduation, 95.0 percent matched employment records within that year, and earned an annual median wage of \$50,357 (Table 16). Though the percentage of AAS graduates who matched employment within one year of graduation is among the highest of the award categories listed, all exceeded an 80 percent employment match.

TABLE 16. 2022 EMPLOYMENT AND WAGES BY AWARD TYPE, AY 2022 COHORT

Award Type	Year of Employment <sup>1</sup>	# in Cohort (not Enrolled)	# Matched to Employment	% Matched to Employment	Adjusted Median Wage	% with Previous Degree	% Earning More than One Award
AA	2023	3,513	962	87.2%	\$31,736	8.6%	6.1%
AS	2023	500	114	87.7%	\$34,711	1.8%	2.6%
TM	2023	627	158	91.3%	\$31,724	6.3%	0.6%
APS	2023	24	11	84.6%	\$39,934	9.1%	9.1%
AGS	2023	181	60	80.0%	\$32,609	1.7%	11.7%
AAA	2023	32	23	88.5%	\$24,182	13.0%	0.0%
AAS	2023	4,551	3,470	95.0%	\$50,357	10.4%	19.8%
Diploma (>= 22 cr.)	2023	2,416	1,040	92.9%	\$39,161	7.0%	17.8%
Certificate (>= 22 cr.)	2023	284	142	87.7%	\$54,661	23.9%	0.7%
Cert./Dipl. (< 22 cr.)	2023	2,219	703	89.7%	\$35,093	7.5%	9.8%

**Note:** This table used wage data calculated to four quarters.

In aggregate, Table 17 shows an aggregation of all AY 2022 associate degree recipients had an average 92.8 percent employment match in the first year after graduation. Long-term diploma and certificate recipients had a 92.2 percent employment match, while short-term diploma and certificate recipients had an 89.7 percent employment match. Though the AAS degree graduates had a significantly higher median wage when analyzed separately (Table 16), the data show the associate degree median wages in aggregate were \$4,346 higher than the median wage for long-term certificate/diploma graduates in the first year after graduation.

TABLE 17. 2022 Employment and Wages by Award Type Aggregate, AY 2022 Cohort

Award Type	Year of Employment <sup>1</sup>	# in Cohort (not Enrolled)	# Matched to Employment	% Matched to Employment	Adjusted Median Wage	% with Previous Degree	% Earning More than One Award
Certificate/Diploma (< 22 cr.)	2023	784	703	89.7%	\$35,093	7.5%	9.8%
Certificate/Diploma (>= 22 cr.)	2023	1,182	1,182	92.2%	\$40,261	9.1%	15.7%
Associate	2023	5,172	4,798	92.8%	\$44,607	9.6%	15.8%

<sup>1</sup> 2023 wages defined as Oct. 1 2022 through Sept. 30, 2023.

## Employment and Wages by Gender

For the AY 2022 there were 14,346 students who had the necessary data elements (name, birthdate and SSN) to utilize for this portion of the report. There were more females (55.9 percent) than males (44.1 percent) who did not continue their education following completion of their award (Figure 10). Notably, the gender distribution by career cluster varied significantly, with a much higher number of females represented in health sciences and education. Males represented a much higher number in the manufacturing, construction, and wholesale trade industries. The gender distribution was very similar in the administrative support and information technology industries (see Appendix A for a link to employment data by gender and industry for more details).

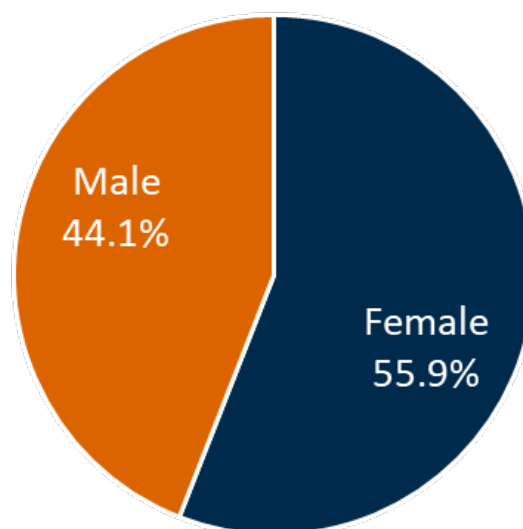
Table 18 provides the employment and wages of AY 2022 award recipients who entered the workforce in the first year after graduation (e.g., did not continue their education) by gender. Female awardees of the cohort matched to employment at a slightly higher rate (94.1 percent) than their male counterparts (90.1 percent). The adjusted median wage of female awardees, however, was lower at \$39,983, compared to \$45,676 for males.

In order to do an analysis of the gender wage gap among recent Iowa community college graduates, other factors would need to be controlled, such as program and award type. Similarly, factors such as age, race/ethnicity, previous education and industry should be considered.

Overall, 11.2 percent of female awardees who matched employment had obtained a previous degree prior to receiving their award in AY 2022, while only 6.7 percent of male awardees had previously earned degrees.

However, nearly twice the percentage of male awardees in this cohort earned multiple awards, compared to female awardees (20.2 percent and 11.4 percent, respectively).

**FIGURE 10. Percent by Gender Not Enrolled, AY 2022**



**TABLE 18. 2022 Employment and Wages by Gender First Year Following Award, AY 2022 Cohort**

Gender	Year of Employment <sup>1</sup>	# in Cohort	# in Cohort (not Enrolled)	# Matched to Employment	% Matched to Employment	Adjusted Median Wage	% with Previous Degree	% Earning More than One Award
Female	2023	8,430	4,048	3,809	94.1%	\$39,983	11.2%	11.4%
Male	2023	5,916	3,189	2,873	90.1%	\$45,676	6.7%	20.2%

1. 2023 wages defined as Oct. 1 2022 through Sept. 30, 2023.

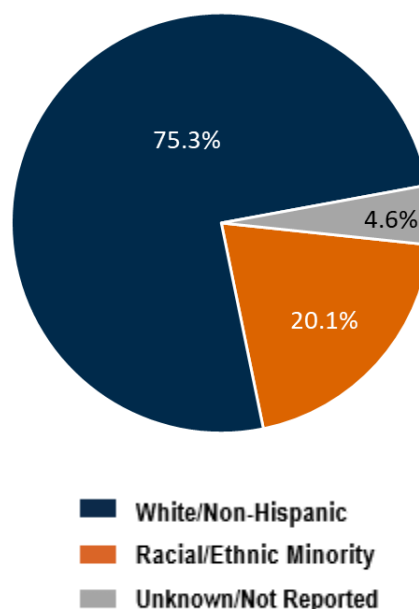
## Employment and Wages by Race/Ethnicity

Of the 7,238 award recipients in the AY 2022 cohort who did not continue their education, 20.1 percent were of a minority racial/ethnic group, 75.3 percent were white/non-Hispanic and 4.6 percent did not report race or ethnicity (Figure 11).

Table 19 provides employment and wage data by race/ethnicity of the AY 2022 award recipients who entered the workforce in the first year after graduation (e.g., did not continue their education). Racial/ethnic minority graduates matched employment at a lower rate (74.5 percent) than white/non-Hispanic graduates (82.1 percent), and their adjusted median wage was also lower than that of white/non-Hispanic graduates (\$42,096 and \$38,571, respectively).

Similar to the gender wage gap, in order to do a thorough analysis of the racial/ethnic wage gap among recent Iowa community college graduates, other factors would need to be controlled, such as program and award type. Similarly, factors such as age, race/ethnicity, previous education and industry should be considered

**FIGURE 11. Percent of Awards by Race/Ethnicity, AY 2022**



**TABLE 19. 2022 Employment and Wages by Race/Ethnicity First Year Following Award, AY 2022 Cohort**

Race/Ethnicity	Year of Employment <sup>1</sup>	# in Cohort	# in Cohort (not Enrolled)	# Matched to Employment	% Matched to Employment	Adjusted Median Wage	% with Previous Degree	% Earning More than One Award
Racial/Ethnic Minority	2023	2,887	1,297	966	74.5%	\$38,571	8.6%	15.7%
White/Non-Hispanic	2023	10,806	5,649	4,636	82.1%	\$42,096	8.9%	15.6%
Unknown/Not Reported	2023	654	292	224	76.7%	\$36,017	5.8%	10.7%

1. AY 2023 wages defined as Oct. 1 2022 through Sept. 30, 2023.

## Employment and Wages by Industry Sector

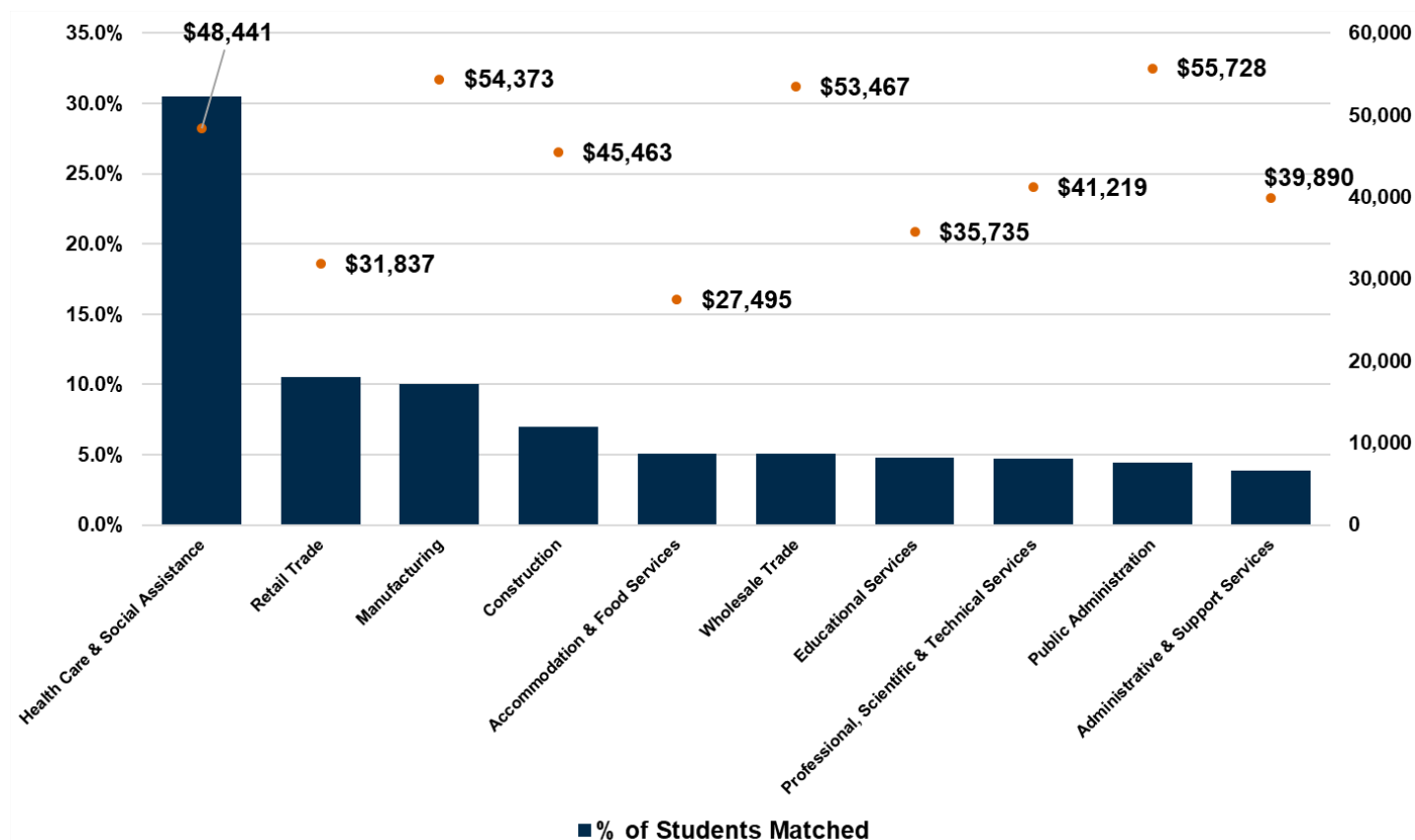
Figure 12 shows the employment and median wages by industry sector for the AY 2022 cohort in the first year after award completion (2023). The industry sectors are based on the North American Industry Classification System (NAICS) code included in the Iowa UI and SWIS wage data. The bars represent the percentage of the cohort that matched employment records, and the dots represent the 2022 median annual wage.

Industry sectors are defined by the type of business an employer engages in, not the occupation of an employee (defined by the day-to-day tasks the employee performs). As an example, a person who received a degree in health science could be a pharmaceutical technician working in the pharmacy of a large retail store. While they are doing work related to the health care field and specific to their training, they are reported to be employed in the retail trade sector.

Figure 13 also illustrates that employers in the health care and social assistance industry sector employ more than twice the number of AY 2022 Iowa community college graduates (30.5 percent) followed by retail trade (10.5 percent). The next largest industry sectors, by employment, are manufacturing (10.0 percent) and construction (7.0 percent), with the remaining sectors accounting for less than six percent each. A complete list of the employment by industry for all cohorts by college, including all years (AY 2018 to AY 2022), can be found by accessing the link in Appendix A.

Among the industry sectors employing 250 or more of the AY 2022 graduates (Figure 13), the highest adjusted median wages in the year after award were in the industries of public administration (\$55,728), manufacturing (\$54,373), wholesale trade (\$53,467), and healthcare and social assistance (\$48,441). However, it is essential to note that wages vary widely depending on the type of program the graduates completed and jobs obtained within the industry.

**FIGURE 12. 2022 Median Wages by Industry, First Year Following Award, AY 2022 Cohort (Top Ten Industries by Employment)**



## Employment and Wages by Award Type and Industry

Table 20 shows the employment and median wages for the top three industry sectors who employ students in the AY 2022 cohort, the first year after graduation by award type. While only the top three industry sectors by employment are shown per award type, the complete data for all cohorts and all years can be found by accessing the link in Appendix A.

As illustrated below, wages vary substantially within the same industry sector across award types. For instance, the median annual wage for AA recipients employed in the health care and social assistance industry sector is \$32,978, compared to \$57,304 for those with AAS degrees in the same industry. However, as noted on the previous page, wage levels vary widely by program and occupations within industry sectors.

**TABLE 20. 2022 Industry Median Wages by Award Type (Top Three), AY 2022 Cohort**

Award Type	Year of Employment <sup>1</sup>	Industry Sector of Employment	# Matched to Employment	% Matched to Employment	Adjusted Median Wage
AA	2023	Retail Trade	179	18.6%	\$27,746
AA	2023	Health Care & Social Assistance	140	14.6%	\$33,467
AA	2023	Accommodation & Food Services	109	11.3%	\$28,639
AS	2023	Health Care & Social Assistance	21	18.4%	\$36,641
AS	2023	Retail Trade	20	17.5%	\$31,426
AS	2023	Accommodation & Food Services	17	14.9%	\$25,648
AGS	2023	Health Care & Social Assistance	12	20.0%	\$38,009
AGS	2023	Retail Trade	12	20.0%	\$19,485
AGS	2023	Professional, Scientific & Technical Services	4	6.7%	\$63,491
AAA	2023	Educational Services	4	17.4%	\$19,383
AAA	2023	Professional, Scientific & Technical Services	4	17.4%	\$11,621
AAS	2023	Health Care & Social Assistance	1,258	35.5%	\$60,443
AAS	2023	Manufacturing	337	9.5%	\$59,786
AAS	2023	Retail Trade	309	8.7%	\$38,704
Diploma (>= 22 cr.)	2023	Health Care & Social Assistance	336	32.3%	\$37,911
Diploma (>= 22 cr.)	2023	Construction	165	15.9%	\$42,738
Diploma (>= 22 cr.)	2023	Manufacturing	119	11.4%	\$51,813
Certificate (>= 22 cr.)	2023	Public Administration	24	16.9%	\$73,878
Certificate (>= 22 cr.)	2023	Transportation & Warehousing	24	16.9%	\$70,703
Certificate (>= 22 cr.)	2023	Health Care & Social Assistance	20	14.1%	\$43,636
Cert./Dipl. (< 22 cr.)	2023	Health Care & Social Assistance	250	35.6%	\$36,476
Cert./Dipl. (< 22 cr.)	2023	Manufacturing	85	12.1%	\$45,613
Cert./Dipl. (< 22 cr.)	2023	Retail Trade	74	10.5%	\$25,455

1. AY 2023 wages defined as Oct. 1 2022 through Sept. 30, 2023.



## Employment and Wages by CIP

When analyzing wage and employment data, it is important to note the restrictions and limitations of the Iowa and SWIS data as explained in the “Process and Methodology” section of this report. Two important factors that impact the data are: (1) the wage data only represent employees of companies that pay UI tax, and (2) the number of hours worked are not reported within the data, making it impossible to identify part-time versus full-time employment. The primary reason for utilizing the median annual wage for analysis is that it mitigates the effects of outliers to provide a more accurate representation of the typical employee’s wages.

The programs with the most graduates not continuing their education in the first year after award are shown in Figures 13 to 15, while data for all other programs can be found by accessing the link found in Appendix A.

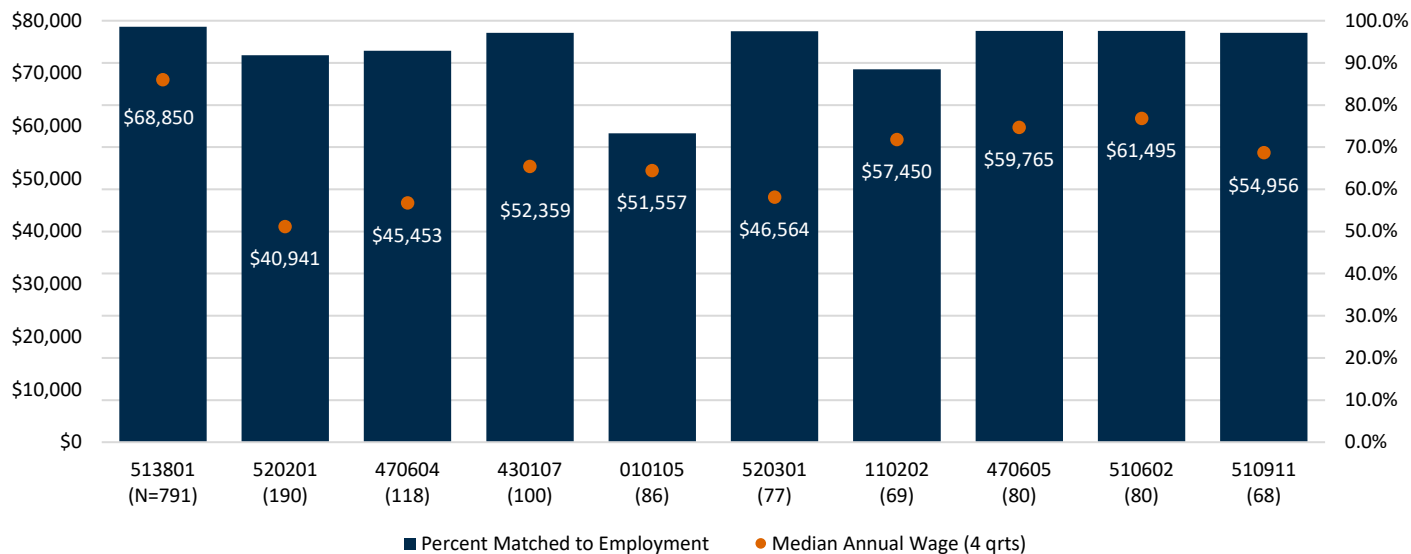
Using the AY 2022 cohort of students who did not continue their education in the year following their graduation, recipients were matched to Iowa UI and SWIS data to determine if they obtained employment within the first year after receiving their award. Figure 13 illustrates the data for those graduates who earned an AAS by CIP code. For example, 98.6 percent of students who received an AAS in the registered nursing program (CIP 513801), and did not continue their education, matched employment and earned a median annual wage of \$68,850 in 2023 and 97.1 percent of those in the radiologic technology AAS program (CIP 410911) were matched to employment and earned a median annual wage of \$54,956.

Figures 14 and 15 show the AY 2022 cohort outcomes for the largest certificate and diploma programs, grouped by 22 or more credits or less than 22 program credits. Figure 14 illustrates the data for those graduates who earned a certificate or diploma requiring 22 or more credits by CIP code. For example, 94.4 percent of students who received a certificate or diploma in the nursing assistant program (CIP 513902), and who did not continue their education, matched employment and earned a median annual wage of \$31,662 in 2023.

Figure 15 illustrates the data for those graduates who earned a certificate or diploma requiring less than 22 credits by CIP code. For example, 90.4 percent of students who received a short-term diploma in the welding technology program (CIP 480508), and who did not continue their education, matched employment and earned a median annual wage of \$46,148 in 2023.

Appendix A contains data for other programs not shown here.

**FIGURE 13. 2023 Employment and Wages by AAS, First Year Following Award, AY 2022 Cohort**

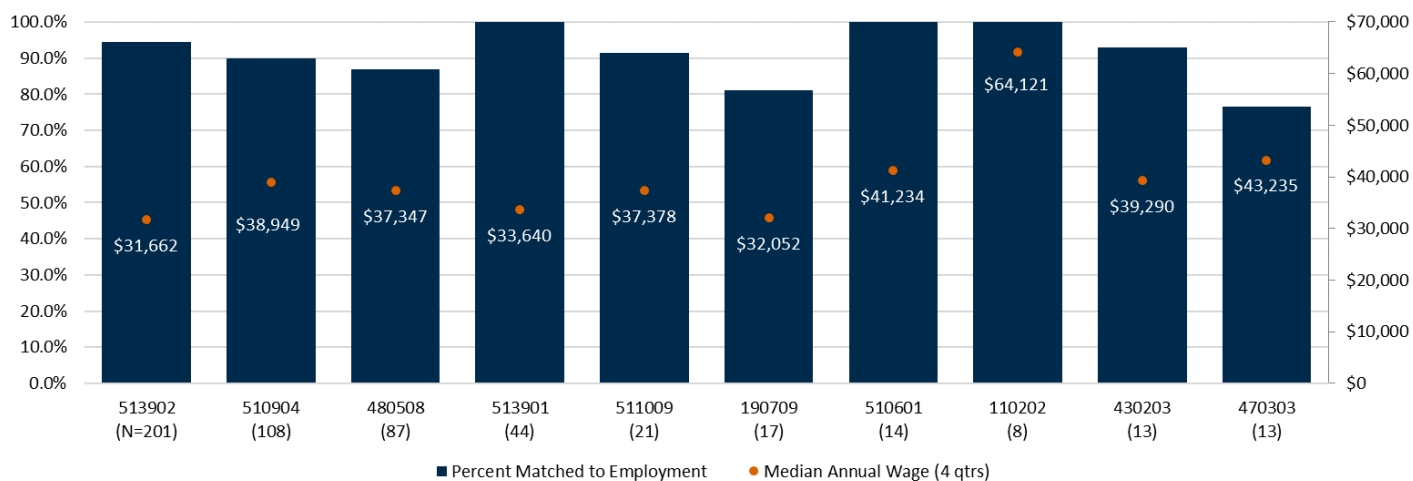


**Program Legend:**

- |  |  |
|--|--|
| 513801: Registered Nursing/Registered Nurse                  | 520301: Accounting                             |
| 520201: Business Administration and Management, General      | 110202: Computer Programming                   |
| 470604: Automobile/Automotive Mechanics Technology           | 470605: Diesel Mechanics Technology/Technician |
| 430107: Criminal Justice/Police Science                      | 510602: Dental Hygiene/Hygienist               |
| 010105: Agricultural/Farm Supplies Retailing and Wholesaling | 510911: Radiologic Technology                  |

See Appendix A for CIP codes not represented above.

**FIGURE 14. 2023 Employment and Wages by Certificate/Diploma Program (22 or more credits), First Year Following Award, AY 2022 Cohort**

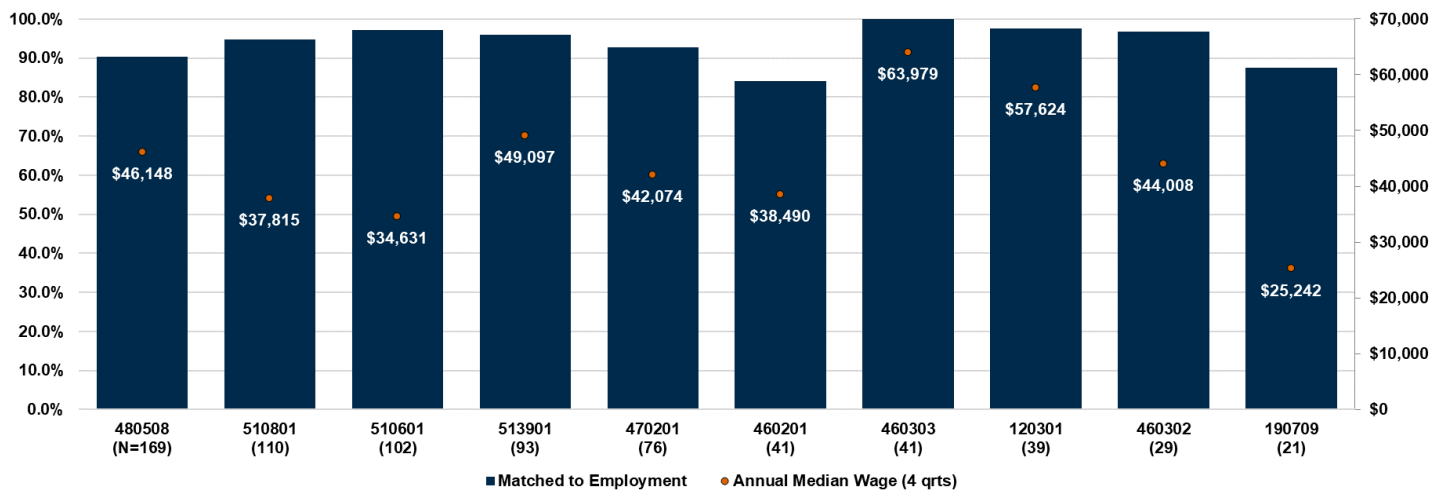


**Program Legend:**

- |  |   |
|--|---|
| 513902: Nursing Assistant/Aide and Patient Care Assistant/Aide | 190709: Child Care Provider/Assistant               |
| 510904: Emergency Medical Technology/Technician                | 510601: Automobile/Automotive Mechanics Technology  |
| 480508: Welding Technology/Welder                              | 110202: Computer Programming, Specific Applications |
| 513901: Licensed Practical/Vocational Nurse Training           | 430203: Fire Science/Firefighting                   |
| 511009: Phlebotomy Technician                                  | 470303: Industrial Mechanics and Maintenance        |

See Appendix A for CIP codes not represented above.

**FIGURE 15. 2023 Employment and Wages by Certificate/Diploma Program (less than 22 credits), First Year Following Award, AY 2022 Cohort**



**Program Legend:**

480508: Welding Technology  
 510801: Medical Assisting  
 510601: Dental Assisting/Assistant  
 513901: Licensed Practical Nursing  
 470201: HVAC

460303: Lineworker  
 120301: Mortuary Science  
 470604: Automotive Mechanic Tech  
 460302: Electrician  
 190709: Child Care Provider/Assistant

## Career Clusters

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, sales, research, merchandising, marketing and communications.

**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 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.

## Awards by Career Cluster

Career clusters represent groupings of occupational programs designed to prepare students for success in their areas of interest, by concentrating on developing particular skill sets that will help them attain meaningful employment. However, when researching career clusters, it is important to note each cluster represents multiple industries and a variety of occupations.

Table 21 illustrates the number of awards earned by Iowa community college students by career cluster from AY 2018 to AY 2022. The list also includes awards earned by students in the college parallel/liberal arts (AA and AS) programs. Although some of these AA and AS programs focus somewhat on specific fields, such as criminal justice or business, the courses are not focused on direct employment skill development like the courses in CTE programs.

College parallel/liberal arts and the health science career clusters account for the majority of credit-bearing awards earned at Iowa's community colleges. As previously discussed, most students in college parallel/liberal arts programs transfer to continue their education. Therefore, this category was separated from CTE clusters for this analysis. Since most of the CTE career cluster graduates move directly into the workforce, they are the focus of the employment and wage research conducted for this report.

**Note:** Only 15 of the 16 career clusters are listed in Figures and Tables due to insufficient data for the Government and Public Administration career cluster.

**TABLE 21. Awards by Career Cluster, AY 2018 - AY 2022**

Cluster Name	2018 Awards	2019 Awards	2020 Awards	2021 Awards	2022 Awards	Total Awards	Increase/Decrease AY 2018 to AY 2022
College Parallel/Liberal Arts	5,274	5,328	5,052	5,041	4,419	25,114	(622)
Agriculture, Food and Natural Resource	553	545	571	538	557	2,764	19
Architecture and Construction	625	582	547	610	751	3,115	141
Arts, Audio/Video Technology and Communications	291	290	253	257	232	1,323	(25)
Business, Management and Administration	395	433	392	478	579	2,277	101
Education and Training	57	102	79	135	340	713	205
Finance	208	246	223	206	235	1,118	29
Health Science	3,960	4,060	3,796	4,334	4,472	20,622	138
Hospitality and Tourism	206	222	156	193	177	954	(16)
Human Service	322	314	279	288	309	1,512	21
Information Technology	535	493	481	488	455	2,452	(33)
Law, Public Safety, Corrections and Security	301	448	351	725	725	2,550	-
Manufacturing Career	960	966	827	957	1,068	4,778	111
Marketing Sales and Service	98	91	69	83	100	441	17
Science, Technology, Engineering and Mathematics	81	70	85	147	274	657	127
Transportation, Distribution, and Logistics	693	654	566	551	533	2,997	(18)
<b>Total</b>	<b>14,559</b>	<b>14,844</b>	<b>13,727</b>	<b>15,031</b>	<b>15,226</b>	<b>73,387</b>	<b>195</b>

## Employment and Education by Career Cluster

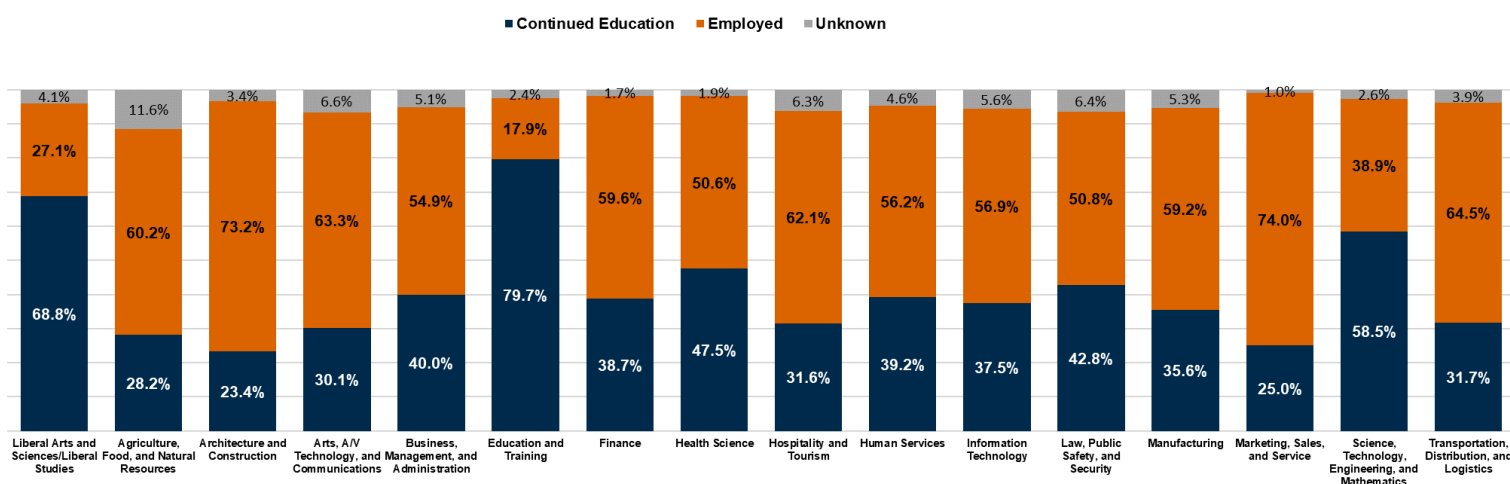
By analyzing and charting each career cluster based on the percentage of students who continued their education versus those who became employed, it is evident which clusters are targeted toward direct employment.

Figure 16 illustrates that within the first year following award completion, 50.6 percent of health science graduates became employed, 47.5 percent continued their education and a small percentage of completers (1.9 percent) could not be found in either the NSC or the UI wage records. These award completers are denoted as “Unknown” in Figure 17.

In contrast, the liberal arts and sciences cluster, which is designed for transfer to a four-year institution, had one of the highest rates of graduates continuing their education (79.7 percent). Naturally, this is accompanied by a lower rate of graduates entering employment after graduation (17.9 percent).

Similar data were analyzed for other cohorts by community college, and are available by accessing the link found in Appendix A.

**FIGURE 16. Enrollment and Employment Status by Career Cluster, First Year Following Award (2022), AY 2022 COHORT**



## Transition into the Workforce

In the previous sections, career clusters and primary industry sectors of employment were analyzed independently. The cross-tabulation of these two variables enables the tracking of completers within each career cluster to the industry sectors in which they secure employment.

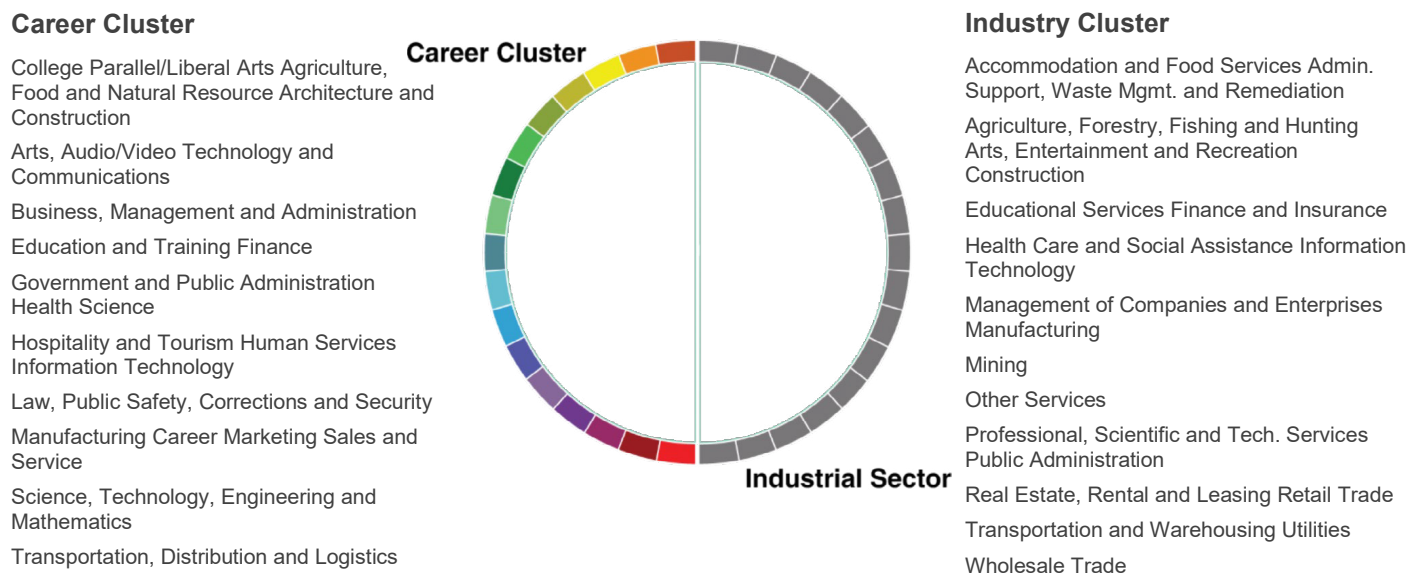
Figure 17 provides a visualization used to relate these two variables. Circos software, which uses polar coordinate mapping to illustrate data relationships, maps the career clusters to the primary industry of employment for each graduate in this study.

The colored bars on the left side of the circle represent career clusters, including college parallel/liberal arts, in which students earned awards. Each colored bar corresponds to one of the 17 career clusters listed on the left. The gray bars on the right side represent the industry sectors in which the graduates became employed. Each gray bar corresponds to one of the 20 aggregate industry sectors listed on the right.

Figure 18 shows the relationship between career clusters and industry sectors for AY 2018 through AY 2022 cohorts via hundreds of ribbons connecting the career cluster graduates (left bars) to their industry sector of employment (right bars). The width of the bars on both sides illustrate the size of the overall number of graduates in each cluster and those employed within each sector. Bars/ribbons representing data that were suppressed due to low numbers were removed from Figure 18, resulting in fewer colored and gray bars.

It is important to note the data show the industry sectors in which completers are primarily employed, not their actual occupations. For instance, health science graduates may be pharmaceutical technicians employed by a pharmacy at a large retail store. While they are doing work related to the health care field, they are reported as employed in the retail trade sector. This distinction between occupation and industry sector is worthwhile to note when analyzing the flow from education to industry as illustrated in Figures 18 on the following page.

**FIGURE 17. Circos Visualizations**

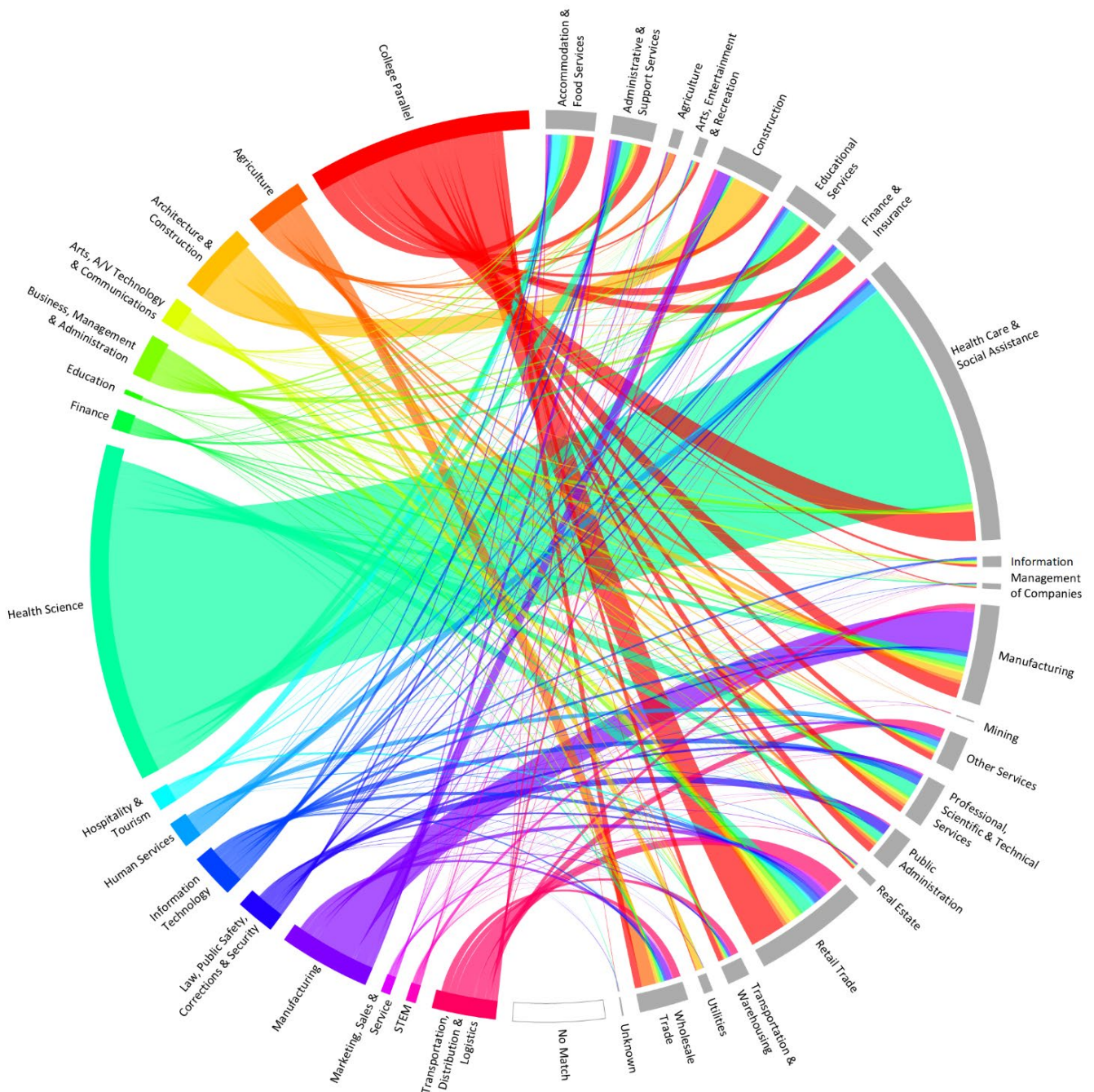




## Cluster to Industry

As previously mentioned, students who chose the college parallel/liberal arts program of study and the health science career cluster represent the largest portion of AY 2018 to AY 2022 graduates, which explains why the red (top left) and green (mid left) sectors cover the most area in Figure 19. All graduates who did not continue their education within one year of graduation are graphically represented in this figure, with the “No Match” (mid-bottom) section corresponding to those graduates who did not match UI wage records. This diagram illustrates that the majority of health science completers obtained employment within the health care and social assistance industry. However, this career cluster provided workers in nearly every industry. The college parallel completers were largely disbursed as well, with their largest industry sectors of employment being retail trade, health care and social assistance.

**FIGURE 19. Cluster to Industry Mapping for AY 2018 to AY 2022  
Community College Graduates (2023 Employment)**



## Employment and Wage Record Methodology

- All wages for this report originate either from the Iowa UI wage database or SWIS network of state UI wage databases (see Appendix A for a description and the limitations of UI wages).
- 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 AY 2021 (October 2020 - September 2021) levels (CPI-u = 266.6158 ) 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 CPIbase is the CPI value of the base time period (AY 2019), CPI<sub>t</sub> is the CPI value of the time period being adjusted from and W<sub>t</sub> is the wage of the time period being adjusted. 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 year).
- 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 year, and that assignment is based on the industry sector/state of the employer they earned the most wages with in that year. So, for example, if Lincoln earned \$20,000 in the manufacturing industry sector and \$8,000 in the retail trade industry sector in 2019, Lincoln would be included in the overall employment and wages table with a gross wage of \$28,000. In the employment and wages by industry sector table, he would be included under the manufacturing industry sector with a gross wage of \$28,000 (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 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).

## References

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Circos: an Information Aesthetic for Comparative Genomics. Retrieved from <http://www.circos.ca/>.

## Appendix A

Below is a list of the detailed data tables used for this report. They can be found in the Excel workbook linked below. Within the workbook, there is one spreadsheet containing data for each cohort (AY 2018, AY 2019, AY 2020, AY 2021 and AY 2022), as well as all five combined. The workbook contains statewide data and data broken out by each community college. It can be accessed at: <https://www.educateiowa.gov/iowa-community-college-program-outcomes>.

### Methodology

Table 1 - Overall Employment and Wages

Table 2 - Overall Employment and Wages by State of Employment

Table 3 - Overall Employment and Wages by Industry Sector of Employment

Table 4 - Employment and Wages by Gender

Table 5 - Employment and Wages by Gender by State of Employment

Table 6 - Employment and Wages by Gender by Industry Sector of Employment

Table 7 - Employment and Wages by Gender by Age

Table 8 - Employment and Wages by Age

Table 9 - Employment and Wages by Age by State of Employment

Table 10 - Employment and Wages by Age by Industry Sector of Employment

Table 11 - Employment and Wages by Race/Ethnicity

Table 12 - Employment and Wages by Race/Ethnicity by State of Employment

Table 13 - Employment and Wages by Race/Ethnicity by Industry Sector of Employment

Table 14 - Employment and Wages by Race/Ethnicity by Age

Table 15 - Employment and Wages by Award Type (Aggregated)

Table 16 - Employment and Wages by Award Type (Aggregated) by State of Employment

Table 17 - Employment and Wages by Award Type (Aggregated) by Industry Sector of Employment

Table 18 - Employment and Wages by Award Type

Table 19 - Employment and Wages by Award Type by State of Employment

Table 20 - Employment and Wages by Award Type by Industry Sector of Employment

Table 21 - Employment and Wages by Program by Award Type

Table 22 - Employment and Wages by Program by Award Type by State of Employment

Table 23 - Employment and Wages by Program by Award Type by Industry Sector of Employment

Table 24 - Employment and Wages by Career Cluster

Table 25 - Employment and Wages by Career Cluster by State of Employment

Table 26 - Employment and Wages by Career Cluster by Industry Sector of Employment

Table 27 - Employment and Wages by Career Cluster by Gender

Appendix B - Unemployment Insurance (UI) Records Description and Limitations