

Iowa Community College Education Outcomes

Certificate, Diploma and Associate Degree Programs
Academic Year 2016 to Academic Year 2020

Released 2022



COMMUNITY COLLEGES &
WORKFORCE PREPARATION

**IOWA DEPARTMENT
OF EDUCATION**

Grimes State Office Building



Phone: 515-281-8260
Fax: 515-242-5988
www.educateiowa.gov

Ann Lebo
Director, Iowa Department
of Education
515-281-3436
ann.lebo@iowa.gov

Jeremy Varner
Administrator, Division of
Community Colleges and
Workforce Preparation
515-281-8260
jeremy.varner@iowa.gov

Amy Gieseke
Bureau Chief, Bureau of
Community Colleges
515-858-2234
amy.gieseke@iowa.gov

Vladimir Bassis
Administrative Consultant
Bureau of
Community Colleges
515-281-3671
vladimir.bassis@iowa.gov

Paula Nissen
Administrative Consultant,
Bureau of
Community Colleges
515-418-8273
paula.nissen2@iowa.gov

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

State Board of Education

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Ann Lebo, Director and Executive Officer
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**Division of Community Colleges
and Workforce Preparation**

Jeremy Varner, Division Administrator

Bureau of Community Colleges

Amy Gieseke, Bureau Chief

Vladimir Bassis, Administrative Consultant

Paula Nissen, Administrative Consultant

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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 Community Colleges and
Workforce Preparation
Grimes State Office Building
400 E. 14th Street
Des Moines, IA 50319-0146**

Phone: 515-281-8260
Fax: 515-242-5988
www.educateiowa.gov

Jeremy Varner
Division Administrator
515-281-8260
jeremy.varner@iowa.gov

Amy Gieseke
Chief, Bureau of
Community Colleges
515-858-2234
amy.gieseke@iowa.gov

Paula Nissen
Administrative Consultant
Bureau of Community Colleges
515-418-8273
paula.nissen2@iowa.gov

Vladimir Bassis
Administrative Consultant
Bureau of Community Colleges
515-281-3671
vladimir.bassis@iowa.gov

**Iowa Workforce Development
Labor Market Information Division
1000 E. Grand Avenue
Des Moines, IA 50319**

Phone: 515-725-3896
Fax: 515-281-9656
www.iowaworkforcedevelopment.gov

Ryan Murphy
Division Administrator, Labor Market Information
515-281-7505
ryan.murphy@iwd.iowa.gov

Katie Lippold, Bureau Chief
Regional Research & Analysis Bureau
515-281-3035
mary.lippold@iwd.iowa.gov

Kiyo Matsuyama
Research Economist, Regional Research
& Analysis Bureau
515-281-8118
kiyokazu.matsuyama@iwd.iowa.gov



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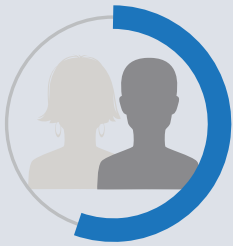
Education Outcomes Iowa Community Colleges

Certificate, Diploma and Associate Degree Programs
Academic Year 2019/2020

Iowa's Community Colleges provide a wide array of educational options to students through community college certificate, diploma, and associate degree programs. These programs are designed to meet state and regional economic needs of both the workforce and businesses. Annually student cohorts are established for research into education outcomes where students are followed into further education, training, or employment. These outcomes inform students about wages and employment options, businesses with skilled worker supply, and educators in program development and improvement.

Student Demographics

The majority of credit students are female, under age 25 and not racially diverse.



57.2% of credit students were female.



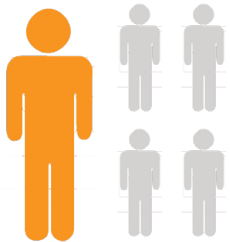
74.2% of credit students were younger than 25 years of age.



18.9% of credit students who reported their race/ethnicity were of a racial or ethnic minority group.

Continuing Education

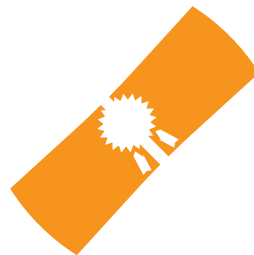
Credit programs often lead to enrollment in further education and/or transfer.



49.4% of students who completed their program in AY 2018 enrolled in further education.



83.3% of students who continued their education did so at an Iowa college or university.



93.7% of AY 2017-2018 students did **not** have a previous degree.

Top 10 Credit Programs

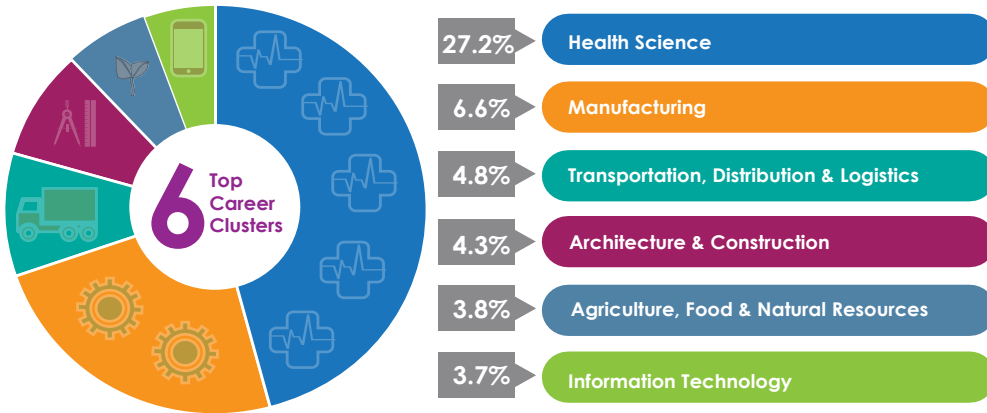


Liberal Arts & Sciences and programs in health care professions comprise the highest number of completions in AY2018-2019.



Top Career Clusters

The National Career Clusters Framework organizes programs into 16 career clusters. Excluding college parallel/liberal arts (36.2%), the top career clusters by completion were health science and manufacturing.

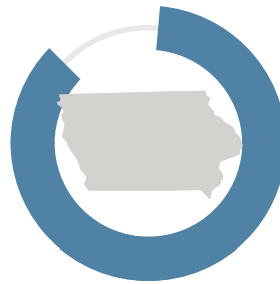


Employment

The majority of students in community college credit programs stay in Iowa and are employed the first year following completion of their programs.



91.0% of credit students were employed in the first year following completion.

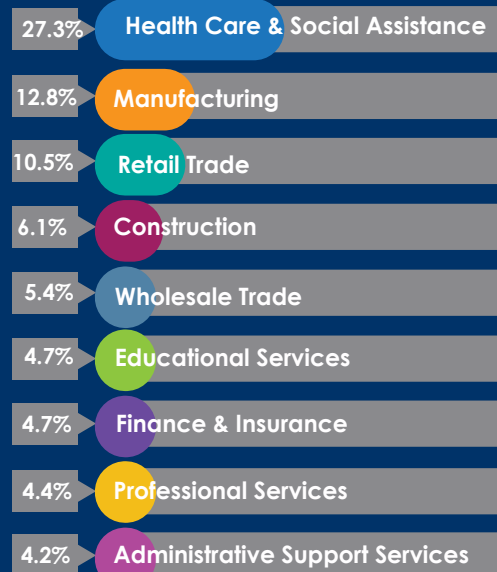


83.5% of credit students were employed in the state of Iowa.

Top Industries for Employment



Of the credits students who completed in AY 2017-2018 and employed the year following program exit (2019), over one-fourth were employed in health care and social assistance.



Read the full report: <https://educateiowa.gov/adult-career-comm-college-community-colleges/iowa-community-college-program-outcomes>

Earnings

Earnings in the first year following program completion vary based on a variety of factors, including the duration of training, type of award and employer demand. The following examples provide median annual wages by type of award; however, wages vary based on program.

Associate Degree	Long-term Certificate/Diploma	Short-term Certificate
\$33,183	\$31,397	\$25,250



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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 that the education and training provided by Iowa’s community colleges have on the economy. Program 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] 2016, 2017, 2018, 2019 and 2020). 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 the 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, 2019, to August 31, 2020, is AY 2020). Students who received awards in AY 2016, 2017, 2018, 2019 or 2020 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 that 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/Career Option (ASCO), 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

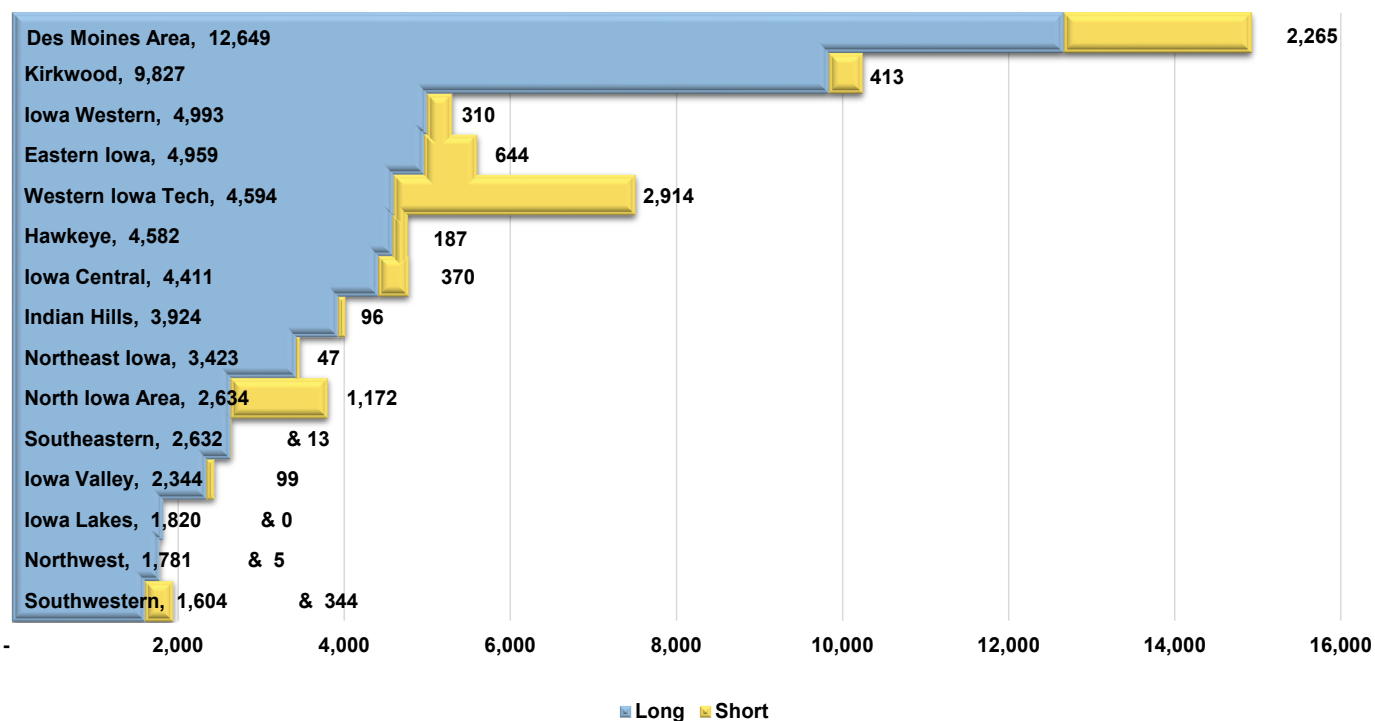
Statewide Total Awards

For this portion of the report, an aggregate analysis was conducted on 75,056 short- and long-term credit awards received by Iowa community college students from AY 2016 through AY 2020. Though each college yielded a different number of total awards, in aggregate there were 52,023 associate degrees, 12,176 diplomas, 2,020 long-term certificates, and 8,858 short-term certificates awarded to graduates by the 15 Iowa community colleges during academic years 2016 to 2020 (see Figure 1).

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-ASCO-AS-AA-Diploma-Certificate-Short- Term award). 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://educateiowa.gov/adult-career-comm-college/community-colleges/iowa-community-college-program-outcomes>

FIGURE 1. AY 2016 TO AY 2020 TOTAL SHORT- AND LONG-TERM AWARDS

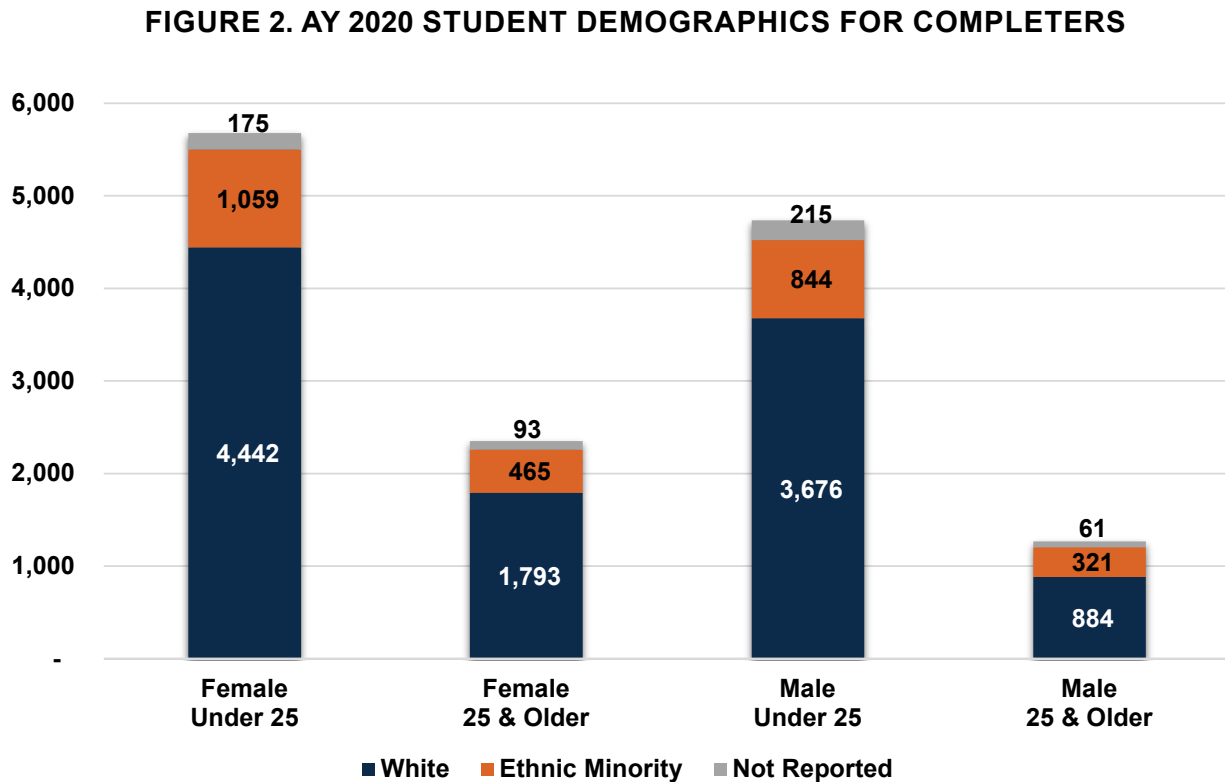


Student Demographics

In AY 2017, demographics were added to the dataset in order to study students by gender, race/ethnicity and age. Gender was defined as either male or female. Age groups were 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.

There were a total of 8,027 female students, 6,001 male students and zero students with unknown gender. The majority of students in AY 2020 were under the age of 25 (10,411) and white (8,118). However, there was a greater percentage of ethnic minority male students who were 25 years of age and older (26.6 percent), compared to those under 25 (18.7 percent). Ethnic minority female students also represented a greater percentage of those 25 years of age or older (20.6 compared to 19.3 percent).

Figure 2 below visually illustrates the Iowa community college student completer population demographics in AY 2020.



Awards and Programs by Gender

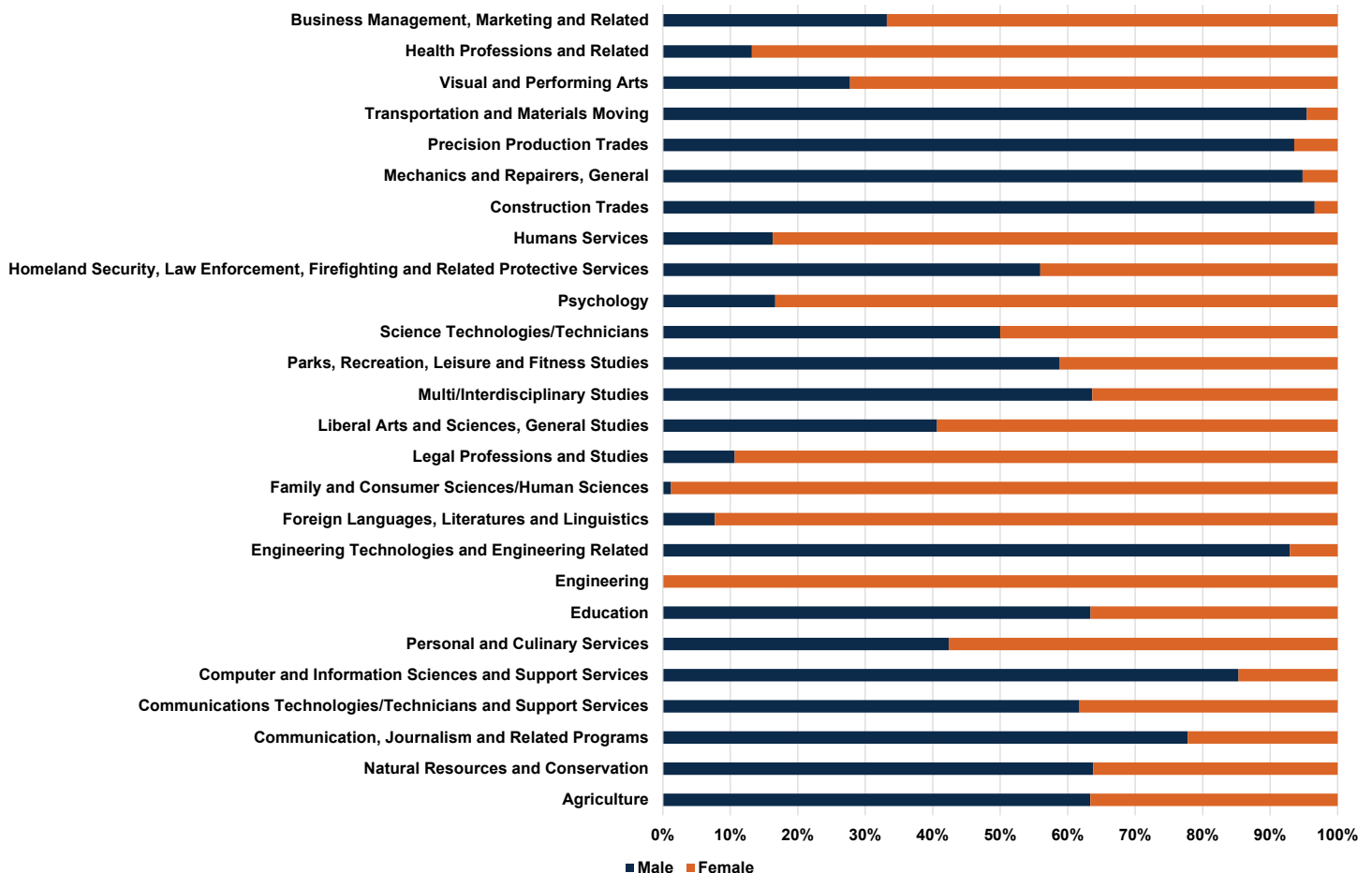
More female than male community college students received awards in AY 2020 (57.0 percent of all awards). The female students also represented higher percentages of those who earned associate degrees (57.4 percent), diplomas (61.6 percent), and certificates (50.6 percent). However, if each 2-digit CIP is analyzed separately, there is a deviation from this continuum, shown in the figure 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 3 illustrates the percentage of male and female students for the top programs completed in AY 2020. Female students dominated the training completion in health professions, business management and family and consumer sciences/human services. Male students far outnumbered female students in mechanic and repair training, precision production trades, computer technology, engineering and construction. All program completions by gender can also be found on the credit program outcomes interactive dashboard at: <https://educateiowa.gov/iowa-community-college-program-outcomes-interactive-charts>.

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

**FIGURE 3. TOP 15 PROGRAMS COMPLETED IN AY 2020
BY NUMBER OF AWARDS BY GENDER**



Awards and Programs by Age

As mentioned earlier in this report, students were separated into two age categories: those under the age of 25 and 25 years of age and older. An analysis was conducted to see if there was a difference between the younger group and older group when it came to programs of study. Liberal arts and sciences were the most popular among the younger group (42.3 percent), whereas the older group predominately completed programs in health professions (32.3 percent). Interestingly, the second largest percentages for each group were in the same two categories, yet transposed. Table 1 shows that 18.7 percent of students age 25 and older completed liberal arts and sciences programs, while 23.6 percent of students under the age of 25 completed health professions programs.

Another intriguing fact is that there are a few differences in the percentages of younger to older students by program type. The students age 25 and older represented higher percentages in business management, computer sciences, and homeland security/law enforcement.

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

TABLE 1. TOP TEN PROGRAMS BY TWO-DIGIT CIP BY AGE, AY 2020

Classification of Instructional Program (CIP)	Percent of Students Under Age 25	Percent of Students Age 25 and Over
Liberal Arts and Sciences, General Studies	42.4%	23.3%
Health Professions and Related	23.7%	40.3%
Business Management, Marketing and Related	3.9%	10.4%
Mechanics and Repairers, General	5.9%	3.4%
Precision Production Trades	4.2%	2.1%
Agriculture	4.5%	0.6%
Computer and Information Sciences and Support Services	3.0%	5.1%
Engineering Technologies and Engineering Related	3.1%	4.6%
Homeland Security, Law Enforcement, Firefighting and Related Protective Services	1.8%	4.9%
Construction Trades	2.5%	0.8%

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. Over 2,700 students (18.9 percent) were in the racial/ ethnic minority group, and the remaining 10,747 students were white (81.1 percent). The 540 students who did not report race/ethnicity were excluded from the analysis in Table 1.

Students in the racial/ethnic minority group predominately completed coursework in similar programs as white students. Both groups of students had the highest percentages in liberal arts and sciences, health professions, business management and mechanics and repairers. However, there was a higher percentage of minority students who completed computer and information sciences, engineering and homeland security/law enforcement training as compared to white students as represented in Table 1.

TABLE 2. PROGRAMS BY TWO-DIGIT CIP BY RACE/ETHNICITY, AY 2020

Classification of Instructional Program (CIP)	White		Racial/Ethnic Minority	
	Number	Percent	Number	Percent
Liberal Arts and Sciences, General Studies	3,828	77.2%	1,131	22.8%
Health Professions and Related	2,989	80.1%	743	19.9%
Business Management, Marketing and Related	570	77.8%	163	22.2%
Mechanics and Repairers, General	569	82.2%	123	17.8%
Agriculture	443	95.5%	21	4.5%
Precision Production Trades	419	87.3%	61	12.7%
Engineering Technologies and Engineering Related	368	79.5%	95	20.5%
Computer and Information Sciences and Support Services	360	78.8%	97	21.2%
Homeland Security, Law Enforcement, Firefighting and Related Protective Services	264	75.6%	85	24.4%
Construction Trades	242	85.5%	41	14.5%
Personal and Culinary Services	164	82.0%	36	18.0%
Family and Consumer Sciences/Human Sciences	125	79.1%	33	20.9%
Visual and Performing Arts	92	80.7%	22	19.3%
Communications Technologies/Technicians and Support Services	84	77.1%	25	22.9%
Education	59	84.3%	11	15.7%
Natural Resources and Conservation	54	94.7%	3	5.3%
Legal Professions and Studies	41	91.1%	4	8.9%
Transportation and Materials Moving	26	65.0%	14	35.0%
Human Services	25	67.6%	12	32.4%
Communication, Journalism and Related Programs	25	92.6%	2	7.4%
Total	10,747	79.8%	2,722	20.2%

Awards by Classification of Instructional Program

The Classification of Instructional Program (CIP) provides a taxonomic scheme that enables the tracking, assessment and reporting of fields of study and program completion. The CIP system was established by the U.S. Department of Education's National Center for Education Statistics (NCES) 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 2 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 2016 to 2020.

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 3. AY 2016 TO AY 2020 STATEWIDE AWARDS BY TWO-DIGIT CIP

CIP	Description	AY2016	AY2017	AY2018	AY2019	AY2020	Total
24	Liberal Arts & Sciences, General Studies	6,004	5,448	5,274	5,328	5,228	27,282
51	Health Professions & Related	4,460	4,260	3,959	4,065	3,890	20,634
47	Mechanics & Repairers, General	890	937	843	784	731	4,185
52	Business Management, Marketing & Related	853	851	785	867	774	4,130
48	Precision Production Trades	643	581	553	565	513	2,855
01	Agriculture	536	586	484	469	494	2,569
11	Computer and Information Sciences & Support Services	457	510	535	490	490	2,482
15	Engineering Technologies & Engineering Related	429	432	470	470	480	2,281
46	Construction Trades	304	320	313	302	293	1,532
43	Homeland Security, Law Enforcement, Firefighting & Related Protective Services	253	203	261	388	363	1,468
12	Personal & Culinary Services	290	243	233	234	203	1,203
19	Family & Consumer Sciences/Human Sciences	231	233	202	194	163	1,023
50	Visual & Performing Arts	166	159	137	118	119	699
10	Communications Technologies/Technicians & Support Services	136	154	142	151	115	698
49	Transportation & Materials Moving	97	107	89	81	44	418
44	Human Services	64	65	63	67	43	302
03	Natural Resources & Conservation	42	62	59	58	58	279
13	Education	54	43	28	71	71	267
22	Legal Professions & Studies	40	71	40	60	47	258
09	Communication, Journalism & Related Programs	18	26	21	26	27	118
30	Multi/Interdisciplinary Studies	35	24	20	19	11	109
16	Foreign Languages, Literature & Linguistics	25	23	17	20	13	98
31	Parks, Recreation, Leisure & Fitness Studies	17	20	15	13	17	82
41	Science Technologies/Technicians	8	6	6	1	4	25
26	Biological & Biomedical Sciences	11	5	6	2	0	24
14	Engineering	7	2	1	-	2	12
42	Psychology	-	-	-	-	12	12
45	Social Sciences	3	4	3	1	-	11
34	Health Related Knowledge & Skills	-	-	-	-	-	-
Total		16,073	15,375	14,559	14,844	14,205	75,056

Associate Degrees by CIP—AY 2016 to AY 2020 Totals

During academic years 2016 through 2020, there were seven types of associate degrees awarded by Iowa community colleges, analyzed separately using the online interactive dashboard and accompanying tables. 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)
- Associate of Science/Career Option (ASCO)

Table 4 contains an aggregation of all associate degrees awarded in AY 2016 through AY 2020. Liberal arts and science degrees consistently account for slightly more than 50 percent of all such degrees awarded (53.6 percent in AY 2016, 51.3 percent in AY 2017, 52.0 percent in AY 2019, 52.3 percent in AY 2019 and 53.0 percent in AY 2020).

TABLE 4. AY 2016 TO AY 2020 ASSOCIATE DEGREES BY TWO-DIGIT CIP

CIP	Description	AY2016	AY2017	AY2018	AY2019	AY2020	Total
24	Liberal Arts & Sciences, General Studies	6,004	5,448	5,274	5,328	5,228	27,282
51	Health Professions & Related	1,954	1,840	1,860	1,877	1,792	9,323
52	Business Management, Marketing & Related	567	586	465	554	521	2,693
47	Mechanics & Repairers, General	554	562	500	471	436	2,523
01	Agriculture	464	515	414	399	418	2,210
11	Computer & Information Sciences & Support Services	308	337	308	303	311	1,567
15	Engineering Technologies & Engineering Related	296	283	312	295	325	1,511
43	Homeland Security, Law Enforcement, Firefighting & Related Protective Services	197	149	160	145	159	810
12	Personal & Culinary Services	148	135	126	114	83	606
10	Communications Technologies/Technicians & Support Services	118	135	121	126	92	592
48	Precision Production Trades	121	126	116	100	93	556
50	Visual & Performing Arts	84	87	87	76	75	409
19	Family & Consumer Sciences/Human Sciences	89	95	80	82	55	401
46	Construction Trades	78	76	82	82	72	390
44	Humans Services	56	60	61	65	42	284
03	Natural Resources & Conservation	33	33	46	47	41	200
22	Legal Professions & Studies	25	52	29	49	32	187
09	Communication, Journalism & Related Programs	18	26	20	23	26	113
30	Multi/Interdisciplinary Studies	35	24	20	19	11	109
49	Transportation & Materials Moving	3	11	25	21	20	80
16	Foreign Languages, Literatures & Linguistics	19	14	8	8	8	57
31	Parks, Recreation, Leisure & Fitness Studies	10	12	10	9	11	52
41	Science Technologies/Technicians	8	6	6	1	-	21
14	Engineering	7	2	1	-	2	12
26	Biological & Biomedical Sciences	7	1	3	1	-	12
42	Psychology	-	-	-	-	12	12
45	Social Sciences	3	4	3	1	-	11
13	Education	-	-	-	-	-	-
34	Health Related Knowledge & Skills	-	-	-	-	-	-
Total		11,206	10,619	10,137	10,196	9,865	52,023

Career and Technical Education (CTE) 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 long-term CTE diploma programs covering many different areas of study, with the majority in health care, skilled trades, engineering and computer-related fields. Since only one of Iowa's community colleges offered short-term diplomas during the five-year study period (a total of three at Indian Hills in industrial technology or health (ward clerk)), both long- and short-term diplomas were combined in Table 4. The majority of CTE diplomas were awarded in health professions followed by precision production trades and mechanics and repairers training. Health professions continue to surpass all other diploma programs, making up 53.1 percent of all diplomas awarded in AY 2020.

Throughout the five-year study period, the distribution of diplomas awarded has remained relatively the same.

TABLE 5. AY 2016 TO AY 2020 LONG-TERM AND SHORT-TERM DIPLOMAS BY TWO-DIGIT CIP

CIP	Description	AY2016	AY2017	AY2018	AY2019	AY2020	Total
51	Health Professions & Related	1,324	1,142	1,210	1,157	1,193	6,306
48	Precision Production Trades	319	294	263	266	188	1,477
47	Mechanics & Repairers, General	243	238	259	201	178	1,136
46	Construction Trades	195	206	194	166	168	948
52	Business Management, Marketing & Related	115	107	155	145	114	663
12	Personal & Culinary Services	113	75	89	100	97	461
15	Engineering Technologies & Engineering Related	57	78	85	112	98	382
19	Family and Consumer Sciences/Human Sciences	74	58	53	58	47	289
01	Agriculture	59	63	59	54	43	282
11	Computer and Information Sciences & Support Services	44	29	62	58	55	207
50	Visual & Performing Arts	53	40	38	20	24	176
10	Communications Technologies/Technicians & Support Services	15	18	19	23	22	96
43	Homeland Security, Law Enforcement, Firefighting & Related Protective Services	8	9	13	8	10	40
49	Transportation & Materials Moving	10	8	-	-	-	36
13	Education	7	2	2	4	1	20
44	Human Services	6	5	2	1	-	15
31	Parks, Recreation, Leisure & Fitness Studies	3	-	3	3	3	12
03	Natural Resources & Conservation	3	1	-	-	-	8
22	Legal Professions & Studies	1	1	3	1	3	6
26	Biological & Biomedical Sciences	1	-	-	-	-	1
09	Communication, Journalism & Related Programs	-	-	-	-	1	-
14	Engineering	-	-	-	-	-	-
16	Foreign Languages, Literature & Linguistics	-	-	-	-	-	-
24	Liberal Arts & Sciences, General Studies	-	-	-	-	-	-
30	Multi/Interdisciplinary Studies	-	-	-	-	-	-
34	Health Related Knowledge & Skills	-	-	-	-	-	-
41	Science Technologies/Technicians	-	-	-	-	-	-
45	Social Sciences	-	-	-	-	-	-
42	Psychology	-	-	-	-	-	-
Total		2,650	2,374	2,509	2,377	2,245	12,561

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), vary from one to 48 credits.

There were a total of 10,878 certificates awarded over the five-year study period (8,858 short-term and 2,020 long-term). The largest portion of these were awarded in the health professions (5,285) (Table 6).

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

Note: Noncredit CTE employment outcomes and data can be found at: <https://educateiowa.gov/adult-career-comm-college/community-colleges/iowa-community-college-program-outcomes>

TABLE 6. AY 2016 TO AY 2020 CERTIFICATES LONG- AND SHORT-TERM (LT AND ST) BY TWO-DIGIT CIP

CIP	Description	AY2016	AY2017	AY2018	AY2019	AY2020	Total LT	Total ST	Total
51	Health Professions & Related	1,182	1,278	889	1,031	905	4,647	638	5,285
48	Precision Production Trades	203	161	174	199	232	717	252	969
52	Business Management, Marketing & Related	171	158	165	168	139	627	174	801
11	Computer and Information Sciences & Support Services	105	144	165	129	124	396	271	667
43	Homeland Security, Law Enforcement, Firefighting & Related Protective Services	48	45	88	235	194	569	41	610
47	Mechanics & Repairers, General	93	137	84	112	117	283	260	543
15	Engineering Technologies & Engineering Related	68	71	73	63	57	76	264	340
19	Family and Consumer Sciences/Human Sciences	68	80	69	54	61	328	4	332
49	Transportation & Materials Moving	84	88	64	60	24	320	-	320
13	Education	47	41	26	67	70	251	-	251
46	Construction Trades	31	38	37	54	53	213	-	213
12	Personal & Culinary Services	29	33	18	20	23	112	11	123
50	Visual & Performing Arts	29	32	12	22	20	115	-	115
01	Agriculture	13	8	11	16	33	54	27	81
03	Natural Resources & Conservation	6	28	13	11	17	75	-	75
22	Legal Professions & Studies	14	18	8	10	12	-	62	62
16	Foreign Languages, Literature & Linguistics	14	9	9	12	5	41	-	41
31	Parks, Recreation, Leisure & Fitness	4	8	2	1	3	18	-	18
26	Biological & Biomedical Sciences	3	4	3	1	-	-	11	11
10	Communications Technologies/ Technicians & Support Services	3	1	2	2	-	9	-	9
09	Communication, Journalism & Related Programs	-	-	1	3	1	4	-	4
41	Science Technologies/Technicians	-	-	-	-	4	-	4	4
44	Human Services	2	-	-	1	1	3	1	4
14	Engineering	-	-	-	-	-	-	-	-
24	Liberal Arts & Sciences, General Studies	-	-	-	-	-	-	-	-
30	Multi/Interdisciplinary Studies	-	-	-	-	-	-	-	-
34	Health Related Knowledge & Skills	-	-	-	-	-	-	-	-
45	Social Sciences	-	-	-	-	-	-	-	-
Total		2,217	2,382	1,913	2,271	2,095	8,858	2,020	10,878

Time-to-Degree

To measure the amount of time it took students to earn their awards (i.e., time-to-degree), enrollment data were extracted from the MIS for the six years prior to completion for students who received awards between AY 2016 and AY 2020. For example, data for AY 2016 graduates were extracted from AY 2016, 2015, 2014, 2013, 2012 and 2011 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 7 shows that nearly three-fourths (73.8 percent) of students who received an associate of applied arts (AAA) degree received their award by the end of year two. In comparison, just over two-thirds (65.3 percent) of students finished their AGS degree within the same period of time.

Figure 4, on the following page, represents the same data illustrating visually the distribution of time-to-degree for each associate degree type while Figure 5 displays the time-to-degree in cumulative format, illustrating the total percentage of students who completed degrees in one to four years.

TABLE 7. AY 2016 TO AY 2020 TIME-TO-DEGREE FOR ASSOCIATE DEGREES BY PERCENT

Years	AA	AS	AGS	AAA	AAS	APS	All
Less than 1	11.5%	9.9%	22.2%	0.0%	4.1%	23.5%	8.2%
Year 1	29.9%	25.8%	26.1%	50.0%	36.1%	32.4%	32.6%
Year 2	27.2%	26.7%	17.0%	23.8%	23.0%	35.3%	25.1%
Year 3	21.3%	26.1%	21.0%	19.0%	21.2%	5.9%	21.5%
Year 4	10.0%	11.5%	13.6%	7.1%	15.6%	2.9%	12.7%
First 2 Years	68.6%	58.3%	65.8%	77.6%	64.6%	74.5%	66.1%

FIGURE 4. TIME-TO-DEGREE FOR ASSOCIATE DEGREES EARNED, AY 2016 TO AY 2020

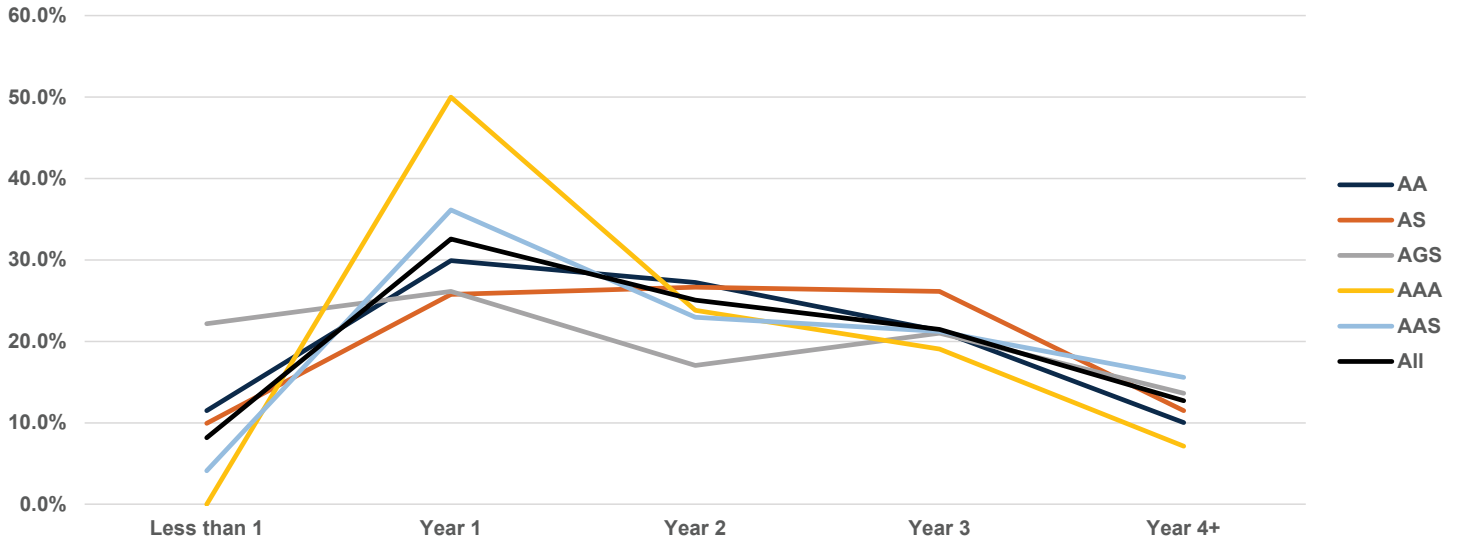
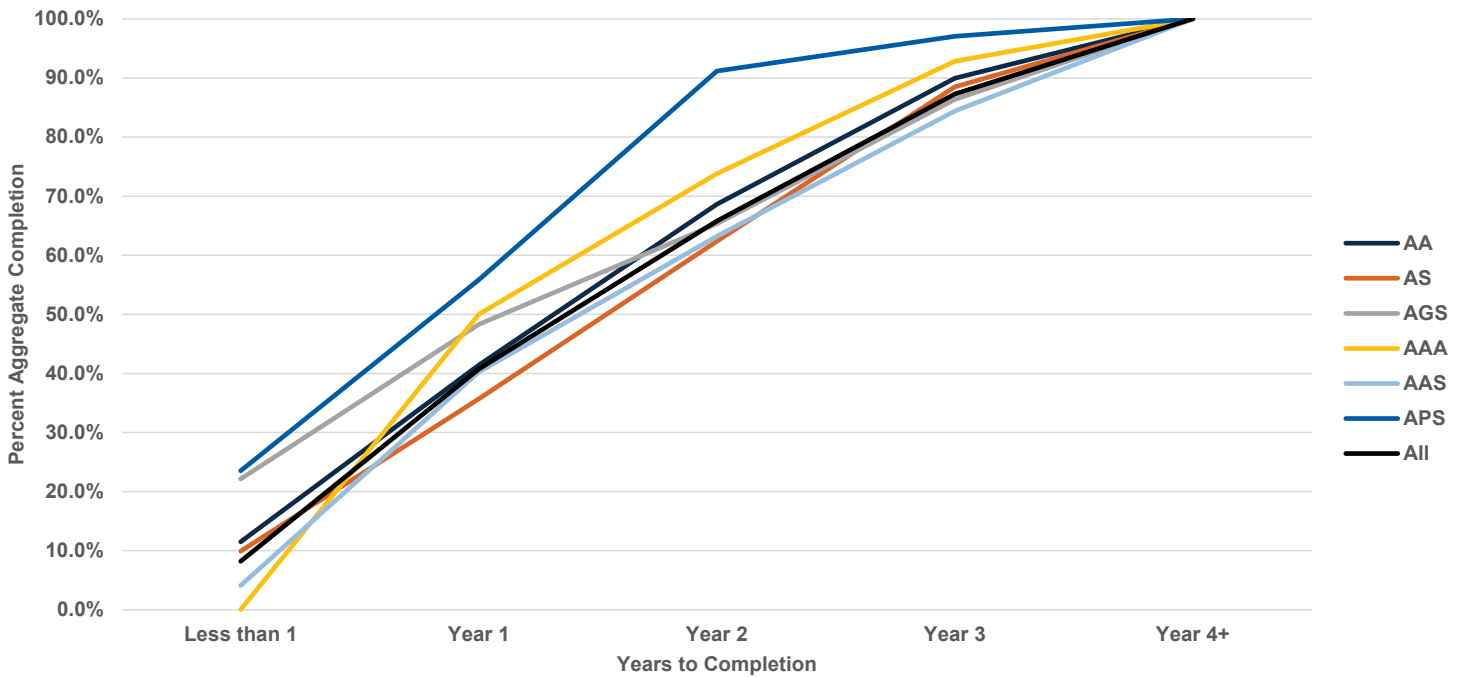


FIGURE 5. CUMULATIVE TIME-TO-DEGREE FOR ASSOCIATE DEGREES, AY 2016 TO AY 2020



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

In Figure 6, 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 8 illustrates why the LT and ST awards must be reported separately. Due to the acquisition of fewer credits, most (64.2 percent) ST diplomas and certificates were completed in less than one year, with another 17.6 percent completed by the end of year one (total 81.8 percent). In contrast, the majority of long-term certificates and diplomas were completed by year two (82.1 percent for certificates and 75.1 percent for diplomas).

FIGURE 6. TIME-TO-DEGREE FOR DIPLOMA AND CERTIFICATE AWARDS, AY 2016 TO AY 2020

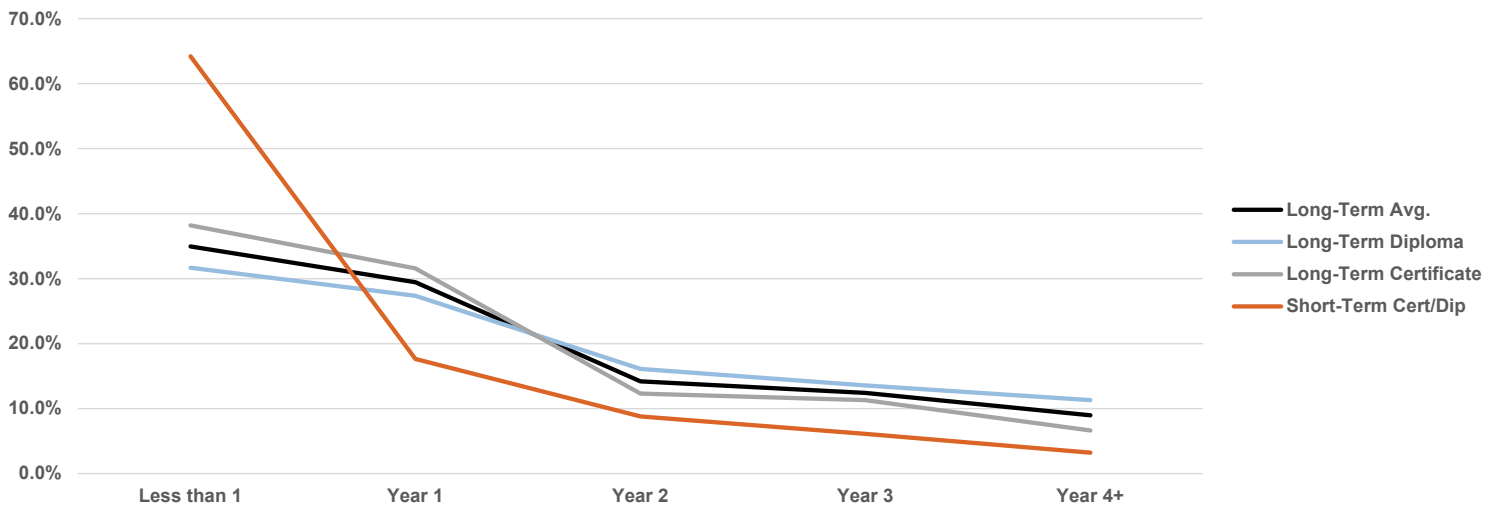


TABLE 8. TIME-TO-DEGREE FOR DIPLOMA AND CERTIFICATE AWARDS BY PERCENT

Years	Long-Term Avg.	Long-Term Dip.	Long-Term Cert.	Short-Term Cert./Dip.
Less than 1	34.9%	31.7%	38.2%	64.2%
Year 1	29.5%	27.4%	31.6%	17.6%
Year 2	14.2%	16.1%	12.3%	8.8%
Year 3	12.4%	13.6%	11.3%	6.1%
Year 4+	9.0%	11.3%	6.6%	3.2%

Joint Enrollment

Each year, tens-of-thousands of Iowa high school students collectively 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 academic years 2016 to 2020.

Over the five-year study period, a total of 21,038 students (an increase of 1,151 from the previous report) earned an average of 17.2 college credits during high school (Table 8). Of the AY 2020 completers, 39.3 percent earned an associate of arts (AA) degree and 22.0 percent earned an associate of applied science (AAS) degree in career and technical (CTE) programs. Another 32.6 percent earned diplomas and certificates (Table 9).

Other reports produced by the Department specific to joint enrollment can be found at: <https://www.educateiowa.gov/document-type/joint-enrollment>.

TABLE 8. COMMUNITY COLLEGE AWARDS EARNED BY JOINT ENROLLMENT (JE) STUDENTS, ACADEMIC YEARS 2016-2020

	AY2016	AY2017	AY2018	AY2019	AY2020	Total/ Average
Number of Students	3,753	3,916	4,308	4,479	4,582	21,038
Average Number of JE Years	1.4	1.4	1.7	1.7	1.7	1.6
Average Number of JE Credits	14.7	15.7	18.0	18.4	19.0	17.2

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.

TABLE 9. AY 2020 JOINTLY-ENROLLED STUDENTS BY LONG- AND SHORT-TERM AWARD TYPES

Award Type	Number of Students		Percent
	Long-Term	Short-Term	
AA	1,799	-	39.3%
AS	232	-	5.1%
AGS	36	-	0.8%
AAA	7	-	0.2%
AAS	1,009	-	22.0%
APS	3	-	0.1%
ASCO	-	-	0.0%
Diploma	599	1	13.1%
Certificate	98	798	19.6%
Total	3,783	799	100%

Student Retention

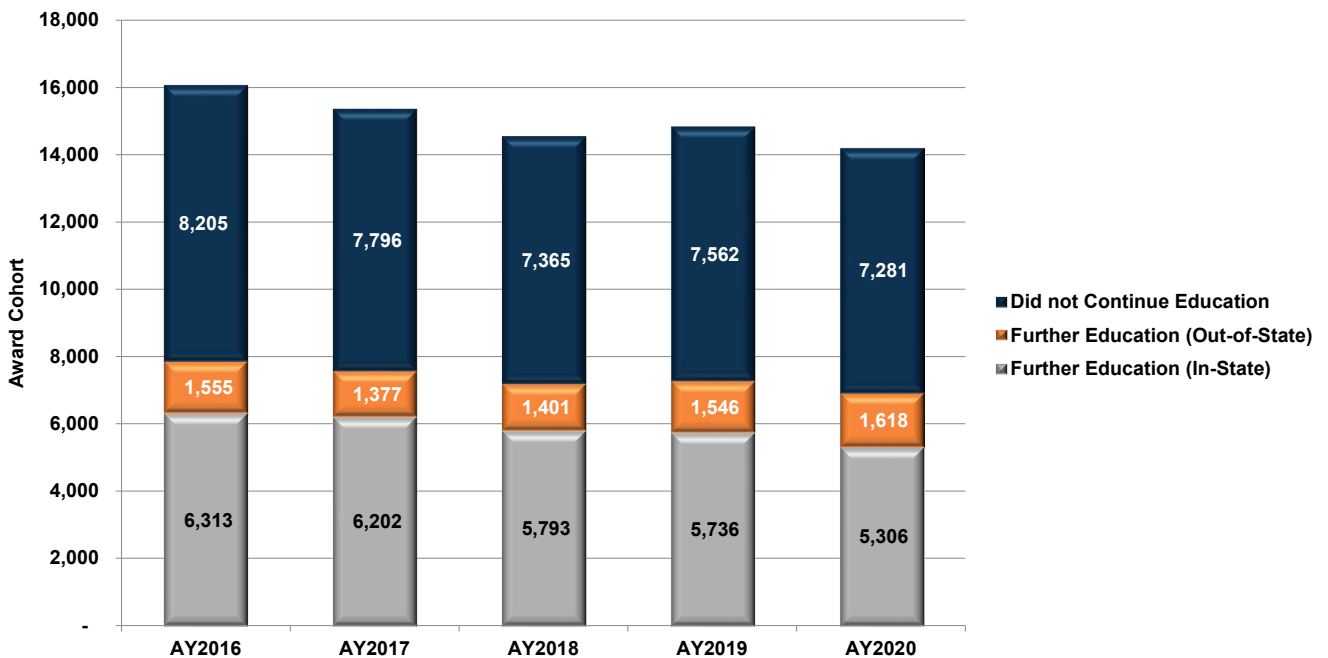
To study the various tracks community college students take after graduation, each cohort was split into three groups: 1) those who continued their education in Iowa, 2) those who continued out-of-state and 3) those who did not continue their education. Figure 7 represents the five cohorts of graduates, 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 reported 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 (i.e., 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 7, of the 14,205 students (unduplicated count) who received an award in AY 2020, 5,306 of the 6,924 who continued their education the year following their award (76.6 percent) did so in Iowa; however 1,618 left Iowa to continue their education.

FIGURE 7. STATUS OF GRADUATES FIRST YEAR AFTER AWARD



Retention and Migration

Retaining community college graduates is important to the Iowa economy and the vast majority of Iowa community college graduates remain in Iowa after completing their programs (77.1 percent using the 5-year cumulative totals in Figure 8) whether that be while continuing their education or becoming employed. Nearly half (49.1 percent) continued their education following completion of a community college award, with most students remaining in Iowa (39.1 percent). Of those students who continued their education at an institution outside of Iowa, most enrolled in one of Iowa’s contiguous states, such as Nebraska (1,424) and Illinois (1,048). For those who ventured farther away, the highest concentrations enrolled at institutions in Utah (414), Arizona (241) or Texas (218) 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 (10.0 percent and 7.8 percent respectively). Each of these groups is studied in more detail in the subsequent sections of this report.

Figure 9 represents aggregate numbers by state for those who continued their education either in- or out- of-state one year after their award (AY 2016 to AY 2020). 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 8. AY 2016 TO AY 2020 RETENTION AND MIGRATION, FIRST YEAR FOLLOWING AWARD

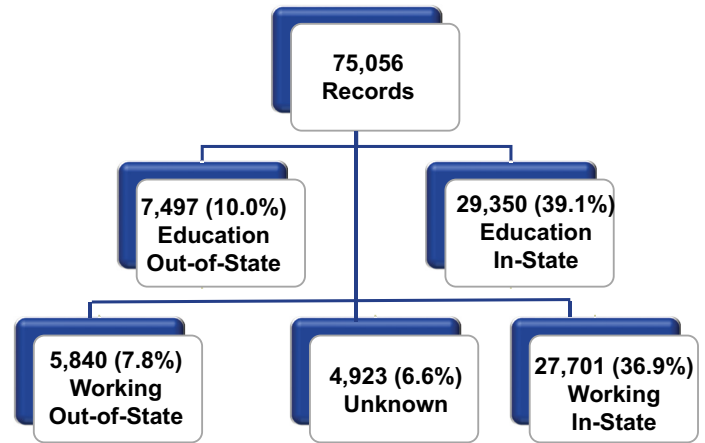
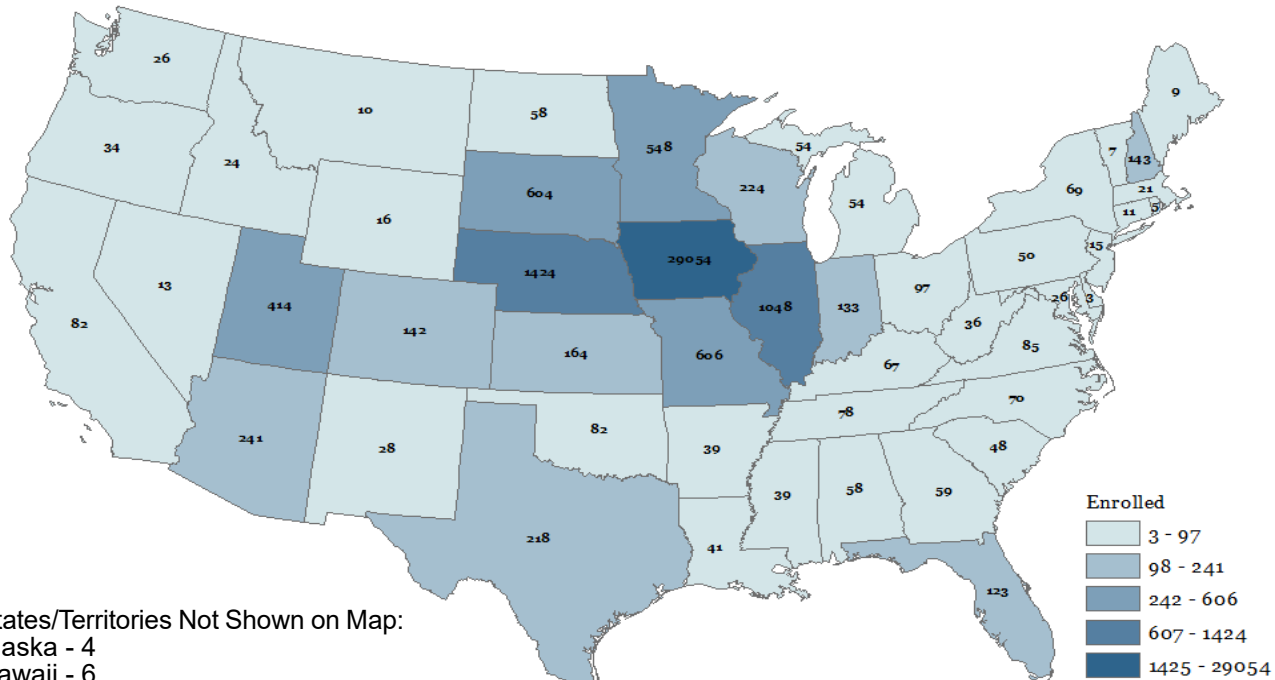


FIGURE 9. AY 2016 TO AY 2020 COHORTS EDUCATIONAL MIGRATION, FIRST YEAR FOLLOWING AWARD



States/Territories Not Shown on Map:
 Alaska - 4
 Hawaii - 6
 Puerto Rico - 8
 Guam - 1
 Virgin Islands - 1

***insufficient data

Further Education Cohort

Using the NSC database, the Department was able to identify Iowa community college graduates who transferred to other postsecondary institutions. Table 10 illustrates the distribution of these graduates based on their transfer institution types (transferred the first year after their graduation).

Using the AY 2020 cohort as an example, 5,306 students continued their education at an in-state institution the academic year following graduation, whereas, 1,618 students continued their education at an out-of-state institution. Of those who continued their education in-state, 35.3 percent enrolled at a two-year public college and 29.0 percent transferred to an in-state four-year public college.

The number of students who continued their education out-of-state increased yet again when comparing the 2019 cohort (1,546) to the 2020 cohort (1,618).

TABLE 10. AY 2017 TO AY 2021 FURTHER EDUCATION, FIRST YEAR FOLLOWING AWARD

Year Following Community College Award	Characteristics of Institution		Continued Education In-State		Continued Education Out-of-State	
	2-Year	4-Year	Number	Percent	Number	Percent
2016 Cohort						
2017	2-Year	Private	0	0.0%	2	0.0%
		Public	2,914	37.0%	103	1.3%
	4-Year	Private	1,144	14.5%	488	6.2%
		Public	2,255	28.7%	962	12.2%
Total			6,313	80.2%	1,555	19.8%
2017 Cohort						
2018	2-Year	Private	0	0.0%	0	0.0%
		Public	2,996	39.5%	117	1.5%
	4-Year	Private	985	13.0%	440	5.8%
		Public	2,221	29.3%	820	10.8%
Total			6,202	81.8%	1,377	18.2%
2018 Cohort						
2019	2-Year	Private	0	0.0%	3	0.0%
		Public	2,692	39.5%	72	1.1%
	4-Year	Private	915	13.4%	441	6.5%
		Public	1,890	27.7%	807	11.8%
Total			5,497	80.6%	1,323	19.4%
2019 Cohort						
2020	2-Year	Private	0	0.0%	1	0.0%
		Public	2,775	38.1%	93	1.3%
	4-Year	Private	866	11.9%	565	7.8%
		Public	2,095	28.8%	887	12.2%
Total			5,736	78.8%	1,546	21.2%
2020 Cohort						
2021	2-Year	Private	0	0.0%	2	0.0%
		Public	2,442	35.3%	114	1.6%
	4-Year	Private	857	12.4%	550	7.9%
		Public	2,007	29.0%	952	13.7%
Total			5,306	76.6%	1,618	23.4%

Workforce Cohort

The following sections of this report analyze the annual employment and wage trends of the graduates who did not continue their education. Students with previous degrees prior to the academic year, and those who received multiple awards within the same academic year, 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 Iowa Unemployment Insurance (UI) database and the State Wage Interchange System (SWIS). Out-of-state employment was measured using the 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 described periods of time.

Due to the availability of five years of wage data for the AY 2016 cohort, it is used as an example in Table 11. This table illustrates the aggregate employment and wages for the AY 2016 cohort in the first five years of data available after graduation.

The data show that, in fiscal year 2017 (October 1, 2016 to September 30, 2017), 91.6 percent of those who did not continue their education were employed the year following program completion. Additionally, 5.8 percent had earned a previous degree and 13.0 percent had earned more than one award. In order to compare wages from 2017 to current wages (2021), a cost of living adjustment was applied and documented in the Adjusted Median Wage column in Tables 11 and 12 (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 12 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 \$35,739 for the AY 2016 cohort in 2017 to \$38,062 in 2021, which represents a 6.5 percent increase.

TABLE 11. FIVE-YEAR EMPLOYMENT AND WAGE TRENDS FOR AY 2016 COHORT

Year of Employment ¹	% Matched to Employment	Adjusted Median Wages	% with Previous Degree ²	% Earning More than One Award
2017	91.6%	\$35,739	5.8%	12.6%
2018	90.0%	\$39,451	6.0%	13.0%
2019	87.4%	\$41,745	6.0%	13.1%
2020	88.0%	\$44,222	6.1%	13.3%
2021	86.1%	\$46,484	6.1%	13.3%

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

1. Ex. 2017 defined as October 1, 2016, through September 30, 2017,
2. Percentage calculated of those matching employment in that year.

TABLE 12. 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
2016	2017	91.6%	\$35,739	5.8%	12.6%
2017	2018	91.8%	\$36,318	5.9%	14.7%
2018	2019	92.4%	\$37,516	7.2%	13.7%
2019	2020	91.2%	\$36,590	8.1%	12.6%
2020	2021	90.5%	\$38,062	8.6%	11.7%

Note: The first four values are taken from the previous report; the last one uses the extrapolated value from the new tables.

Employment and Wages by State

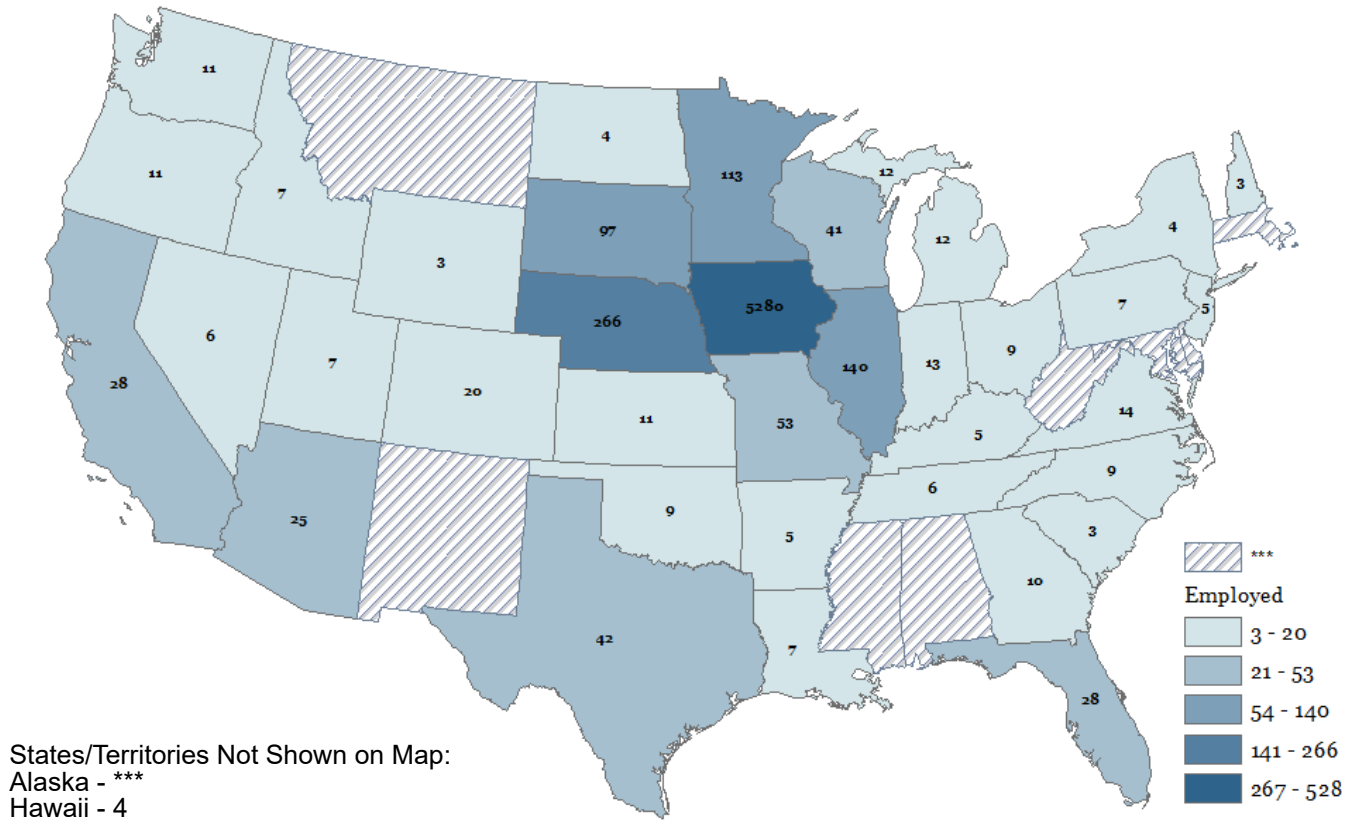
The SWIS was used to identify individuals who were employed out-of-state the year following graduation based on primary employment. Though the records do not identify hours worked (i.e., full- or part-time), overtime, or occupation, they do identify the number of graduates working in other states.

Figure 10 illustrates that the majority (82.7 percent) of those who received an award in AY 2020 and who matched to employment data in the fourth quarter following the award (2021), 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 (1,367 matched employment), Illinois (905), Minnesota (669), South Dakota (465) and Missouri (382).

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

FIGURE 10. PRIMARY EMPLOYMENT BY STATE, FIRST YEAR FOLLOWING AWARD, AY 2016 TO AY 2020 COHORTS



States/Territories Not Shown on Map:
Alaska - ***
Hawaii - 4

***insufficient data

Employment and Wages by Award Type

Tables 13 and 14 reflect the employment and wages, in aggregate, for those in the AY 2020 cohort who were employed in the year following graduation (2021). For example, of the 3,599 AAS graduates who did not continue their education the year after graduation, 93.4 percent matched employment records within that year and earned an annual median wage of \$44,019 (see AAS row in Table 13). Though the percentage of AAS graduates who matched employment within one year of graduation is among the highest of the award categories listed, most exceeded an 80 percent employment match.

In aggregate, Table 14 shows that all AY 2020 associate degree recipients had an average 91.4 percent employment match in the first year after graduation. Long-term diploma and certificate recipients had a 93.1 percent employment match, while short-term diploma and certificate recipients had an 78.9 percent employment match. Though the AAS degree graduates had a significantly higher median wage when analyzed separately (Table 13), the data (Table 14) show that the associate degree median wage was \$3, 848 higher than the median wage for long-term certificate/diploma graduates in the first year after graduation.

TABLE 13. AY 2020 COHORT, 2021 EMPLOYMENT AND WAGES BY AWARD TYPE

Award Type	Year of Employment ¹	Number in Cohort (not Enrolled)	Matched to Employment		Adjusted Median Wage	Percent with Previous Degree	Percent Earning More than One Award
			#	%			
AA	2021	1,293	1,134	87.7%	\$29,613	3.6%	4.4%
AS	2021	145	121	83.4%	\$34,607	2.5%	6.6%
ASCO	2021	4	3	75.0%	\$14,709	0.0%	33.3%
APS	2021	22	18	81.8%	\$35,752	0.0%	11.1%
AGS	2021	73	58	79.5%	\$36,322	0.0%	12.1%
AAA	2021	29	23	79.3%	\$22,443	0.0%	0.0%
AAS	2021	3,599	3,363	93.4%	\$44,019	10.1%	17.1%
Diploma (>= 22 cr.)	2021	1,004	936	93.2%	\$34,690	8.1%	10.0%
Certificate (>= 22 cr.)	2021	147	136	92.5%	\$41,488	25.7%	0.0%
Cert./Dipl. (< 22 cr.)	2021	684	540	78.9%	\$32,163	8.9%	1.3%

Note: This table uses estimated data calculated to four quarters.

TABLE 14. AY 2020 COHORT, 2021 EMPLOYMENT AND WAGES BY AWARD TYPE AGGREGATE

Award Type	Year of Employment ¹	Number in Cohort (not Enrolled)	Matched to Employment		Adjusted Median Wage	Percent with Previous Degree	Percent Earning More than One Award
			#	%			
Certificate/Diploma (< 22 cr.)	2021	684	540	78.9%	\$32,163	8.9%	1.3%
Certificate/Diploma (>= 22 cr.)	2021	1,151	1,072	93.1%	\$35,476	10.4%	8.8%
Associate	2021	5,165	4,720	91.4%	\$39,324	8.1%	13.6%

1. 2020 wages defined as October 1, 2019 through September 30, 2020.

Employment and Wages by Gender

For the AY 2020 students in this portion of the study (N=7,886), there were more females than males who did not continue their education following completion of their award. In the AY 2020 cohort, 57.4 percent were female (Table 15). Furthermore, the distribution of awards and programs by gender varied significantly, but that information was not examined for this report (see Appendix A for a link to employment data by career cluster and gender).

Table 15 provides the employment and wages of AY 2020 award recipients who entered the workforce in the first year after graduation (i.e., did not continue their education) by gender. Female awardees of the cohort matched to employment at a higher rate (91.5 percent) than their male counterparts (89.2 percent), but their adjusted median wage was lower, \$36,216 to \$40,733, respectively.

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 and previous education could need to be considered.

Overall, 10.3 percent of female awardees who matched employment had obtained a previous degree prior to receiving their award in AY 2019, while only 6.4 percent of male awardees had previously earned degrees.

Interestingly, a higher percent of male awardees than female awardees in this cohort had earned more than one award (15.4 percent compared to 8.7 percent).

FIGURE 11. PERCENT OF AWARDS BY GENDER, AY 2020 COHORT

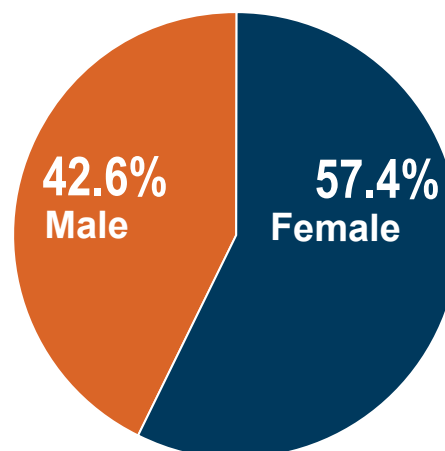


TABLE 15. EMPLOYMENT AND WAGES BY GENDER, FIRST YEAR FOLLOWING AWARD AY 2020 COHORT

Gender	Year of Employment ¹	Number in Cohort	Number in Cohort (not Enrolled)	Matched to Employment		Adjusted Median Wage	Percent with Previous Degree	Percent Earning More than One Award
				#	%			
Female	2021	7,886	3,785	3,464	91.5%	\$36,216	10.3%	8.7%
Male	2021	5,841	3,215	2,868	89.2%	\$40,733	6.4%	15.4%

1. AY 2020 wages defined as October 1, 2019 through September 30, 2020.

Employment and Wages by Race/Ethnicity

Of the 7,000 award recipients in the AY 2020 cohort who did not continue their education, 18.8 percent were of a minority racial/ethnic group, 76.8 percent were white/non-Hispanic and 4.4 percent did not report race or ethnicity (Figure 12).

Table 16 provides the employment and wages by race/ethnicity of the AY 2020 award recipients who entered the workforce in the first year after graduation (i.e., did not continue their education). Racial/ethnic minority graduates matched employment at a lower rate (84.7 percent) than white/non-Hispanic graduates (91.8 percent), and their adjusted median wage was also lower than that of white/non-Hispanic graduates (\$35,861 and \$38,417 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, gender and previous education would also need to be considered.

FIGURE 12. PERCENT OF AWARDS BY RACE/ETHNICITY, AY 2020 COHORT

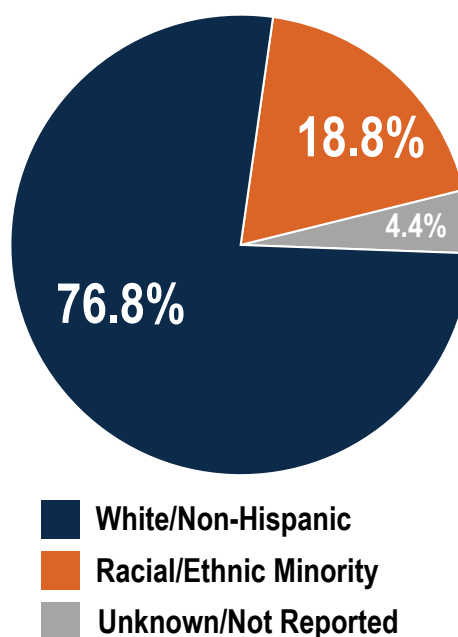


TABLE 16. EMPLOYMENT AND WAGES BY RACE/ETHNICITY, FIRST YEAR FOLLOWING AWARD, AY 2020 COHORT

Race/Ethnicity	Year of Employment ¹	Number in Cohort	Number in Cohort (not Enrolled)	Matched to Employment		Adjusted Median Wage	Percent with Previous Degree	Percent Earning More than One Award
				#	%			
Racial/Ethnic Minority	2021	2,577	1,169	990	84.7%	\$35,861	7.6%	12.4%
White/Non-Hispanic	2021	10,546	5,528	5,076	91.8%	\$38,417	8.6%	11.6%
Unknown/Not Reported	2021	604	303	266	87.8%	\$36,271	11.7%	11.3%

1. AY 2020 wages defined as October 1, 2019 through September 30, 2020.

Employment and Wages by Industry Sector

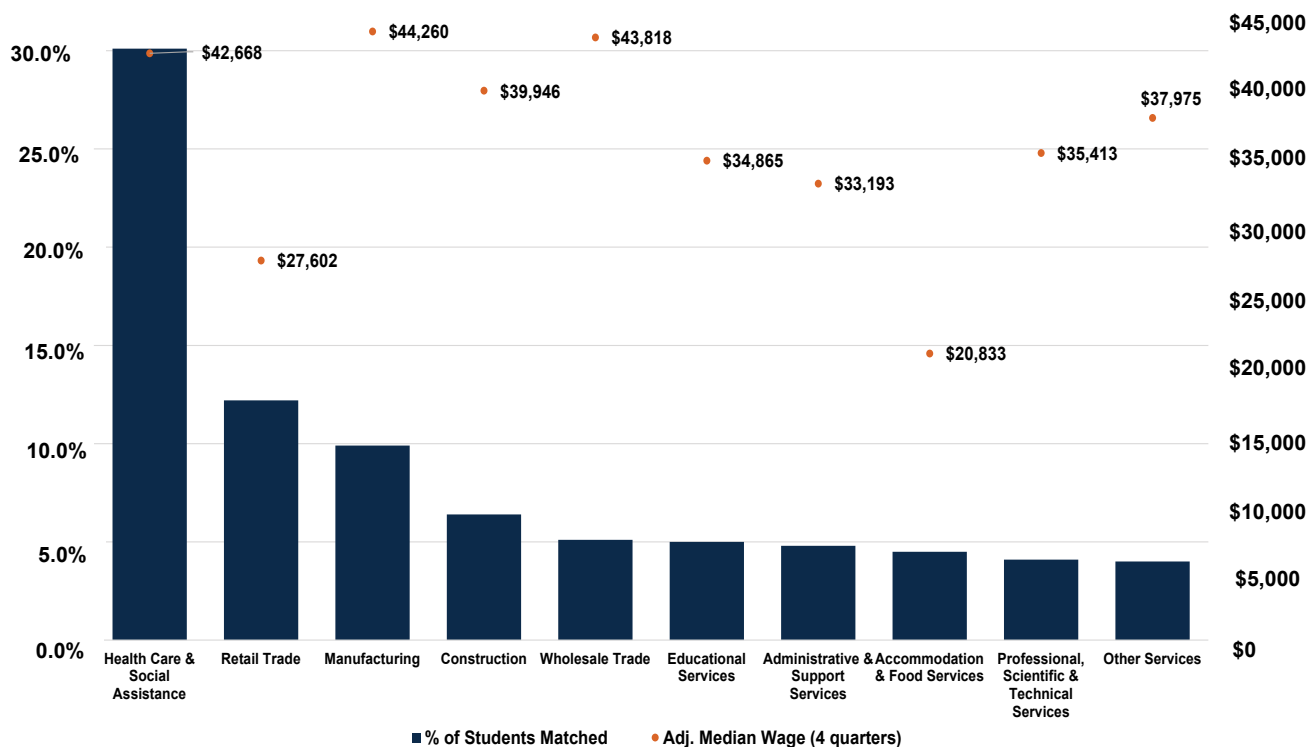
Figure 13 shows the employment and median wages by industry sector for the AY 2020 cohort in the first year after award completion (2021). The industry sectors are based on the North American Industry Classification System (NAICS) code included in the Iowa UI and SWIS wage data. The bars represent the percentage of the cohort that matched employment records, and the dots represent the 2021 median annual wage.

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). 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 2020 Iowa community college graduates (30.1 percent) than the next largest industry sector (retail trade at 12.2 percent). The next largest industry sectors, by employment, are manufacturing (9.9 percent) and construction (6.4 percent), with the remaining sectors accounting for less than six percent each. As expected, these proportions tend to change over time. For example, the order of the five largest industry sectors of employment for AY 2016 graduates in 2020 (i.e., five years after award completion) is similar, with health care and social assistance still being the largest, followed by retail trade, and then manufacturing. Complete industry data for all cohorts and all years can be found by accessing the link in Appendix A.

Among the industry sectors employing 250 or more AY 2020 graduates, those with the highest adjusted median wages in the year after award were utilities (\$63,161), mining (\$60,587), public administration (\$47,304), manufacturing (\$44,260), management of companies and enterprises (\$43,833) and wholesale trade (\$43,818). 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 13. MEDIAN WAGES BY INDUSTRY, FIRST YEAR FOLLOWING AWARD, AY 2020 COHORT (TOP TEN INDUSTRIES BY EMPLOYMENT)



Employment and Wages by Award Type and Industry

Table 17 shows the employment and median wages for the top three industry sector for the AY 2020 cohort in 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, and vice versa. For instance, the median annual wage for Associate of Arts (AA) recipients employed in the health care and social assistance industry sector is \$30,020 as compared to \$52,246 for those with Associate of Applied Science (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 17. AY 2020 COHORT, 2021 INDUSTRY MEDIAN WAGES
BY AWARD TYPE (TOP THREE)**

Award Type	Year of Employment ¹	Industry Sector of Employment	Matched to Employment		Adjusted Median Wage
			#	%	
AA	2021	Retail Trade	240	21.2%	\$23,516
AA	2021	Health Care & Social Assistance	167	14.7%	\$30,020
AA	2021	Accommodation & Food Services	108	9.5%	\$18,902
AS	2021	Health Care & Social Assistance	21	17.4%	\$39,233
AS	2021	Retail Trade	19	15.7%	\$24,406
AS	2021	Manufacturing	16	13.2%	\$42,732
AGS	2021	Health Care & Social Assistance	18	31.0%	\$35,763
AGS	2021	Accommodation & Food Services	5	8.6%	\$13,912
AGS	2021	Educational Services	5	8.6%	\$21,610
AAA	2021	Manufacturing	6	26.1%	\$25,857
AAA	2021	Professional, Scientific & Technical Services	4	17.4%	\$20,701
AAS	2021	Health Care & Social Assistance	1,183	35.2%	\$52,246
AAS	2021	Retail Trade	334	9.9%	\$32,400
AAS	2021	Manufacturing	314	9.3%	\$47,846
Diploma (>= 22 cr.)	2021	Health Care & Social Assistance	327	34.9%	\$33,201
Diploma (>= 22 cr.)	2021	Construction	120	12.8%	\$36,481
Diploma (>= 22 cr.)	2021	Manufacturing	107	11.4%	\$40,881
Certificate (>= 22 cr.)	2021	Health Care & Social Assistance	25	18.4%	\$41,482
Certificate (>= 22 cr.)	2021	Retail Trade	20	14.7%	\$26,751
Certificate (>= 22 cr.)	2021	Manufacturing	19	14.0%	\$44,016
Cert./Dipl. (< 22 cr.)	2021	Health Care & Social Assistance	158	29.3%	\$28,192
Cert./Dipl. (< 22 cr.)	2021	Retail Trade	71	13.1%	\$24,177
Cert./Dipl. (< 22 cr.)	2021	Manufacturing	70	13.0%	\$43,450

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- 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 14 to 16, while data for all other programs can be found by accessing the link found in Appendix A.

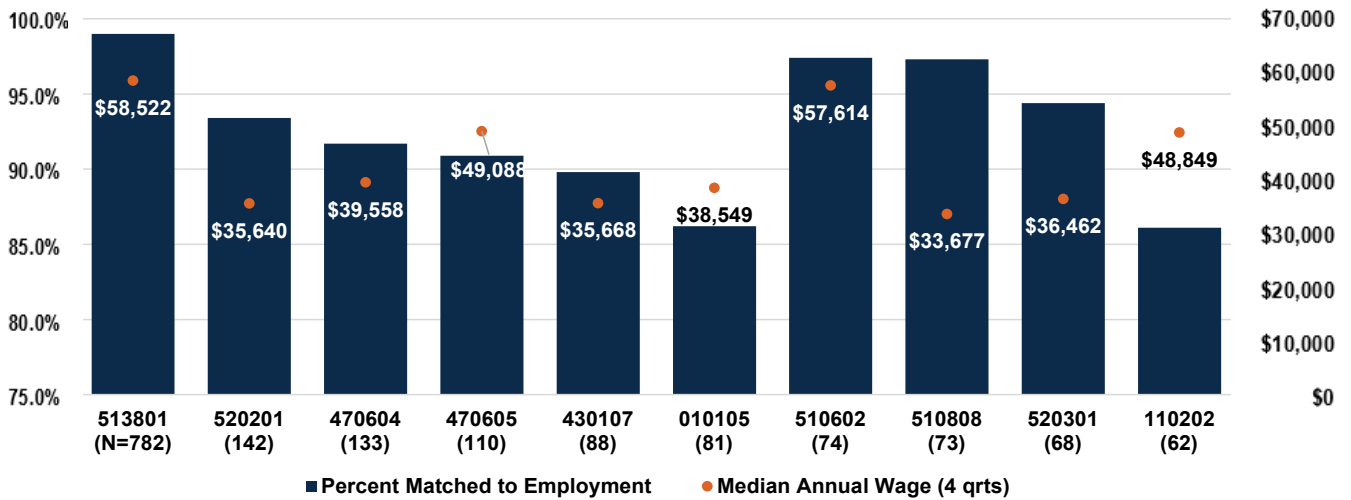
Using the AY 2020 cohort of students who did not continue their education in the year following their graduation, recipients were matched to Iowa and SWIS UI data to determine if they obtained employment within the first year after receiving their award. Figure 14 illustrates the data for those graduates who earned an Associate of Applied Science (AAS) by CIP code. For example, 99.0 percent of students who received an AAS in the registered nursing program (CIP 513801), and who did not continue their education, matched employment and earned a median annual wage of \$57,790 in 2021; while 93.4 percent of those in the automobile/automotive mechanics technology/ technician AAS program (CIP 470604) were matched to employment and earned a median annual wage of \$37,580.

Figures 15 and 16 show the AY 2020 cohort outcomes for the largest certificate and diploma programs grouped by 22 or more credits or less than 22 program credits. Figure 15 illustrates the data for those graduates who earned a certificate or diploma requiring 22 or more credits by CIP code. For example, 91.2 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 \$27,147 in 2021.

Figure 16 illustrates the data for those graduates who earned a certificate or diploma requiring less than 22 credits by CIP code. For example, 96.3 percent of students who received a certificate or diploma in the licensed practical nursing program (CIP 513901), and who did not continue their education, matched employment and earned a median annual wage of \$43,443 in 2021.

Appendix A contains data for other programs not shown here.

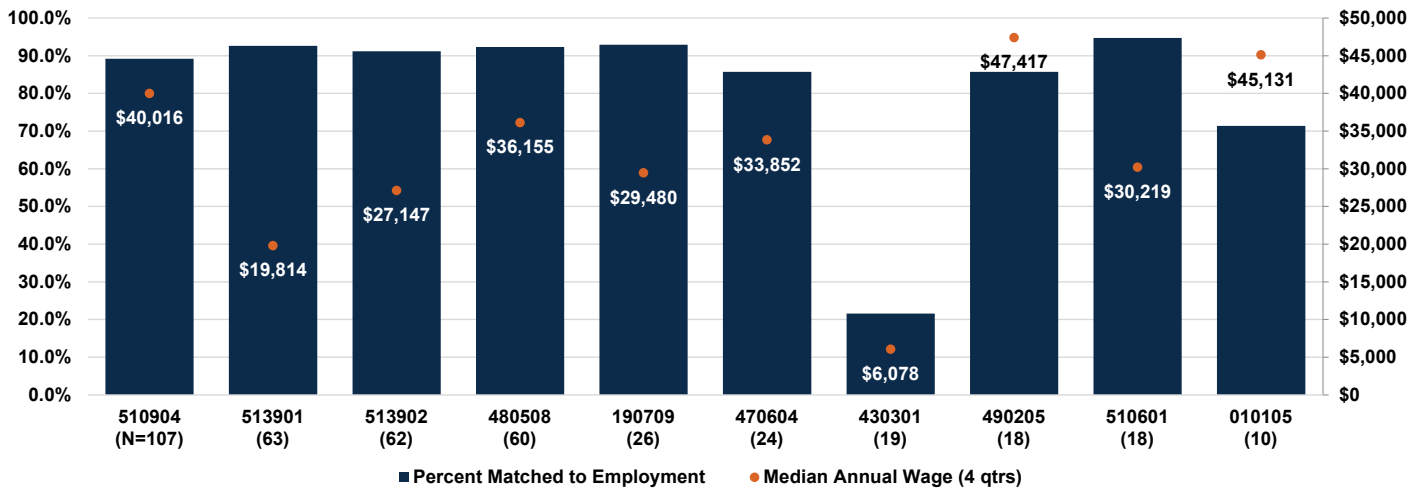
FIGURE 14. EMPLOYMENT AND WAGES BY ASSOCIATE OF APPLIED SCIENCE (AAS) DEGREE, AY 2020 COHORT, FIRST YEAR FOLLOWING AWARD



Program Legend:

- | | |
|--|---|
| 513801: Registered Nursing/Registered Nurse | 510602: Dental Hygiene/Hygienist |
| 520201: Business Administration and Management, General | 510808: Veterinary/Animal Health Technology |
| 470604: Automobile/Automotive Mechanics Technology | 520301: Accounting |
| 470605: Diesel Mechanics Technology/Technician | 110202: Computer Programming |
| 430107: Criminal Justice/Police Science | See Appendix A for other CIP codes not represented above. |
| 010105: Agricultural/Farm Supplies Retailing and Wholesaling | |

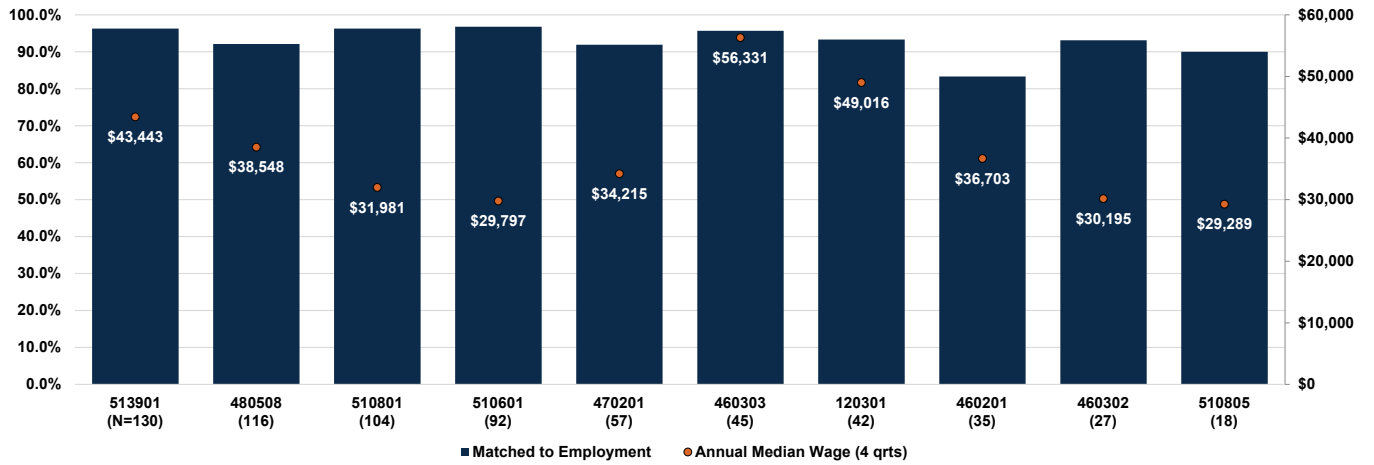
FIGURE 15. EMPLOYMENT, AND WAGES BY CERTIFICATE (C)/DIPLOMA (D) PROGRAM (22 OR MORE CREDITS), AY 2020 COHORT, FIRST YEAR FOLLOWING AWARD



Program Legend:

- | | |
|---|---|
| 510904: Emergency Medical Technology/Technician (EMT Paramedic) | 430301: Homeland Security |
| 513901: Licensed Practical/Vocational Nurse Training | 490205: Truck and Bus Driver/Commercial Vehicle Operator and Instructor |
| 513902: Nursing Assistant/Aide and Patient Care Assistant/Aide | 510601: Dental Assisting/Assistant |
| 480508: Welding Technology/Welder | 010105: Agriculture/Farm Supplies |
| 190709: Child Care Provider/Assistant | See Appendix A for other CIP codes not represented above. |
| 470604: Automobile/Automotive Mechanics Technology | |

FIGURE 16. EMPLOYMENT AND WAGES BY CERTIFICATE/DIPLOMA PROGRAM (LESS THAN 22 CREDITS), AY 2020 COHORT, FIRST YEAR FOLLOWING AWARD



Program Legend:

513901: Licensed Practical Nursing
 480508: Welding Technology
 510801: Medical Assisting
 510601: Dental Assisting/Assistant
 470201: HVAC
 460303: Lineworker

120301: Mortuary Science
 460201: Carpentry
 460302: Electrician
 510805: Pharmacy Tech

See Appendix A for other CIP codes not represented above.

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, 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 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.

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 that each cluster represents multiple industries and a variety of occupations.

Table 18 illustrates the number of awards earned by Iowa community college students by career cluster from AY 2016 to AY 2020. The list also includes awards earned by students in the college parallel/liberal arts (AA and AS degrees) programs. Although some of these AA and AS degree 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 Career and Technical Education (CTE) programs.

College parallel/liberal arts and the health science career cluster account for the majority of 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 the 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 18. AWARDS BY CAREER CLUSTER, AY 2016 - AY 2020

Cluster Name	2016 Awards	2017 Awards	2018 Awards	2019 Awards	2020 Awards	Total Awards	Increase/ Decrease AY 2016 to AY 2020
College Parallel/Liberal Arts	6,004	5,448	5,274	5,328	5,052	27,106	(952)
Agriculture, Food and Natural Resource Cluster	598	674	553	545	571	2,941	(27)
Architecture and Construction Cluster	565	609	625	582	547	2,928	(18)
Arts, Audio/Video Technology and Communications Cluster	321	340	291	290	253	1,495	(68)
Business, Management and Administration Cluster	471	477	395	433	392	2,168	(79)
Education and Training Cluster	86	83	57	102	79	407	(7)
Finance Cluster	222	202	208	246	223	1,101	1
Health Science Cluster	4,458	4,259	3,960	4,060	3,796	20,533	(662)
Hospitality and Tourism Cluster	262	232	206	222	156	1,078	(106)
Human Service Cluster	360	343	322	314	279	1,618	(81)
Information Technology Cluster	457	510	535	493	481	2,476	24
Law, Public Safety, Corrections and Security Cluster	293	274	301	448	351	1,667	58
Manufacturing Career Cluster	1,012	929	960	966	827	4,694	(185)
Marketing Sales and Service Cluster	95	91	98	91	69	444	(26)
Science, Technology, Engineering and Mathematics Cluster	96	89	81	70	85	421	(11)
Transportation, Distribution, and Logistics Cluster	773	815	693	654	566	3,501	(207)
Total	16,073	15,375	14,559	14,844	13,727	74,578	(2,346)

Employment by Career Cluster

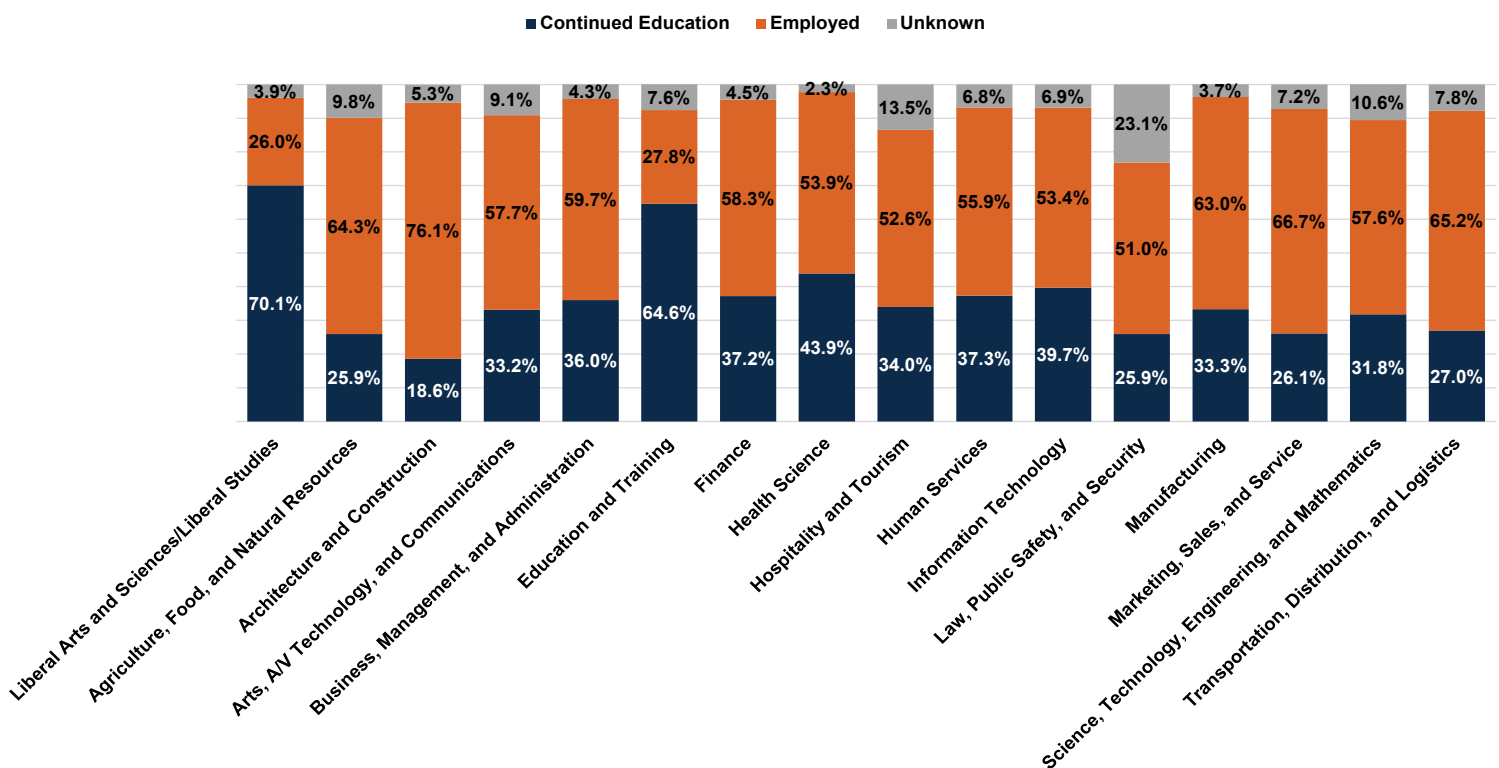
By analyzing and charting each career cluster based on the percentage of students who continued their education versus those who became employed, it is evident which clusters are targeted toward direct employment.

Analyzing the AY 2020 cohort, Figure 17 illustrates that within the first year following award completion, 58.3 percent of the health science graduates became employed, 43.9 percent continued their education and a small percentage of completers (2.3 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 (70.1 percent). Naturally, this is accompanied by a lower rate of graduates entering employment after graduation (26.0 percent).

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

FIGURE 17. ENROLLMENT AND EMPLOYMENT STATUS BY CAREER CLUSTER, AY 2020 COHORT, FIRST YEAR FOLLOWING AWARD



Transition into the Workforce

In the previous sections, career clusters and primary industry sectors of employment were analyzed independently. However, 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 18 provides a visualization used to relate these two variables. The 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 19 shows the relationship between career clusters and industry sectors for AY 2016 through AY 2020 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. It is important to note that bars/ribbons representing data that were suppressed due to low numbers were removed from Figure 19, resulting in fewer colored and gray bars.

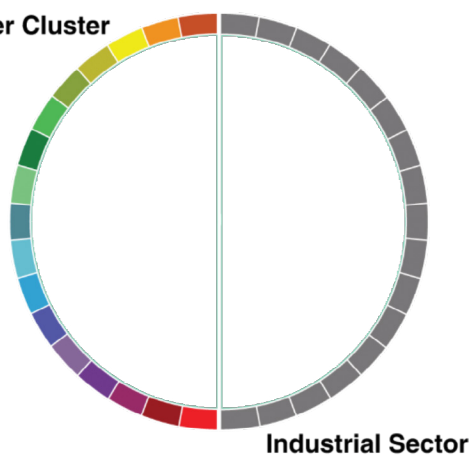
It is important to note that the data show the industry sectors in which completers are primarily employed, not their actual occupations. For instance, health science graduates may be pharmaceutical technicians employed by a pharmacy at a large retail store. While they are doing work related to the health 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 19 and 20 on the following pages.

FIGURE 18. CIRCOS VISUALIZATIONS

Career Cluster

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

Career Cluster



Industrial Sector

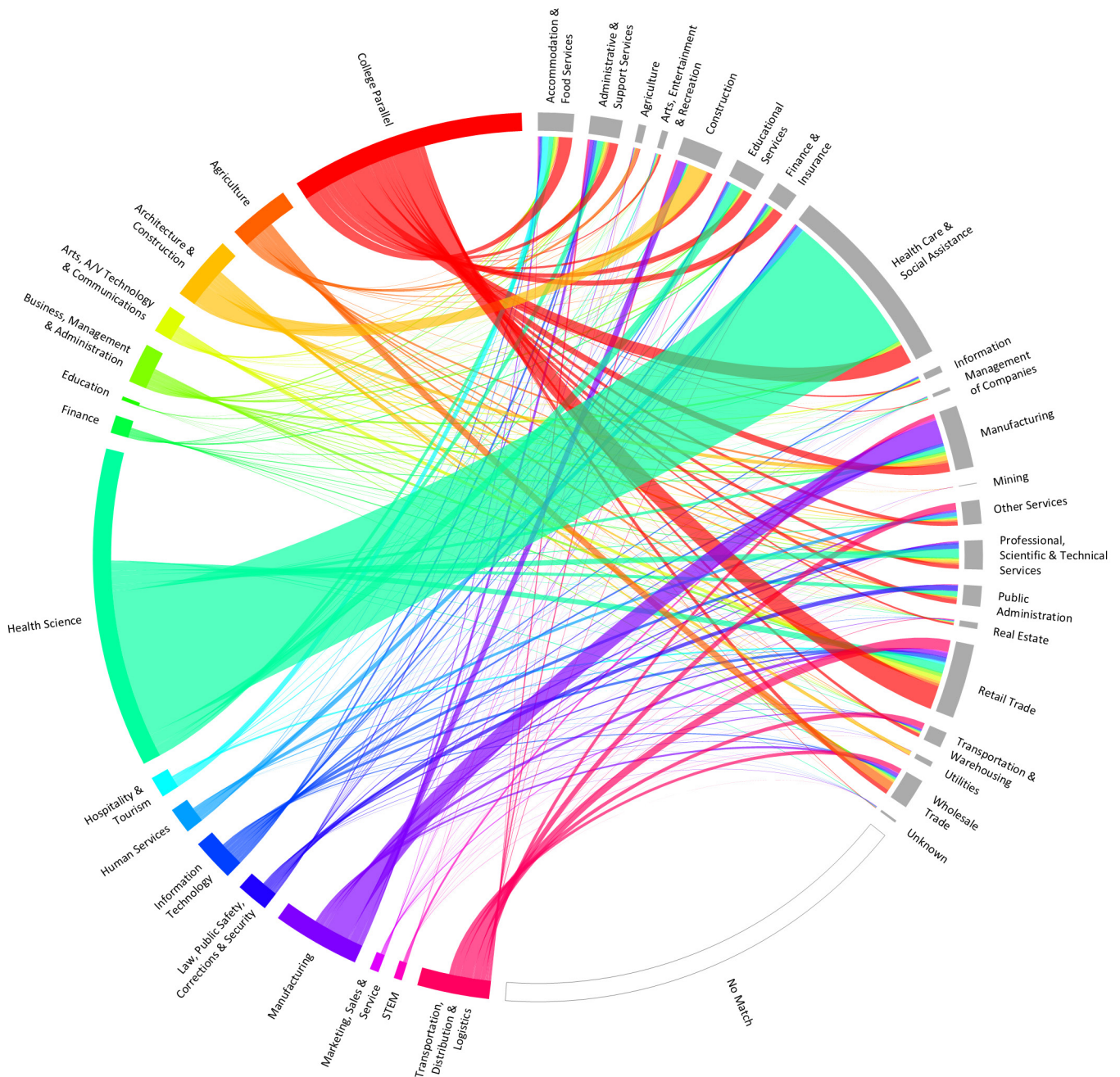
Industry Cluster

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

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 2016 to AY 2020 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 2016 TO AY 2020 COMMUNITY COLLEGE GRADUATES



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

The circular graphics in Figure 20 illustrate each award category (i.e., career clusters and college parallel program) on the left side of the circle aligning with the industry in which each graduate gained employment. This is simply Figure 19 separated into 16 individual graphics for each career cluster to make it easier to distinguish industry patterns within a cluster.

FIGURE 20. INDUSTRY MAPPING BY CLUSTER, AY 2016 TO AY 2020, COMMUNITY COLLEGE GRADUATES



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

Employment and Wage Record Methodology

- All wages for this report originate either from the Iowa Unemployment Insurance (UI) wage database, or State Wage Interchange System (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 academic year 2020 (October 2019 - September 2020) 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:

$$W_{adj} = \frac{CPI_t}{CPI_{base}} = W_t$$

where CPIbase is the CPI value of the base time period (AY 2018), 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. 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 2018, 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:
 - #1) Suppress cell if number of employed in cell is less than three.
 - #2) 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

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

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Appendix A

Below is a list of the detailed data tables for this report. There is one Excel spreadsheet that contains data for each cohort (AY 2016, AY 2017, AY 2018, AY 2019 and AY 2020) as well as all five combined. It contains statewide data as well as data broken out by each community college. It can be accessed at: <https://www.educateiowa.gov/iowa-community-college-program-outcomes>.

Table 1: Overall Employment and Wages (Iowa_Nebraska)

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 7a: Employment and Wages by Gender by Age

Table 8a: 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 (CIP) by Award Type

Table 22: Employment and Wages by Program (CIP) by Award Type by State of Employment

Table 23: Employment and Wages by Program (CIP) by Award Type by Industry Sector of Employment

Table 24: Employment by 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

Tables 27: Employment and Wages by Career Cluster by Gender

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



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 and Senior Year Plus,