

2025 Higher Education Return on Investment Report



2025

The Colorado Department of Higher Education
Report to the Colorado House of Representatives Education Committee
and the Colorado Senate Education Committee
Statute: CRS 23-1-135

The Colorado Department of Higher Education (DHE), under its own authority and through the Colorado Commission on Higher Education (CCHE), oversees and coordinates policy for 31 public institutions of higher education (including community colleges, independent local district colleges and local area technical colleges) and authorizes and regulates private colleges, universities and occupational schools.

Mission – We support students, advocate and develop policies to maximize higher education opportunities for all.

Vision – All Coloradans will have an education beyond high school to pursue their dreams and improve our communities.



Prepared and submitted by the Colorado Department of Higher Education under the Executive Leadership of Dr. Angie Paccione
Pursuant to the statutory authority of CRS 23-1-135

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Earning a certificate or credential during or after high school is increasingly important. Coloradans with more education are less likely to be unemployed and more likely to have steady work with better pay. Postsecondary education continues to help people earn more money and support families and communities across our state.

Each year, the Colorado Department of Higher Education writes a Return on Investment Report.

The report shows that finishing college brings big benefits to individuals and families in Colorado.

The report looks at several important measures:

- How long it takes to finish college and how many credits students take
- How much college costs and how much debt students have when they graduate
- · How much money graduates earn after college

We know that choosing to continue education after high school is a big decision. It costs money and takes time. This report gives Colorado learners, their families, and people who support them the information they need. It shows data about how much people earn and whether their education pays off financially. Colorado is strong because there are people from many different backgrounds and places. This report looks at how well different groups do after college or career training. Education and career success should be possible for all Coloradans, including students of color and with varying income levels.

Sincerely.

Jared Polis Governor

State of Colorado

Dr. Angie Paccione

Executive Director of the Colorado Department of Higher Education

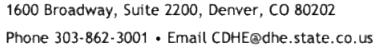






Table of Contents

Table of Figures	5
Table of Appendix Tables	6
Introduction	8
Report Highlights	10
Student Enrollment and Completion	11
Time and Credits to Complete a Certificate or Degree	16
Average Cost to Complete a Certificate or Degree	19
Average Student Loan Debt to Complete a Certificate or Degree	21
Employment Rates	26
Wage Outcomes of Graduates	29
Legislative Highlights and Promising Practices	42
Calculating Colorado's Minimum Value Threshold	45
Appendix A: Methodology and Other Technical Information	47
Appendix B: Broad Instructional Programs Crosswalk	50
Annuality C: Characteristics of Recent Graduates at Public Institutions	E2

Table of Figures

Figure 1: Fall Undergraduate Enrollment at Colorado Public Institutions by Credential Type, 2016 to 2022	Figure 8: Share of Colorado Public Institution Undergraduate Degree Completers with Debt, Academic Years 2013-14 to 2022-23
Figure 2: Number of Certificates and Undergraduate Degrees Awarded at Colorado Public Institutions, Academic Years 2015-16 to	Figure 9: Average Debt for Colorado Public Institution Undergraduate Degree Completers, Academic Years 2013-14 to 2022-23, in
2022-23 13	Nominal Dollar Amounts
Figure 3: Distribution of Broad Instructional Programs for Credentials Completed at Colorado Public Institutions, Academic Year 2022-23	Figure 10: Distribution of Debt Levels for Colorado Public Institution Undergraduate Degree Completers with Debt, Academic Year 2022-23
Figure 4: Average Number of Years to Complete a Credential at Colorado Public Institutions, Academic Years 2021-22 to 2022-23	Figure 11: Total Debt for Colorado Public Institution Undergraduate Degree Completers, Academic Years 2013-14 to 2022-23, adjusted for inflation to 2023 in Millions of Dollars 25
Figure 5: Average Number of Credits a Student Has Completed a Credential at Colorado Public Institutions, Academic Years 2021-22 to 2022- 23	Figure 12: Colorado Employment-Population Ratio, by Level of Educational Attainment for Those 25 Years and Older, 2018 to 2024 26
Figure 6: Average Yearly Cost Based on Posted Net Price at Colorado Public Institutions, Academic Year 2022-23	Figure 13: Colorado Unemployment Rate in 2024, by Level of Educational Attainment for Those 25 Years and Older
Figure 7: Average Aid Received by Students Receiving Title IV Federal Funds and Federal, State, or Institutional Aid at Colorado Public Institutions, by Income Academic Year 2022-23	Figure 14: Median Weekly Earnings for Coloradans in 2023, by Level of Educational Attainment for Those 25 Years and Older 28

Figure 15: Median Earnings 1, 5, and 10 Years	Figure 21: Median Earnings for Associate
After Graduation, by Credential Type 30	Degree Completers Five Years After
	Graduation, by Sex and Broad Instructional
Figure 16: Range of Earnings 1, 5, and 10 Years	Program36
After Graduation, by Credential Type 31	-
	Figure 22: Median Earnings for Bachelor's
Figure 17, Madian Faminas for Contificate	Degree Completers Five Years After
Figure 17: Median Earnings for Certificate	-
Completers Five Years After Graduation, by	Graduation, by Sex and Broad Instructional
Broad Instructional Program 32	Program 37
Figure 18: Median Earnings for Associate	Figure 23: Median Earnings for Certificate
Degree Completers Five Years After	Completers 1, 5, and 10 Years After Graduation,
Graduation, by Broad Instructional Program. 33	by Race and Ethnicity39
Figure 10. Modies Formings for Bookslaw's	Figure 24: Median Earnings for Associate
Figure 19: Median Earnings for Bachelor's	
Degree Completers Five Years After	Degree Completers 1, 5, and 10 Years After
Graduation, by Broad Instructional Program. 34	Graduation, by Race and Ethnicity 40
Figure 20: Median Earnings for Certificate	Figure 25: Median Earnings for Bachelor's
Completers Five Years After Graduation, by Sex	Degree Completers 1, 5, and 10 Years After
and Broad Instructional Program 35	Graduation, by Race and Ethnicity 41
Table of Appendix Tab	loc
Table of Appendix Tab	(C)
Table 1: Arts, Humanities, and Communication	Table 5: Science, Technology, Engineering, and
50	Math (STEM)51
Table 2: Business50	Table 6: Social and Behavioral Sciences and
	Human Services51
Table 3: Education51	
3 1	Table 7: Trades51
Table 4: Health 51	

Table 8: Share of 2022-23 Academic Year

Graduates, by Sex52

Table 9: Share of 2022-23 Academic Year	Table 18: Distribution of Instructional Programs
Graduates, by Race and Ethnicity 52	for Completed Credential, by Age Group –
	Certificate Graduates55
Table 10: Share of 2022-23 Academic Year	
Graduates, by Age Group 52	Table 19: Distribution of Instructional Programs
	for Completed Credential, by Age Group –
Table 11: Share of 2022-23 Academic Year	Associate Degree Graduates56
Graduates, by Pell Eligibility53	
	Table 20: Distribution of Instructional Programs
Table 12: Distribution of Instructional Programs	for Completed Credential, by Age Group –
for Completed Credential, by Sex - Certificate	Bachelor's Degree Graduates56
Graduates 53	Table 21: Distribution of Instructional Programs
Table 13: Distribution of Instructional Programs	for Completed Credential, by Pell Eligibility –
for Completed Credential, by Sex – Associate	Certificate Graduates
Degree Graduates	
Degree draadtes	Table 22: Distribution of Instructional Programs
Table 14: Distribution of Instructional Programs	for Completed Credential, by Pell Eligibility –
for Completed Credential, by Sex – Bachelor's	Associate Degree Graduates 57
Degree Graduates	C
	Table 23: Distribution of Instructional Programs
Table 15: Distribution of Instructional Programs	for Completed Credential, by Pell Eligibility –
for Completed Credential, by Race/Ethnicity –	Bachelor's Degree Graduates 57
Certificate Graduates 54	
	Table 24: Institutions with the Most Certificates
Table 16: Distribution of Instructional Programs	Awarded in Academic Year 2022-23 58
for Completed Credential, by Race/Ethnicity –	
Associate Degree Graduates 54	Table 25: Institutions with the Most Associate
	Degree Awarded in Academic Year 2022-23 58
Table 17: Distribution of Instructional Programs	
for Completed Credential, by Race/Ethnicity –	Table 26: Institutions with the Most Bachelor's
Bachelor's Degree Graduates 55	Degree Awarded in Academic Year 2022-23 58

Introduction

Higher education provides numerous benefits for individuals and the state, one of which is an increase in income after completing a degree or credential. This increase in income translates into increased tax revenue and reduced reliance on public assistance. However, completing a degree or credential requires an investment of time, effort, and money. A student's return on their investment varies depending on the institution and program they choose, as well as their path through postsecondary education and how long it takes them to complete. To assist lawmakers, taxpayers, students and families in understanding the value of postsecondary education in Colorado, the Colorado Department of Higher Education (CDHE) publishes an annual Return on Investment (ROI) Report of undergraduate degree programs and certificate programs offered at each state institution of higher education.

CDHE is required to publish the following information in this report:

- The number of students enrolled in undergraduate degree or certificate programs
 and the number of degrees and certificates awarded annually for the program,
 specifically identifying the number of high school students enrolled and the number
 of degrees and certificates awarded through the career development success
 program created in Colorado Revised Statute § 22-54-138.
- The average time to completion for students in an undergraduate degree or certificate program and the average number of credits earned by students completing the degree or certificate program.
- The average cost for completion of the undergraduate degree or certificate program, including mandatory program and institution fees, for a student with instate tuition classification.
- The average student loan debt for students in an undergraduate degree or certificate program.

- The employment rate of undergraduate degree or certificate program graduate, including:
 - The number of individual graduates;
 - The number of individual graduates matched through available data sources; and
 - The number of individual graduates not included in the employment rate, with an explanation of why the graduates are excluded from the employment rate.

About the Data

- This report is written with data that is presently available to CDHE following the <u>June 2023</u>
 Cybersecurity Attack. In most instances, data for the 2022-23 academic year is the most recent available. It is expected that there will be no reporting lags for next year's Return on Investment (ROI) Report (anticipated release date of July 2026).
- The scope of CDHE's ROI report includes data available from Colorado public institutions of higher
 education, including area technical colleges and local district colleges. Additionally, wage outcomes
 are measured for three Colorado private institutions of higher education: Colorado Christian
 University, Regis University and University of Denver. This report does not include information from
 other private postsecondary education providers, including private occupational schools.
- This report does not include information regarding Colorado's higher education programs offered beyond a bachelor's degree. However, wage outcome data for master's degree and doctoral graduates are available in CDHE's <u>Postsecondary Degree Earnings Outcome dashboard</u>.
- The dataset used in this report to calculate wage outcomes is created by linking CDHE's Student Unit Record Data System (SURDS) dataset to the Colorado Department of Labor and Employment's unemployment insurance (UI) dataset through social security numbers. The wage outcome data discussed in this report excludes graduates meeting certain criteria: graduates who do not have a social security number, who work outside of Colorado, who are federal employees (different system for unemployment compensation), self-employed (not covered by unemployment insurance), who earn below the equivalent of Colorado's minimum wage (adjusted on an annual basis), and who are not registered as resident students.
- For clarity, the earnings data available for this report include wage/salary, but do not include
 everything an employee may receive from their employer through total compensation. Total
 compensation encompasses the complete value of everything an employee receives from their
 employer, which may include health insurance, retirement plan contributions, stock options, paid
 time off or disability insurance.

Report Highlights

- Enrollment and Completion: The total number of resident students enrolled in Colorado's certificate and undergraduate programs at public institutions has declined from pre-pandemic levels, but the decrease showed signs of stabilizing in 2022 (the most recent data available).
 During the 2022-23 academic year, public institutions awarded 17,938 certificates, 9,121 associate degrees and 21,171 bachelor's degrees to resident students.
- Time and Credit to Certificate or Undergraduate Degree: On average, students take longer than expected to complete their credentials, requiring an average of 1.6 years for one-year certificate programs, 4.0 years for two-year associate degrees and 4.5 years for four-year bachelor's degrees, while also completing more credits than necessary for their degree.
- Average Cost to Complete a Certificate or Undergraduate Degree: Colorado's commitment to
 affordability is evident as almost all students whose annual family income is less than \$75,000
 and who apply for aid receive some type of financial assistance, with the new Colorado Promise
 program providing tax credits for eligible students with family incomes below \$90,000.
- Average Student Loan Debt: Student debt among residents graduating from Colorado public
 institutions has been on a steady downward trend, as only 43% of combined associate and
 bachelor's degree graduates had debt in the 2022-23 academic year, compared to 61% in the
 2013-14 academic year. Debt levels have also declined over that period, leading to a significant
 improvement in the total debt burden for Colorado public institution graduates.
- Employment Rates: Data consistently show that higher levels of educational attainment are strongly related to a greater likelihood of employment, lower rates of unemployment, and higher lifetime earnings.
- Wage Outcomes: While median earnings show little variation between credential types one year after graduation (certificates: \$48,580, associate degrees: \$48,723, bachelor's degrees: \$50,355), the earnings gap widens significantly over time, with bachelor's degree graduates experiencing the fastest 10-year wage growth rate at 50.5%, followed by associate degrees at 35.6% and certificates at 26.2%.



Student Enrollment and Completion

Enrollment

Higher education enrollment data directly impacts both the costs and benefits calculations that determine return on investment. The total number of resident students enrolled in Colorado's certificate and undergraduate programs at public institutions has declined from pre-pandemic levels, but the decrease showed signs of stabilizing in 2022 (the most recent data available). As shown in Figure 1, there were 15,936 resident students enrolled in certificate programs in 2022, 61,618 in associate degree programs and 90,279 in bachelor's degree programs. Combined, this totals 167,833 resident students enrolled in Colorado's certificate and undergraduate programs in 2022, representing a slight increase compared to the year prior (167,024 in 2021). Higher education enrollment in 2022 fell almost 8% compared to 2019 levels. This decline was concentrated in degree-seeking programs, with bachelor's degree enrollment dropping 9.7% and associate degree programs falling 6.9%. In contrast, certificate programs remained relatively stable, experiencing only a modest 0.8% decrease during the same timeframe.

2016

200,000 182,249 180,724 178,685 178,536 180,000 173,830 167,833 167,024 160,000 140,000 100,013 101,140 101,243 100,780 96,314 91,898 90,279 120,000 100,000 80,000 60,000 66,179 65,860 61,618 64,032 63,166 62,484 60,105 40,000 ■ Bachelor's Degree 20,000 ■ Associate Degree 16,057 15,032 15,021 15,936 13,724 13,410 14,590 ■ Certificate 0

Figure 1: Fall Undergraduate Enrollment at Colorado Public Institutions by Credential Type, 2016 to 2022

Year	Certificate	Associate Degree	Bachelor's Degree	Total
2016	13,724	65,860	101,140	180,724
2017	13,410	64,032	101,243	178,685
2018	14,590	63,166	100,780	178,536
2019	16,057	66,179	100,013	182,249
2020	15,032	62,484	96,314	173,830
2021	15,021	60,105	91,898	167,024
2022	15,936	61,618	90,279	167,833

2019

2020

2021

2022

Source: Colorado Department of Higher Education Institutional Data Submissions

2018

Certificates and Degrees Awarded

2017

Credential completion patterns mirror the enrollment trends, with certificates and undergraduate degrees awarded declining compared to the end of the previous decade. However, there was a notable rebound in the 2022-23 academic year (AY) (most recent data available), as shown in Figure 2.

During that year, public institutions awarded 17,938 certificates, 9,121 associate degrees, and 21,171 bachelor's degrees to resident students. Associate degree completions rebounded to pre-pandemic levels, rising 0.9% compared to 2018-19. However, certificate awards remained 6.3% below their earlier peak, while bachelor's degree completions stayed 6.8% lower than 2018-19 levels. This uneven pattern suggests associate degree programs demonstrated greater resilience during the period of disruption.

Figure 2: Number of Certificates and Undergraduate Degrees Awarded at Colorado Public Institutions, Academic Years 2015-16 to 2022-23



Academic Year	Certificate	Associate Degree	Bachelor's Degree	Total
2015-16	14,342	8,955	21,580	44,877
2016-17	18,193	8,834	22,117	49,144
2017-18	17,533	9,222	22,298	49,053
2018-19	19,154	9,041	22,713	50,908
2019-20	18,892	8,976	22,789	50,657
2020-21	18,425	8,949	22,639	50,013
2021-22	16,320	8,879	21,786	46,985
2022-23	17,938	9,121	21,171	48,230

The following table (Figure 3) displays how completed credentials at public institutions were distributed by instructional program during the 2022-23 AY. The programs listed include: arts, humanities and communication; business; education; health; science, technology, engineering and math (STEM); social and behavioral sciences and human services; and trades. Further explanations of these seven broad instructional programs and how they are defined can be viewed in Appendix B, starting on page 50.

Notably, 50% of completed certificates were in trades, while nearly one-quarter went towards health. STEM programs were the third largest share of certificates awarded in the 2022-23 AY. More than two-thirds of completed associate degrees fell into the arts, humanities, and communication category, well outpacing the next closest program, health, with a 14% share. STEM and trades both represented a little under 7% of awarded associate degrees in the 2022-23 AY. Unlike certificates and associate degrees, which skewed heavily towards one broad program (trades and arts, humanities and communication, respectively), completed bachelor's degrees were more evenly distributed. About 32% of bachelor's degrees completed in the 2022-23 AY were in STEM. The social and behavioral sciences and human services (19.8%) and business (19.3%) programs made up the next largest shares. Arts, humanities and communication was the other program that represented more than 15% of bachelor's degrees awarded in the 2022-23 AY.

Figure 3: Distribution of Broad Instructional Programs for Credentials Completed at Colorado Public Institutions, Academic Year 2022-23

Broad Instructional Program	Certificate	Associate Degree	Bachelor's Degree
Arts, Humanities, and Communication	2.8%	67.8%	15.8%
Business	6.7%	3.0%	19.3%
Education	5.3%	0.7%	2.6%
Health	24.9%	14.2%	6.9%
Science, Technology, Engineering, and Math	8.2%	6.9%	32.3%
Social and Behavioral Sciences and Human Services	2.2%	0.9%	19.8%
Trades	50.0%	6.5%	3.3%
Total	100.0%	100.0%	100.0%

This pattern reveals how different credential levels serve educational pathways. Certificates can lead students toward immediate workforce entry in trade and health fields. Associate degrees heavily emphasize liberal arts preparation, while bachelor's degrees show more credential across both professional and academic disciplines.

For further information on public institution graduates that have been awarded associate and bachelor's degrees, as well as certificates, view Appendix C (pages 52-58). Appendix C includes the following data:

- Share of 2022-23 academic year graduates, by sex, race/ethnicity, age group, and
 Pell eligibility.
- Distribution of broad instructional programs for graduates within the 2020-21, 2021 22, and 2022-23 academic years, by sex, race/ethnicity, age group and Pell eligibility.
- The Colorado public institutions which awarded the most certificates, associate degrees and bachelor's degrees in the 2022-23 academic year.

In addition to reporting on postsecondary enrollment, Colorado state statute requires the Colorado Department of Higher Education to identify the number of high school students enrolled and the number of certificates awarded through the Career Development Success Program, also known as Career Development Incentive Program (CDIP). Student-level data for the CDIP is not available to CDHE, and CDIP data is self-reported, in aggregate, by school districts to the Colorado Department of Education (CDE). According to 2023-24 CDIP data, student districts sought reimbursement for 15,973 eligible industry recognized credentials. For further information and statistics on the CDIP program, visit the CDE website.

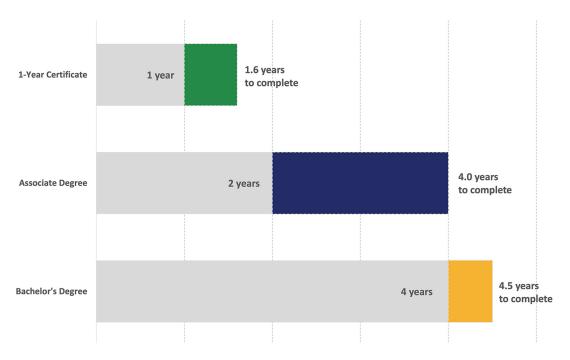
Time and Credits to Complete a Certificate or Degree

According to Complete College America, students who take full-time, 15-credit course loads can dramatically lower the cost of education by reducing the time it takes to complete a postsecondary credential. The Colorado Department of Higher Education (CDHE) and the Colorado Commission on Higher Education (CCHE) advocate for an intentional focus on expanding opportunities that reduce the time needed to learn in-demand career skills and thereby reduce the opportunity cost of foregone wages. To ensure affordability and maximize the return on investment (ROI) of a credential, students and institutions should:

- Act to reduce the time it takes to complete, ensuring students realize the increased wage earnings they receive from a degree sooner.
- Minimize the number of credits students take beyond what is required to complete a credential to ensure they are not paying more tuition or taking longer than they need to graduate.

Completion times for postsecondary credentials consistently exceed their designated duration. Data reveal that students require an average of 1.6 years to complete one-year certificate programs, 4.0 years for two-year associate degrees and 4.5 years for four-year bachelor's degrees (Figure 4). While the average time to complete an associate degree is similar to a bachelor's degree, associate degree students more frequently enroll part-time, allowing them to balance educational and employment responsibilities.

Figure 4: Average Number of Years to Complete a Credential at Colorado Public Institutions, Academic Years 2021-22 to 2022-23



Source: Colorado Department of Higher Education Institutional Data Submissions

In addition, students on average complete more credits than necessary for their degree or credential, which can impact a student's ROI through both additional costs for credits and additional foregone wages while completing the credits (Figure 5).

Figure 5: Average Number of Credits a Student Has Completed a Credential at Colorado Public Institutions, Academic Years 2021-22 to 2022-23

Credential	Standard Credit Requirement	Average Credits at Credential
Certificate <1 Year	Equal to or less than 30	16.8
Certificate 1-2 Years	30 to 60	44.8
Associate Degree	60	64.0
Bachelor's Degree	120	133.9

In the last several years, the state has taken actions to better understand why students complete more credits than necessary for their degree or credential. Some additional credits are likely due to students changing their minds and switching majors or degree programs. Whether or not credits will transfer to an institution and whether or not those credits are received as elective, general education or toward a program of study also impact the number of credits a student may have earned on their way to degree completion. To maximize the value of credit previously earned, the state and institutions can improve transfer policies and processes. Two recent initiatives are focused on this work:

- 1. SB24-164: Institution of Higher Education Transparency Requirements includes several provisions aimed at providing more transparency into the college course transfer process for statewide transfer courses and articulation agreements. The law also increased student rights to appeal an institution's decision to not accept a course in transfer. Additionally, institutions of higher education are now required to submit transfer course data to CDHE for statewide Guaranteed Transfer courses submitted by students regarding whether or not the courses were accepted and applied to programs of study.
- 2. HB25-1038: Postsecondary Credit Transfer Website continues the focus on transfer transparency put forth by SB24-126. This website, to be completed in multiple phases, will help to make course transfer information more accessible and understandable to students, parents, advisors, etc. The first phase of the website includes updating information on Guaranteed Transfer Pathways, Statewide Transfer Articulation Agreements and exam equivalences for high school and military exams for college credit. The bill sets the foundation for CDHE to work with institutions to make one-to-one course transfer information public, with no login or additional searching necessary.

Average Cost to Complete a Certificate or Degree

Institutions of higher education calculate a student's total cost of attendance based on the student's living situation and determine financial aid levels based on the student's family income. Very few students pay the total cost of attendance – almost all receive a mix of federal, state, and college-funded grants and scholarships, otherwise known as financial aid. The total cost of attendance, subtracting financial aid, is often referred to as a student's net price. The net price is what a student and their family pay out-of-pocket.



The cost of attendance has several components, each of which may vary across institutions and degree programs within institutions. The major determinants associated with the price of postsecondary education, along with the relevant data, are broken down below and in Figure 6.

Tuition and Fees

During the 2022-23 AY, published in-state tuition and fees at Colorado's four-year institutions were about \$11,200 per year, while for two-year institutions the average was \$4,160. All of Colorado's public four-year postsecondary institutions have some version of an institutional promise program. These income-qualified programs cover the cost of tuition, and sometimes fees, for all eligible students. In addition, Colorado Promise: Two Free Years of College Expanded reimburses eligible students through a tax credit for any tuition and fees they pay out-of-pocket.

Living Expenses

Where a student lives makes a difference. At Colorado's four-year institutions, cost estimates for students who choose to live independently (\$12,300) may be higher than room and board for students living at home. At two-year institutions, reported housing costs are, on average, \$12,200 independently. Living at home can significantly reduce a student's housing costs.

Books and Supplies

Colorado's four-year institutions reported average books and supplies costs of \$1,430 and two-year institutions reported average books and supplies costs of \$1,460. Colorado continues to invest in reducing the cost of books and supplies through open education resources (OER). The Colorado OER Grant Program provides grants to fund the adoption and development of freely available online teaching and learning materials accessible to students, instructors and self-learners.

Other Costs

There are other costs that students incur while pursuing their education, including but not limited to expenses on transportation, furnishing, laundry and entertainment. Estimated other expenses vary by living situation, but range from \$3,900 to \$5,760.

Figure 6: Average Yearly Cost Based on Posted Net Price at Colorado Public Institutions, Academic Year 2022-23

Average Cost 2-year Institutions		Average Cost 4-year Institutions		
Tuition and Fees	\$4,160		Tuition and Fees	\$11,200
Independent Off-Campus Housing	\$12,200		Independent Off-Campus Housing	\$12,300
Books and Supplies	\$1,460		Books and Supplies	\$1,430
Other Costs (Off-Campus)	\$5,760		Other Costs (Off-Campus)	\$3,900
Total Cost of Attendance	\$23,580		Total Cost of Attendance	\$28,830

Because the state and its institutions are committed to affordability for in-state students, many students—particularly those from low-income families—pay little, if any tuition, and end up with a significantly lower net price overall. To ensure affordability, institutions in Colorado should (and are encouraged to) direct financial aid resources to low-income students. In Colorado, almost all students whose annual family income is less than \$75,000 and who apply for aid receive some type of financial aid from the federal government, state, or the institution (Figure 7). In addition, thanks to the Colorado Promise: Two Free Years of College Expanded statewide program that launched in fall 2024, eligible students with family incomes below \$90,000 can receive a Colorado tax credit to refund the tuition and fees they paid. The Colorado Promise builds on promise programs at many of our public institutions, which provide a guarantee of free tuition up-front for students who met certain set criteria.

Figure 7: Average Aid Received by Students Receiving Title IV Federal Funds and Federal, State, or Institutional Aid at Colorado Public Institutions, by Income Academic Year 2022-23

Family Income	2-Year Institutions % Receiving Aid	2-Year Institutions Average \$ Awarded	4-Year Institutions % Receiving Aid	4-Year Institutions Average \$ Awarded
\$0-\$30,000	100%	\$9,900	100%	\$13,700
\$30,001-\$48,000	98%	\$9,800	98%	\$13,200
\$48,001-\$75,000	96%	\$7,500	92%	\$10,200
\$75,001-\$110,000	59%	\$3,100	74%	\$5,600
\$110,000 or more	22%	\$1,100	56%	\$3,200

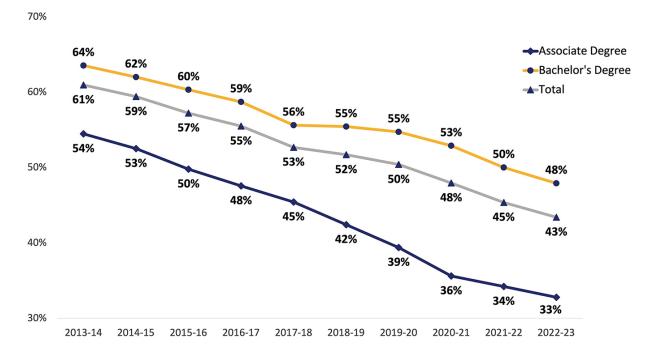
Source: Colorado Department of Higher Education Institutional Data Submissions

Average Student Loan Debt to Complete a Certificate or Degree

To pay for college, families and students depend on scholarships, financial aid, savings and income while an individual is enrolled in school, as well as student loan debt. On a national level, student debt is one of the fastest-growing forms of debt.

Bucking these trends, debt among Colorado residents graduating from the state's public institutions continues to be on a steady downward trend since the 2013-14 AY (Figure 8). In the 2022-23 AY, 48% of resident students graduating with a bachelor's degree accrued student loan debt, compared to 64% with debt in 2013-14 (yellow line). Similarly, the share of associate degree graduates with debt declined from 54% to 33% during the same 10-year period (blue line). When associate and bachelor's degree graduates are combined (gray line), the debt share fell to 43% in the 2022-23 AY.

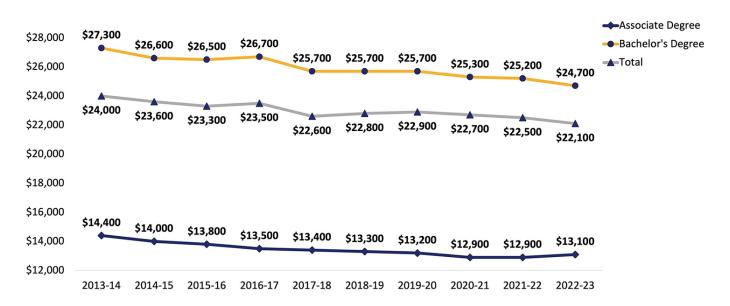
Figure 8: Share of Colorado Public Institution Undergraduate Degree Completers with Debt, Academic Years 2013-14 to 2022-23



Academic Year	Associate Degree	Bachelor's Degree	Total
2013-14	54.5%	63.5%	61.0%
2014-15	52.5%	62.0%	59.4%
2015-16	49.8%	60.3%	57.2%
2016-17	47.6%	58.7%	55.5%
2017-18	45.4%	55.6%	52.7%
2018-19	42.4%	55.4%	51.7%
2019-20	39.4%	54.7%	50.4%
2020-21	35.6%	52.9%	47.9%
2021-22	34.2%	50.0%	45.4%
2022-23	32.8%	47.9%	43.4%

In addition to the declines in the percentage of graduates with student loan debt, there are notable declines over time in the average amount of debt students incur. The average loan debt for a Colorado student graduating from a public institution with a bachelor's degree (yellow line) was around \$24,700 in the 2022-23 AY, representing a meaningful decline in the average outstanding amount over the past decade (Figure 9). Associate degree graduates (blue line) have a significantly lower average debt burden, which has ranged between \$12,900 and \$14,400 since the 2013-14 AY. When associate and bachelor's degree graduates are combined (gray line), the average debt amount has decreased by nearly 8% across this period.

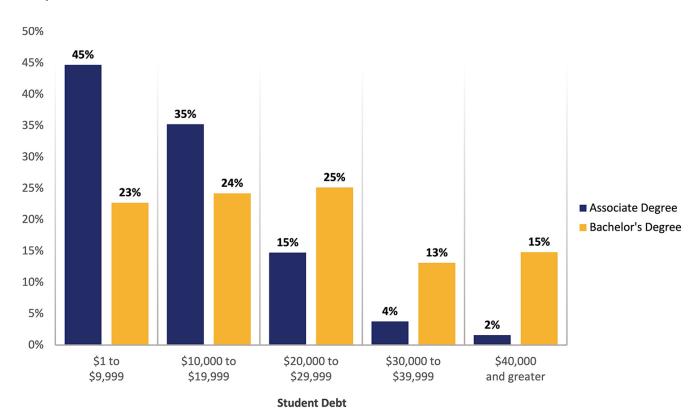
Figure 9: Average Debt for Colorado Public Institution Undergraduate Degree Completers, Academic Years 2013-14 to 2022-23, in Nominal Dollar Amounts



Academic Year	Associate Degree	Bachelor's Degree	Total
2013-14	\$14,400	\$27,300	\$24,000
2014-15	\$14,000	\$26,600	\$23,600
2015-16	\$13,800	\$26,500	\$23,300
2016-17	\$13,500	\$26,700	\$23,500
2017-18	\$13,400	\$25,700	\$22,600
2018-19	\$13,300	\$25,700	\$22,800
2019-20	\$13,200	\$25,700	\$22,900
2020-21	\$12,900	\$25,300	\$22,700
2021-22	\$12,900	\$25,200	\$22,500
2022-23	\$13,100	\$24,700	\$22,100

While the average student loan debt is a useful metric to track trends over time, there is also value in evaluating how debt amounts are distributed for Colorado's graduates. Figure 10 displays the share of associate and bachelor's degree graduates with selected ranges of debt during the 2022-23 AY. Of associate degree graduates with debt following the 2022-23 AY, approximately 45% had a debt burden of less than \$10,000, while for bachelor's degree graduates that comparative share was 23%. Only 6% of associate degree graduates with debt had a debt level of at least \$30,000, compared to 28% for bachelor's degree completers.

Figure 10: Distribution of Debt Levels for Colorado Public Institution Undergraduate Degree Completers with Debt, Academic Year 2022-23

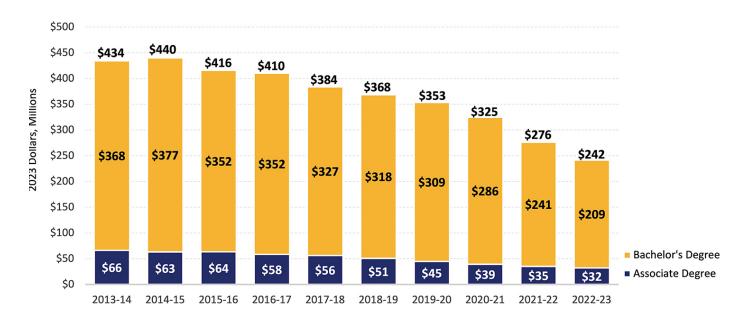


Range of Debt	Associate Degree	Bachelor's Degree
\$1 to \$9,999	44.7%	22.7%
\$10,000 to \$19,999	35.2%	24.2%
\$20,000 to \$29,999	14.7%	25.1%
\$30,000 to \$39,999	3.8%	13.1%
\$40,000 and greater	1.6%	14.8%

When combining declining average loan amounts with lower rates of completers with debt, the total debt burden for Colorado public institution graduates has significantly improved over time.

After adjusting for inflation, total debt for associate and bachelor's degree graduates exceeded \$400 million between the 2013-14 and 2016-17 academic years (Figure 11). Subsequent levels have steadily declined and dropped below \$250 million in the 2022-23 AY.

Figure 11: Total Debt for Colorado Public Institution Undergraduate Degree Completers, Academic Years 2013-14 to 2022-23, adjusted for inflation to 2023 dollars in Millions of Dollars

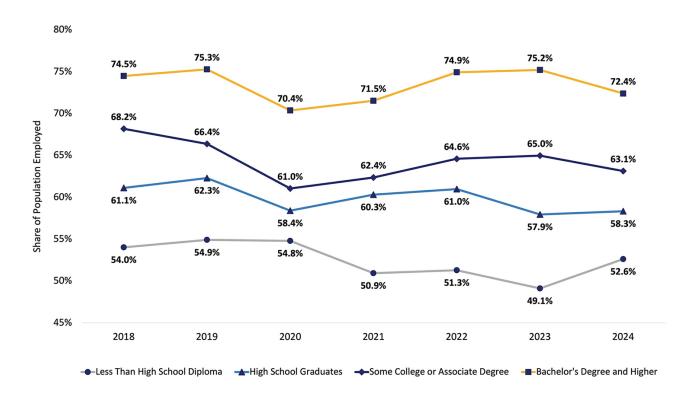


Academic Year	Associate Degree	Bachelor's Degree	Total
2013-14	\$66.2	\$368.1	\$434.4
2014-15	\$63.3	\$376.6	\$439.9
2015-16	\$63.5	\$352.4	\$415.9
2016-17	\$58.5	\$351.7	\$410.2
2017-18	\$56.3	\$327.4	\$383.7
2018-19	\$50.9	\$317.5	\$368.4
2019-20	\$44.7	\$308.5	\$353.3
2020-21	\$39.2	\$285.5	\$324.8
2021-22	\$35.2	\$241.0	\$276.2
2022-23	\$32.2	\$209.4	\$241.6

Employment Rates

Data consistently shows that individuals that have completed postsecondary education are more likely to be employed than those with lower levels of educational attainment. Figure 12 displays the employment-population ratio (or share of that population that is employed) for Coloradans 25 years and older, organized by their highest level of education completed: less than a high school diploma; high school graduate (or equivalent); some college or associate degree (which would include certificates); and bachelor's degree and higher. The data below, which spans from 2018 to 2024 and comes from the <u>Current Population Survey</u>, shows a clear and consistent trend that higher levels of education lead to higher rates of employment. For example, the employment-population ratio for Coloradans with a bachelor's degree and higher exceeded 72% in 2024, compared to around 63% for individuals with some college or associate degree, and less than 60% for residents 25 years and older with no postsecondary education.

Figure 12: Colorado Employment-Population Ratio, by Level of Educational Attainment for Those 25 Years and Older, 2018 to 2024

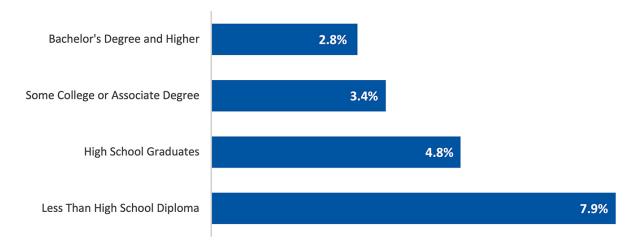


Year	Less Than High School Diploma	High School Graduates	Some College or Associate Degree	Bachelor's Degree and Higher
2018	54.0%	61.1%	68.2%	74.5%
2019	54.9%	62.3%	66.4%	75.3%
2020	54.8%	58.4%	61.0%	70.4%
2021	50.9%	60.3%	62.4%	71.5%
2022	51.3%	61.0%	64.6%	74.9%
2023	49.1%	57.9%	65.0%	75.2%
2024	52.6%	58.3%	63.1%	72.4%

Source: Current Population Survey

Consistent with the employment data presented above, higher levels of education also lead to lower <u>unemployment rates</u>. In 2024, the unemployment rate for Coloradans with less than a high school diploma was 7.9%, nearly three times greater than the rate of 2.8% for those with a bachelor's degree and higher (Figure 13). While the 2024 unemployment rate for high school graduates was 4.8% last year, it was only 3.4% for individuals with some college or associate degree.

Figure 13: Colorado Unemployment Rate in 2024, by Level of Educational Attainment for Those 25 Years and Older

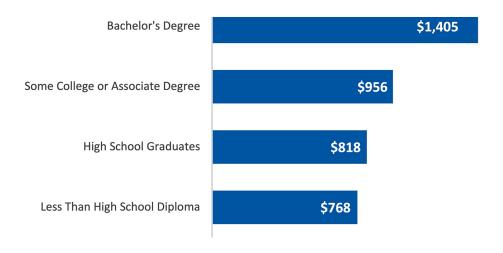


Source: Current Population Survey

Finally, along with levels of educational attainment being correlated with the probability of being either employed or unemployed, those with postsecondary education also see higher earnings. Figure 14 shows that in 2023, those in Colorado's labor force without a high school diploma earned nearly half as much on a weekly basis as those who completed a bachelor's degree.

To illustrate the difference in potential lifetime earnings between those two populations, assume they are paid the same weekly amounts (\$768 and \$1,405, respectively) over the next 30 years. At the end of those 30 years, the individual with a bachelor's degree would have earned nearly \$2.2 million, compared to \$1.2 million for the person without a high school diploma. While actual lifetime earnings would vary, this simple example helps to highlight the long-term financial benefits of a postsecondary education.

Figure 14: Median Weekly Earnings for Coloradans in 2023, by Level of Educational Attainment for Those 25 Years and Older



Source: American Community Survey, 1-year estimates

The data presented in this section comes from publicly available sources external to the Colorado Department of Higher Education, as it is currently not feasible to adequately track employment rates of graduates. However, enhancements to this section may be possible in the future due to the Statewide Longitudinal Data System, which will improve the data infrastructure within Colorado and expand the state's ability to measure and quantify student outcomes.



Wage Outcomes of Graduates

While the previous section of this report touched on differences in earnings based on various levels of educational attainment, this section focuses on wage outcomes for certificate and undergraduate degree completers. What an individual earns following completion of a postsecondary credential is a crucial component for assessing the ROI of higher education. The following pages provide select snapshots of wage outcomes for graduates of Colorado public institutions, as well as three private institutions (Colorado Christian University, Regis University and University of Denver). For more detailed data visit the CDHE ROI report webpage. Technical information on the wage outcomes dataset is within Appendix A, starting on page 47.

The chart below (Figure 15) presents median earnings 1, 5, and 10 years after graduation, by credential type. Wages in Figure 15 and throughout this section have been adjusted for inflation and reflect 2023 dollar amounts. The green column represents certificate outcomes across the measured periods, while associate and bachelor's degree earnings are shown in blue and yellow, respectively. Median earnings one year after graduation display little variation between the credential types: certificate (\$48,580), associate degree (\$48,723), and bachelor's degree (\$50,355). However, the difference in earnings between the credential types widens five years after graduation and becomes even more pronounced 10 years after graduation. When comparing median earnings between one and 10 years after graduation, bachelor's degree graduates experienced the fastest growth (50.5%), followed by those who completed associate degrees (35.6%) and certificates (26.2%).

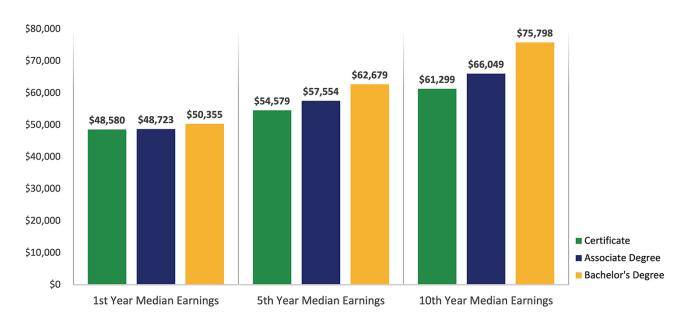


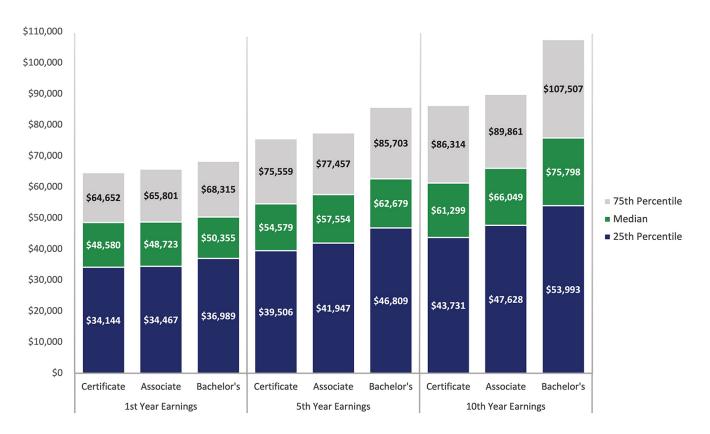
Figure 15: Median Earnings 1, 5, and 10 Years After Graduation, by Credential Type

Credential Type	1st Year Median Earnings	5th Year Median Earnings	10th Year Median Earnings	Growth in Earnings Between 1st and 10th Year
Certificate	\$48,580	\$54,579	\$61,299	26.2%
Associate Degree	\$48,723	\$57,554	\$66,049	35.6%
Bachelor's Degree	\$50,355	\$62,679	\$75,798	50.5%

Source: Colorado Department of Higher Education

In addition to utilizing median wages to assess outcomes for graduates over time, it is also beneficial to observe 25th and 75th percentile earnings, which can provide a more complete picture of income potential (for an explanation of percentile wages, see the <u>Bureau of Labor Statistics website</u>). Figure 16 displays the range of earnings 1, 5, and 10 years after graduation, by credential type. The dark blue bars reflect 25th percentile earnings, while 75th percentile earnings are shown within the gray bars. Median earnings (green bars) mirror the wages that are presented in Figure 15.

Figure 16: Range of Earnings 1, 5, and 10 Years After Graduation, by Credential Type



1st Year Earnings by Credential Type	25th Percentile	Median	75th Percentile
Certificate	\$34,144	\$48,580	\$64,652
Associate Degree	\$34,467	\$48,723	\$65,801
Bachelor's Degree	\$36,989	\$50,355	\$68,315

5th Year Earnings by Credential Type	25th Percentile	Median	75th Percentile
Certificate	\$39,506	\$54,579	\$75,559
Associate Degree	\$41,947	\$57,554	\$77,457
Bachelor's Degree	\$46,809	\$62,679	\$85,703

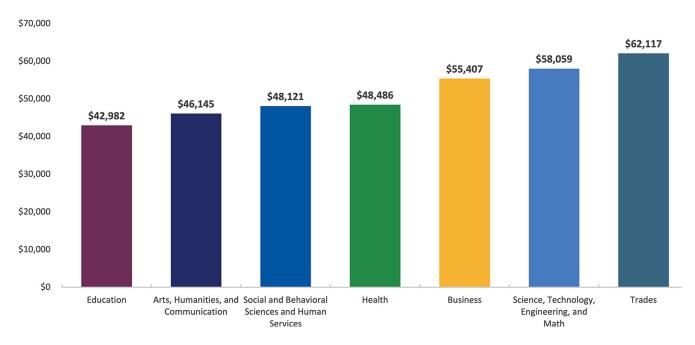
10th Year Earnings by Credential Type	25th Percentile	Median	75th Percentile
Certificate	\$43,731	\$61,299	\$86,314
Associate Degree	\$47,628	\$66,049	\$89,861
Bachelor's Degree	\$53,993	\$75,798	\$107,507

Source: Colorado Department of Higher Education

Wage outcomes for graduates not only vary over time and by credential type, but also across broad instructional programs. The following three figures break out median earnings for certificate and undergraduate completers five years after graduation, by broad instructional program. Within each figure, the instructional programs are sorted from lowest to highest earnings and reflect the same column color scheme throughout to aid in comparison between credential types.

Median certificate earnings were highest for graduates who obtained a certificate in trades (\$62,117) and lowest in education (\$42,982). STEM and business instructional program wage outcomes ranged between \$55,000 and \$58,000 (Figure 17).

Figure 17: Median Earnings for Certificate Completers Five Years After Graduation, by Broad Instructional Program

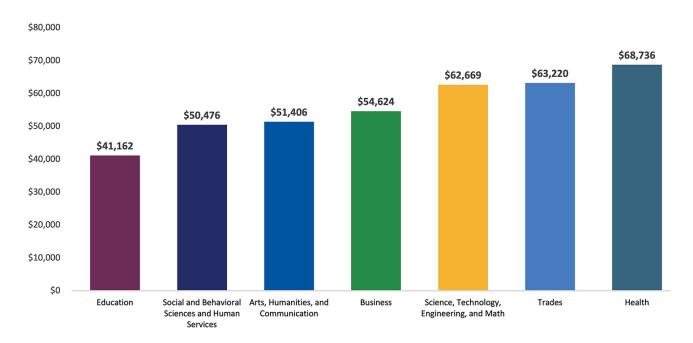


Broad Instructional Program	5th Year Median Earnings
Education	\$42,982
Arts, Humanities, and Communication	\$46,145
Social and Behavioral Sciences and Human Services	\$48,121
Health	\$48,486
Business	\$55,407
Science, Technology, Engineering, and Math	\$58,059
Trades	\$62,117

Source: Colorado Department of Higher Education

Figure 18, which focuses on associate degree outcomes by broad instructional programs, shows that health yields the highest median wage five years after graduation, at \$68,736. STEM and trades earnings are similar, both around \$63,000. Like with certificate completers, education earnings for associate degree graduates lag behind the other instructional programs.

Figure 18: Median Earnings for Associate Degree Completers Five Years After Graduation, by Broad Instructional Program

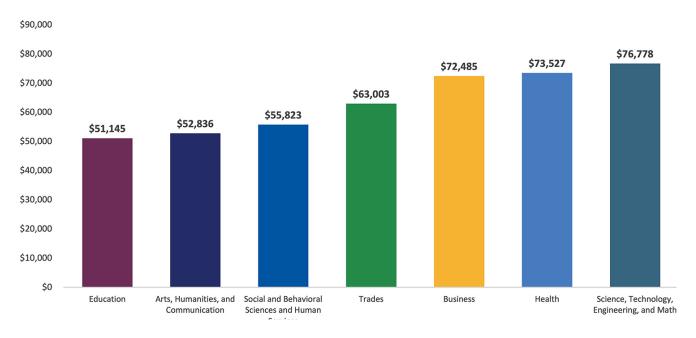


Broad Instructional Program	5th Year Median Earnings
Education	\$41,162
Social and Behavioral Sciences and Human Services	\$50,476
Arts, Humanities, and Communication	\$51,406
Business	\$54,624
Science, Technology, Engineering, and Math	\$62,669
Trades	\$63,220
Health	\$68,736

Source: Colorado Department of Higher Education

The final figure in this grouping highlights bachelor's degree outcomes by broad instructional program. Three instructional programs – business, health, and STEM – have median wages that surpass \$70,000, with STEM leading comparative outcomes (Figure 19). Trades is the only other program with an earnings outcome greater than \$60,000.

Figure 19: Median Earnings for Bachelor's Degree Completers Five Years After Graduation, by Broad Instructional Program



Broad Instructional Program	5th Year Median Earnings
Education	\$51,145
Arts, Humanities, and Communication	\$52,836
Social and Behavioral Sciences and Human Services	\$55,823
Trades	\$63,003
Business	\$72,485
Health	\$73,527
Science, Technology, Engineering, and Math	\$76,778

Source: Colorado Department of Higher Education

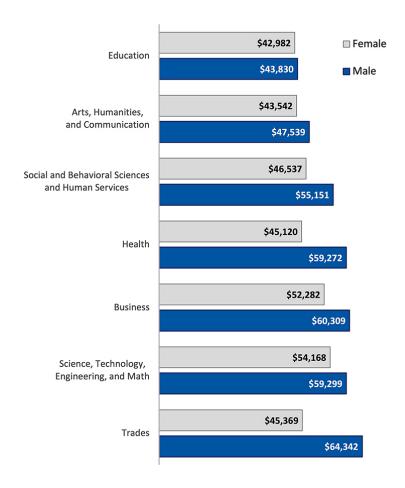
Some interesting trends are revealed when comparing the last three figures:

- Wage outcomes for trades are nearly identical, with less than a 2% difference across the different credential types.
- The same three instructional programs (education; social and behavioral sciences and human services; and arts, humanities and communication) had the lowest wage outcomes for certificates and undergraduate degrees.
- Health experienced the largest surge in median earnings when comparing certificate and bachelor's degree outcomes (52%), followed by STEM (32%) and business (31%).

Expanding on the previously presented collection of data, wage outcomes can also be disaggregated by demographic characteristics, like sex and race/ethnicity. The following three figures break out median earnings for certificate and undergraduate completers five years after graduation, by sex and broad instructional program. The gray bars represent earnings for females, while the male earnings are shown in blue.

For certificate completers (Figure 20), wages for males were highest in trades five years after graduation (\$64,342), while STEM programs led to the highest median earnings for females (\$54,168). Across all instructional programs, female earnings are lower than males, which is a consistent theme throughout credential types. The largest differences in earnings five years after graduation are within trades and health, while the wage gap between men and women is smallest in education.

Figure 20: Median Earnings for Certificate Completers Five Years After Graduation, by Sex and Broad Instructional Program

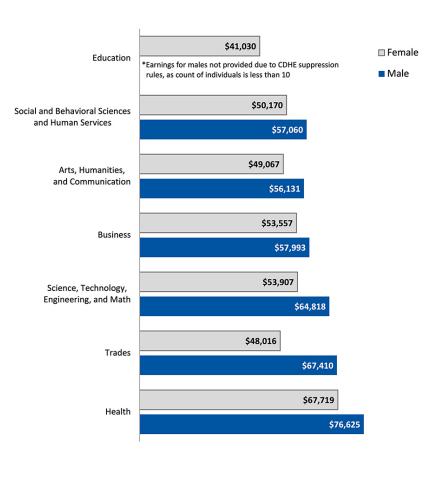


Broad Instructional Program	5th Year Median Earnings: Female	5th Year Median Earnings: Male	Earnings Gap
Education	\$42,982	\$43,830	-2.0%
Arts, Humanities, and Communication	\$43,542	\$47,539	-9.2%
Social and Behavioral Sciences and Human Services	\$46,537	\$55,151	-18.5%
Health	\$45,120	\$59,272	-31.4%
Business	\$52,282	\$60,309	-15.4%
Science, Technology, Engineering, and Math	\$54,168	\$59,299	-9.5%
Trades	\$45,369	\$64,342	-41.8%

Source: Colorado Department of Higher Education

Figure 21 shows that health, trades, and STEM result in the highest median earnings for males, five years after they graduate with an associate degree. Health was the only instructional program that led to earnings for females exceeding \$60,000 five years after graduation. The largest differences between males and females in earnings are within trades and STEM, while the wage gap is smallest in business.

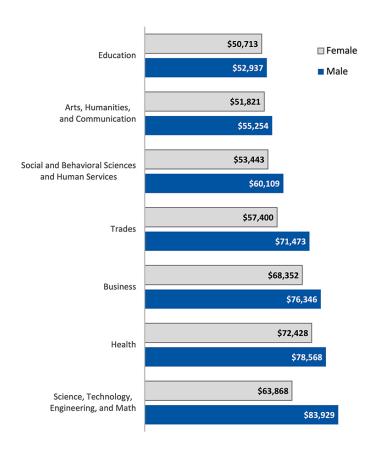
Figure 21: Median Earnings for Associate Degree Completers Five Years After Graduation, by Sex and Broad Instructional Program



Broad Instructional Program	5th Year Median Earnings: Female	5th Year Median Earnings: Male	Earnings Gap
Education	\$41,030	Suppressed	N/A*
Social and Behavioral Sciences and Human Services	\$50,170	\$57,060	-13.7%
Arts, Humanities, and Communication	\$49,067	\$56,131	-14.4%
Business	\$53,557	\$57,993	-8.3%
Science, Technology, Engineering, and Math	\$53,907	\$64,818	-20.2%
Trades	\$48,016	\$67,410	-40.4%
Health	\$67,719	\$76,625	-13.2%

As with certificates and associate degrees, some inequities exist when comparing wage outcomes for males and females five years after graduating with a bachelor's degree. The largest differences in earnings are within STEM and trades, while the wage gap is smallest in education and arts, humanities and communication (Figure 22). Four instructional programs led to five-year median earnings for males above \$70,000 (STEM, health, business, and trades), while health was the only program to reach that level for females.

Figure 22: Median Earnings for Bachelor's Degree Completers Five Years After Graduation, by Sex and Broad Instructional Program



^{*}Earnings for males not provided due to CDHE suppression rules, as count of individuals is less than 10.

Broad Instructional Program	5th Year Median Earnings: Female	5th Year Median Earnings: Male	Earnings Gap
Education	\$50,713	\$52,937	-4.4%
Arts, Humanities, and Communication	\$51,821	\$55,254	-6.6%
Social and Behavioral Sciences and Human Services	\$53,443	\$60,109	-12.5%
Trades	\$57,400	\$71,473	-24.5%
Business	\$68,352	\$76,346	-11.7%
Health	\$72,428	\$78,568	-8.5%
Science, Technology, Engineering, and Math	\$63,868	\$83,929	-31.4%

The final three figures in this section look at median wage outcomes 1, 5, and 10 years after graduation, by race and ethnicity (Asian; Black or African American; Hispanic or Latinx; and White).

Figure 23 highlights median earnings for certificate completers. The green bar represents wages one year after graduation, while the dark and light gray bars reflect earnings five and 10 years post-completion, respectively. One year after graduation the wage outcomes for these race and ethnicity groups are fairly similar and fall between \$44,587 and \$49,818 (a difference of 11.7% between the lowest and highest values). However, when analyzing median earnings after a decade has passed, there is a clear separation in median wages for Asian (\$60,392) and White (\$64,080) individuals, compared to Black or African American (\$55,005) and Hispanic or Latinx (\$54,207) graduates. This is a trend that holds through all credential types. Asian certificate completers experience the largest increase in wages between the 1st and 10th year (35.4%).

Figure 23: Median Earnings for Certificate Completers 1, 5, and 10 Years After Graduation, by Race and Ethnicity



Race/Ethnicity	1st Year Median Earnings	5th Year Median Earnings	10th Year Median Earnings	Growth in Earnings Between 1st and 10th Year
Asian	\$44,587	\$54,350	\$60,392	35.4%
Black or African American	\$46,518	\$49,881	\$55,005	18.2%
Hispanic or Latinx	\$46,605	\$49,888	\$54,207	16.3%
White	\$49,818	\$56,612	\$64,080	28.6%

Compared to certificate completers, associate degree earnings outcomes one year (blue bar) after graduation are even more closely related for these groups (Figure 24). Less than \$3,000, or a difference of 5.6% separates the lowest and highest median earnings of \$47,022 (Hispanic or Latinx) and \$49,682 (White), respectively. Asian graduates have the highest median earnings 10 years following the completion of their associate degree (\$68,925), which represents a 43.6% gain compared to wage outcomes after one year.

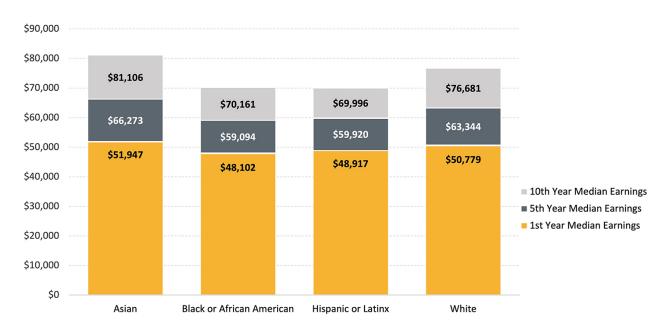
Figure 24: Median Earnings for Associate Degree Completers 1, 5, and 10 Years After Graduation, by Race and Ethnicity



Race/Ethnicity	1st Year Median Earnings	5th Year Median Earnings	10th Year Median Earnings	Growth in Earnings Between 1st and 10th Year
Asian	\$48,004	\$60,122	\$68,925	43.6%
Black or African American	\$47,777	\$54,267	\$61,929	29.6%
Hispanic or Latinx	\$47,022	\$54,350	\$61,197	30.1%
White	\$49,682	\$58,387	\$67,151	35.2%

The final figure displays median earnings outcomes for the highlighted race and ethnicity groups that graduated with a bachelor's degree (Figure 25). As represented by the yellow bar, the earnings gap one year after completion of a bachelor's degree is around 8% when comparing the lowest (\$48,102) and highest (\$51,947) median wages. All groups experience at least a 40% change in median earnings between the 1st and 10th year post-graduation.

Figure 25: Median Earnings for Bachelor's Degree Completers 1, 5, and 10 Years After Graduation, by Race and Ethnicity



Race/Ethnicity	1st Year Median Earnings	5th Year Median Earnings	10th Year Median Earnings	Growth in Earnings Between 1st and 10th Year
Asian	\$51,947	\$66,273	\$81,106	56.1%
Black or African American	\$48,102	\$59,094	\$70,161	45.9%
Hispanic or Latinx	\$48,917	\$59,920	\$69,996	43.1%
White	\$50,779	\$63,344	\$76,681	51.0%

While several factors can determine the earnings outcome for individuals after graduation, these datasets are helpful in understanding and analyzing trends between credential types, instructional programs and demographic characteristics. Along with the information presented within this report, as well as CDHE's ROI webpage and interactive dashboard, viewing the Postsecondary Employment Outcomes (PSEO) data published by the U.S. Census Bureau is encouraged. The PSEO data has added value in that it includes industry-level statistics (sectors of employment) and wage outcomes for Colorado graduates who move to another state. At present, there are 30 states that participate in the PSEO program, with four more (and D.C.) anticipated to join shortly.

Legislative Highlights and Promising Practices

Below are legislative highlights and promising practices that have been introduced in Colorado in recent years and that positively impact postsecondary student ROI and workforce readiness.

- Colorado Promise: Two Free Years of College Expanded: Beginning in Fall 2024, thanks to HB24-1340, resident students who have family incomes of \$90,000 or less are eligible for a tax credit reimbursement of any out-of-pocket tuition and fees paid during a student's first 65 credits toward their higher education at any Colorado public institution. The program expands on individual institutional promise programs and extends financial support to middle-income residents. By reimbursing out-of-pocket costs for eligible students, this program has the potential to reduce student debt and improve ROI. This year, SB25-319 modified this program to shorten the window between when a student pays for courses and when they can receive the tax credit.
- FosterEd covers the cost of attendance for former foster youth: Colorado residents
 who have experienced foster care or non-certified kinship care in Colorado on or after
 their 13th birthday qualify for a last-dollar financial aid program to fully cover their cost
 of attendance while working towards a certificate, associate or bachelor's degree at any
 Colorado institution.
- EmpowerEd covers the cost of attendance for unhoused students: Colorado residents
 who have experienced homelessness in high school now qualify for a new last-dollar
 financial aid program to fully cover their cost of attendance while working towards a
 certificate, associate, or bachelor's degree at any Colorado institution.
- This year, the legislature passed HB25-1186: Work-Based Learning Experiences in
 Higher Education. Upon receiving sufficient funds, CDHE shall establish, implement,
 manage, and maintain the work-based learning consortium. CDHE shall convene three

representatives of each participating institution of higher education, a member of CCHE, members of the Colorado Department of Labor and Employment (CDLE), a member of the Colorado Department of Education (CDE), and a local or national expert with experience implementing work-based learning. The consortium meets for three years. Research shows that students who complete work-based learning on their way to earning a degree are more likely to have positive post-graduate earnings outcomes, but not every student can afford to take unpaid or extracurricular work-based learning opportunities. This collaborative effort seeks to advance a student's return on investment by embedding work-based learning into a student's curricular experience, which will help more students get work ready and maximize the value of their degree.

- HB25-1038: Postsecondary Credit Transfer creates a new online platform for students pursuing postsecondary education with information about academic credit transfer. This online platform will incorporate the following: Advanced Placement (AP) exam equivalencies; College-Level Examination Program (CLEP) exam equivalencies; DANTES Subject Standardized Test (DSST) exam equivalencies; International Baccalaureate (IB) exam equivalencies; industry-recognized credentials, licenses, and apprenticeship certificates; lower-division courses; Reverse Transfer courses; Guaranteed Transfer (GT) Pathways courses; additional general education courses; and Statewide Transfer Articulation Agreements (STAAs). The information published on the online platform will be solely available as a resource for current and prospective students pursuing postsecondary education opportunities in Colorado. By increasing transparency around academic transfer, students can increase their ROI by maximizing credits required to complete their credentials.
- The Governor's Executive Order, Reimagining the Future of the Postsecondary Talent
 Development System in Colorado, directs multiple state agencies—including CDHE,

 CDLE, CDE, the Colorado Department of Regulatory Agencies, and the Office of
 Economic Development and International Trade—to conduct a comprehensive
 evaluation of Colorado's postsecondary talent development system. This analysis aims

to identify coordination gaps and streamline connections between K-12 education, higher education, and workforce development. Building on the bipartisan Student Success and Workforce Revitalization Task Force (HB21-1330), the agencies will develop recommendations for a more integrated and adaptive system that reduces bureaucratic barriers and improves navigation for learners, employers, and communities. The initiative specifically targets increased credential attainment among students who traditionally haven't pursued postsecondary education or training within six years of high school graduation. The goal is to create a seamless, future-ready talent pipeline that better serves Colorado's evolving workforce needs.

• Colorado is launching an official replication of the City University of New York's (CUNY) nationally recognized Accelerated Study in Academic Programs (ASAP). Proven to double graduation rates, CUNY ASAP provides comprehensive financial, academic, and personal support. With funding from Arnold Ventures, Colorado Opportunity Scholarship Initiative (COSI) is spearheading this effort, bringing this successful model to Colorado. This fall (2025), Lamar Community College and Colorado Mountain College will implement the program on their campuses, aiming to boost associate degree graduation rates by ensuring students receive the dedicated guidance and support they need to succeed.

Calculating Colorado's Minimum Value Threshold

Aligned to the Colorado Commission on Higher Education (CCHE) <u>strategic plan</u> and the work to implement HB22-1349: Postsecondary Student Success Data System, CDHE continues to develop new measures of student success related to the progression of students through postsecondary education and the impact of postsecondary pathways on a student's career opportunities and success.

CDHE and CCHE convened a working group comprised of Colorado stakeholders and national experts to advise on the most appropriate empirical model to estimate a Minimum Value Threshold (MVT) of postsecondary credentials in Colorado, and the best data elements to support this model. While focusing on the metrics and outcomes most relevant to Colorado, the working group members reviewed prior research and analysis of postsecondary education's financial value and return on investment. The working group proposed the following model to estimate the minimum value threshold of a postsecondary credential in Colorado:



A summary of this work along with technical documentation and frequently asked questions (FAQs) can be found in the documents below:

- Colorado Minimum Value Threshold (MVT) analysis & State Longitudinal Data System (SLDS) discussions - Project Summary
- Colorado Minimum Value Threshold (MVT) Technical Documentation and Data FAQs

Using this framework and available data, CDHE can calculate an MVT output for postsecondary education programs in Colorado with the ability to disaggregate data by institution of higher education, degree level, instructional program (2-digit CIP) and student cohorts based on completion or non-completion.

CDHE continues to collaborate with CCHE and Colorado public institutions of higher education on the findings from the MVT output at the postsecondary program level (both statewide and institution-specific data). These analyses will inform collaborative conversations between CDHE, CCHE, and Colorado institutions of higher education on how best to enhance the value of programs and bolster postsecondary student success.

Appendix A: Methodology and Other Technical Information

To calculate the various metrics outlined in this report, CDHE receives data from several sources, including Colorado public postsecondary institutions of higher education (IHEs) via the department's SURDS (Student Unit Record Data System) and unemployment insurance (UI) wage data from the Colorado Department of Labor and Employment. The sharing of data among IHEs and CDHE, as well as data sharing between CDHE and other state agencies, has allowed CDHE to provide valuable insights into student postsecondary success. Following is a breakdown of several of the metrics outlined in this report and the methods used to calculate those metrics.

- Enrollment and completion counts: Graduation and enrollment data were calculated using the SURDS Enrollment and Degree files. The table contains students classified as residential undergraduate seeking students.
- Time and credits to complete credential: Time to credential was calculated using completion data from the 2022-23 SURDS Degree file. Of those who completed a degree at a Colorado public institution of higher education (IHE), the student's first-time enrollment at that same Colorado IHE was found. Additionally, a student's first-time enrollment was matched to the type of credential the student was seeking. For example, if a student received a bachelor's degree, the student's first-time, bachelor's-degree-seeking status entry was used. Based on these data, a time to credential (in years) was calculated. Calculations for associate degrees and certificates used a similar method. Students receiving a credential via the state's Reverse Transfer process were removed from the calculations. Both part-time and full-time students were included in this analysis. Credits at credential data were calculated using the maximum cumulative credits hours accumulated by a student at the time of their credential completion.

- Average cost to complete credential: Institutional and program data on tuition and fees
 in this report come from the CDHE Tuition and Fees report. Estimates for housing, food,
 books and other expenses used to calculate cost of attendance are from the Colorado
 Commission on Higher Education's approved student budget parameters.
- Average student loan debt to complete credential: State and institutional-level debt was calculated using the 2022-23 SURDS Financial Aid file. It includes students who completed a degree at a Colorado institution of higher education and were classified as resident students at the time of graduation. For graduates of four-year institutions, it includes debt they incurred up to six years before graduation. For graduates of two-year institutions, it includes debt that was incurred up to three years before graduation.
- Wage outcomes: The dataset used in this report to calculate wage outcomes is created by linking CDHE's SURDS dataset to Colorado Department of Labor and Employment's (CDLE) unemployment insurance (UI) dataset through social security numbers. Although the dataset includes graduates from public institutions in Colorado, it excludes those meeting certain criteria: graduates who do not have a social security number, who work outside of Colorado, who are federal employees (different system for unemployment compensation), self-employed (not covered by unemployment insurance), who earn below the equivalent of Colorado's minimum wage (adjusted on an annual basis), and who are not registered as resident students. Other technical information on the dataset is available below:
 - Median earnings at 1, 5, and 10 years post-graduation were calculated by matching degree completion data with UI wage data, beginning six months after graduation.
 - Earnings are assigned to the highest degree earned in the SURDS systems. For example, if an associate degree and a bachelor's degree are obtained by a graduate, then the earnings are assigned to the bachelor's degree.

- The one-year wage outcome cohort includes graduates from 2014 to 2023; the five-year cohort includes graduates from 2009 to 2018; and the ten-year cohort includes graduates from 2004 to 2013. Previous wage outcome calculations included all years back to 2004 for each cohort group. Reducing the years used for the wage outcome calculation improves reliability in the estimates.
- Based on the criteria and limitations highlighted above, not all graduates can be matched to the available wage data from CDLE. The match rate varies by credential and years post-graduation, but generally ranges a little under 50%. Detailed match rates can be viewed within the downloadable data on CDHE's ROI webpage.
- All earnings are adjusted for inflation to constant 2023 dollars using the U.S.
 Consumer Price Index (CPI), ensuring consistent comparisons over time.
- An updated tool providing a full scope of the data utilized in this report can be accessed through the <u>Postsecondary Degree Earnings Outcomes Tool</u> on the CDHE website. Here, readers can utilize a wide range of across disaggregated populations within Colorado. This site will be updated on an annual basis to aid learners, researchers, and policymakers as new data is released.

Appendix B: Broad Instructional Programs Crosswalk

Throughout this report, seven broad instructional programs are referenced and analyzed: arts, humanities and communication; business; education; health; science, technology, engineering and math (STEM); social and behavioral sciences and human services; and trades. These broad programs were grouped into categories using 2-digit Classification of Instructional Programs (CIP) codes, which are used for the tracking and reporting of fields of study and program completion activities, and the Complete College America Meta Major framework that has been adopted by the Bill and Melinda Gates Foundation, State Higher Education Executive Officers Association (SHEEO), National Center for Higher Education Management Systems (NCHEMS), and others foundations. Grouping programs provide higher match rates and more aggregated counts of students, to address data privacy concerns. The tables below display each 2-digit CIP code and title that are included within the seven broad instructional programs.

Table 1: Arts, Humanities, and Communication

2-Digit CIP Code	CIP Title
05	Area, Ethnic, Cultural, Gender, and Group Studies
09	Communication, Journalism, and Related Programs
10	Communications Technologies/Technicians and Support Services
16	Foreign Languages, Literatures, and Linguistics
23	English Language and Literature/Letters
24	Liberal Arts and Sciences, General Studies and Humanities
29	Military Technologies and Applied Sciences
30	Multi/Interdisciplinary Studies
38	Philosophy and Religious Studies
39	Theology and Religious Vocations
50	Visual and Performing Arts
54	History

Table 2: Business

2-Digit CIP Code	CIP Title
52	Business, Management, Marketing, and Related Support Services

Table 3: Education

2-Digit CIP Code	CIP Title
13	Education

Table 4: Health

2-Digit CIP Code	CIP Title
51	Health Professions and Related Programs

Table 5: Science, Technology, Engineering, and Math (STEM)

2-Digit CIP Code	CIP Title
01	Agricultural/Animal/Plant/Veterinary Science and Related Fields
03	Natural Resources and Conservation
04	Architecture and Related Services
11	Computer and Information Sciences and Support Services
14	Engineering
15	Engineering/Engineering-Related Technologies/Technicians
26	Biological and Biomedical Sciences
27	Mathematics and Statistics
28	Military Science, Leadership and Operational Art
40	Physical Sciences
41	Science Technologies/Technicians

Table 6: Social and Behavioral Sciences and Human Services

2-Digit CIP Code	CIP Title
19	Family and Consumer Sciences/Human Sciences
22	Legal Professions and Studies
25	Library Science
31	Parks, Recreation, Leisure, Fitness, and Kinesiology
42	Psychology
44	Public Administration and Social Service Professions
45	Social Sciences

Table 7: Trades

2-Digit CIP Code	CIP Title
12	Culinary, Entertainment, and Personal Services
43	Homeland Security, Law Enforcement, Firefighting and Related Protective Services
46	Construction Trades
47	Mechanic and Repair Technologies/Technicians
48	Precision Production
49	Transportation and Materials Moving

Appendix C: Characteristics of Recent Graduates at Public Institutions

Appendix C highlights additional statistics on graduates who have been awarded associate and bachelor's degrees, as well as certificates, at Colorado's public institutions. This page provides the share of 2022-23 academic year graduates (most recent data available), by sex, race/ethnicity, age group and Pell eligibility. Pages 51-57 show how broad instructional programs were distributed for graduates within the 2021, 2022 and 2023 academic years, by sex, race/ethnicity, age group and Pell eligibility. The final page displays the most certificates, associate degrees, and bachelor's degrees awarded in the 2023 academic year, by institution. **Source:** all of the data within Appendix C come from CDHE's Student Unit Record Data System (SURDS) Degree file and are limited to undergraduate students at Colorado's public institutions with in-state tuition classification at the time of completion.

Table 8: Share of 2022-23 Academic Year Graduates, by Sex

Credential Type	Female	Male	Total
Certificate	41.9%	58.1%	100.0%
Associate Degree	62.1%	37.9%	100.0%
Bachelor's Degree	55.3%	44.7%	100.0%

Table 9: Share of 2022-23 Academic Year Graduates, by Race and Ethnicity

Credential Type	Asian	Black or African American	Hispanic or Latinx	White	All Other Races and Ethnicities	Total
Certificate	2.5%	3.9%	30.4%	54.5%	8.7%	100.0%
Associate Degree	3.0%	4.7%	26.9%	57.0%	8.4%	100.0%
Bachelor's Degree	5.4%	3.4%	20.4%	62.8%	8.0%	100.0%

Table 10: Share of 2022-23 Academic Year Graduates, by Age Group

Credential Type	Under 21	21-24	25-34	35-44	45 and older	Total
Certificate	37.6%	19.3%	25.8%	11.4%	6.0%	100.0%
Associate Degree	30.1%	27.3%	27.7%	10.4%	4.6%	100.0%
Bachelor's Degree	1.9%	66.0%	22.0%	7.2%	2.9%	100.0%

Table 11: Share of 2022-23 Academic Year Graduates, by Pell Eligibility

Credential Type	Pell Eligible	Not Pell Eligible	Total
Certificate	20.4%	79.6%	100.0%
Associate Degree	33.4%	66.6%	100.0%
Bachelor's Degree	26.0%	74.0%	100.0%

Table 12: Distribution of Instructional Programs for Completed Credential, by Sex

Certificate Graduates During the 2021, 2022, and 2023 Academic Years

Broad Instructional Program	Female	Male
Arts, Humanities, and Communication	3.9%	2.3%
Business	14.7%	7.5%
Education	10.2%	0.4%
Health	43.2%	10.1%
Science, Technology, Engineering, and Math	6.3%	10.6%
Social and Behavioral Sciences and Human Services	4.2%	0.9%
Trades	17.5%	68.3%
Total	100.0%	100.0%

Table 13: Distribution of Instructional Programs for Completed Credential, by Sex

Associate Degree Graduates During the 2021, 2022, and 2023 Academic Years

Broad Instructional Program	Female	Male
Arts, Humanities, and Communication	68.3%	64.6%
Business	3.1%	3.0%
Education	1.1%	0.0%
Health	19.2%	6.5%
Science, Technology, Engineering, and Math	4.0%	12.0%
Social and Behavioral Sciences and Human Services	1.4%	0.5%
Trades	2.8%	13.3%
Total	100.0%	100.0%

Table 14: Distribution of Instructional Programs for Completed Credential, by Sex

Bachelor's Degree Graduates During the 2021, 2022, and 2023 Academic Years

Broad Instructional Program	Female	Male
Arts, Humanities, and Communication	17.2%	14.3%
Business	17.1%	24.0%
Education	4.4%	0.7%
Health	11.7%	2.2%
Science, Technology, Engineering, and Math	23.4%	42.1%
Social and Behavioral Sciences and Human Services	22.8%	13.8%
Trades	3.4%	2.9%
Total	100.0%	100.0%

Table 15: Distribution of Instructional Programs for Completed Credential, by Race/Ethnicity

Certificate Graduates During the 2021, 2022, and 2023 Academic Years

Broad Instructional Program	Asian	Black or African American	Hispanic or Latinx	White	All Other Races and Ethnicities
Arts, Humanities, and Communication	3.0%	2.3%	2.5%	3.1%	3.7%
Business	19.5%	13.2%	10.2%	10.3%	9.9%
Education	5.5%	6.2%	5.4%	4.0%	4.8%
Health	33.4%	32.2%	26.0%	22.8%	23.0%
Science, Technology, Engineering, and Math	10.9%	9.7%	6.6%	9.7%	7.6%
Social and Behavioral Sciences and Human Services	2.2%	1.9%	1.8%	2.5%	2.5%
Trades	25.5%	34.6%	47.5%	47.5%	48.6%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Table 16: Distribution of Instructional Programs for Completed Credential, by Race/Ethnicity

Associate Degree Graduates During the 2021, 2022, and 2023 Academic Years

Broad Instructional Program	Asian	Black or African American	Hispanic or Latinx	White	All Other Races and Ethnicities
Arts, Humanities, and Communication	71.3%	70.1%	70.2%	64.4%	71.0%
Business	4.1%	4.4%	3.2%	2.9%	2.7%
Education	0.4%	1.1%	1.0%	0.6%	0.7%
Health	14.5%	12.4%	12.8%	15.9%	11.7%
Science, Technology, Engineering, and Math	7.0%	7.3%	5.2%	7.6%	6.9%
Social and Behavioral Sciences and Human Services	0.8%	1.1%	1.1%	1.1%	1.2%
Trades	1.9%	3.7%	6.5%	7.4%	5.7%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Table 17: Distribution of Instructional Programs for Completed Credential, by Race/Ethnicity

Bachelor's Degree Graduates During the 2021, 2022, and 2023 Academic Years

Broad Instructional Program	Asian	Black or African American	Hispanic or Latinx	White	All Other Races and Ethnicities
Arts, Humanities, and Communication	10.3%	14.4%	15.6%	16.5%	15.5%
Business	22.5%	21.5%	19.5%	19.6%	24.0%
Education	1.1%	1.5%	3.5%	2.8%	2.2%
Health	5.6%	9.2%	7.4%	7.6%	7.1%
Science, Technology, Engineering, and Math	45.9%	24.7%	26.0%	32.8%	32.2%
Social and Behavioral Sciences and Human Services	12.8%	23.8%	22.9%	18.0%	16.5%
Trades	1.9%	4.9%	5.1%	2.7%	2.4%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Table 18: Distribution of Instructional Programs for Completed Credential, by Age Group

Certificate Graduates During the 2021, 2022, and 2023 Academic Years

Broad Instructional Program	Under 21	21-24	25-34	35-44	45 and older
Arts, Humanities, and Communication	3.1%	4.1%	2.4%	2.5%	2.4%
Business	11.8%	10.1%	8.1%	10.5%	15.7%
Education	2.4%	4.1%	5.1%	8.3%	9.7%
Health	27.6%	22.8%	21.8%	22.2%	25.3%
Science, Technology, Engineering, and Math	6.5%	7.7%	10.2%	10.9%	14.2%
Social and Behavioral Sciences and Human Services	1.4%	2.3%	2.8%	3.1%	3.9%
Trades	47.3%	49.1%	49.6%	42.5%	28.7%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Table 19: Distribution of Instructional Programs for Completed Credential, by Age Group

Associate Degree Graduates During the 2021, 2022, and 2023 Academic Years

Broad Instructional Program	Under 21	21-24	25-34	35-44	45 and older
Arts, Humanities, and Communication	83.9%	71.0%	57.5%	48.4%	47.4%
Business	1.8%	2.8%	3.0%	5.6%	7.1%
Education	0.2%	0.6%	0.9%	1.6%	2.0%
Health	1.7%	11.7%	22.8%	27.0%	24.9%
Science, Technology, Engineering, and Math	5.4%	6.1%	8.4%	8.4%	8.0%
Social and Behavioral Sciences and Human Services	0.4%	0.7%	1.6%	2.1%	2.1%
Trades	6.7%	7.1%	5.9%	6.9%	8.5%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Table 20: Distribution of Instructional Programs for Completed Credential, by Age Group

Bachelor's Degree Graduates During the 2021, 2022, and 2023 Academic Years

Broad Instructional Program	Under 21	21-24	25-34	35-44	45 and older
Arts, Humanities, and Communication	15.2%	16.9%	14.6%	11.4%	15.8%
Business	18.9%	17.4%	22.2%	32.1%	35.4%
Education	1.6%	3.0%	2.4%	2.0%	1.6%
Health	4.0%	4.5%	12.2%	16.3%	16.0%
Science, Technology, Engineering, and Math	30.2%	35.1%	28.6%	20.9%	13.2%
Social and Behavioral Sciences and Human Services	24.9%	20.1%	16.6%	13.9%	14.3%
Trades	5.2%	3.0%	3.5%	3.3%	3.8%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Table 21: Distribution of Instructional Programs for Completed Credential, by Pell Eligibility

Certificate Graduates During the 2021, 2022, and 2023 Academic Years

Broad Instructional Program	Pell Eligible	Not Pell Eligible
Arts, Humanities, and Communication	2.8%	3.8%
Business	10.0%	12.4%
Education	3.5%	8.5%
Health	22.8%	29.8%
Science, Technology, Engineering, and Math	8.0%	11.4%
Social and Behavioral Sciences and Human Services	2.0%	3.3%
Trades	50.9%	30.8%
Total	100.0%	100.0%

Table 22: Distribution of Instructional Programs for Completed Credential, by Pell Eligibility

Associate Degree Graduates During the 2021, 2022, and 2023 Academic Years

Broad Instructional Program	Pell Eligible	Not Pell Eligible
Arts, Humanities, and Communication	68.7%	63.7%
Business	2.9%	3.4%
Education	0.5%	1.1%
Health	13.0%	17.4%
Science, Technology, Engineering, and Math	7.0%	6.8%
Social and Behavioral Sciences and Human Services	1.0%	1.4%
Trades	6.9%	6.2%
Total	100.0%	100.0%

Table 23: Distribution of Instructional Programs for Completed Credential, by Pell Eligibility

Bachelor's Degree Graduates During the 2021, 2022, and 2023 Academic Years

Broad Instructional Program	Pell Eligible	Not Pell Eligible
Arts, Humanities, and Communication	15.1%	17.9%
Business	22.3%	14.2%
Education	2.3%	4.0%
Health	7.3%	7.9%
Science, Technology, Engineering, and Math	32.3%	30.5%
Social and Behavioral Sciences and Human Services	17.6%	22.0%
Trades	3.1%	3.5%
Total	100.0%	100.0%

Table 24: Institutions with the Most Certificates Awarded in Academic Year 2022-23

At Least 600 Awarded

Institution	Certificates Awarded	Share of Total Certificates
Emily Griffith Technical College	4,047	22.6%
Front Range Community College	2,878	16.0%
Pikes Peak State College	1,516	8.5%
Red Rocks Community College	1,436	8.0%
Pueblo Community College	1,281	7.1%
Aims Community College	1,049	5.8%
Arapahoe Community College	785	4.4%
Colorado Mountain College	765	4.3%
Community College of Denver	671	3.7%
Pickens Technical College	669	3.7%
Statewide	17,938	100.0%

Table 25: Institutions with the Most Associate Degree Awarded in Academic Year 2022-23

At Least 400 Awarded

Institution	Associate Degrees Awarded	Share of Total Associate Degrees
Front Range Community College	1,792	19.6%
Pikes Peak State College	1,523	16.7%
Arapahoe Community College	775	8.5%
Aims Community College	692	7.6%
Community College of Denver	641	7.0%
Pueblo Community College	640	7.0%
Community College of Aurora	600	6.6%
Red Rocks Community College	515	5.6%
Otero College	466	5.1%
Colorado Mountain College	426	4.7%
Statewide	9,121	100.0%

Table 26: Institutions with the Most Bachelor's Degree Awarded in Academic Year 2022-23

At Least 500 Awarded

Institution	Bachelor's Degrees Awarded	Share of Total Bachelor's Degrees
University of Colorado Boulder	4,487	21.2%
Colorado State University	3,861	18.2%
Metropolitan State University of Denver	2,647	12.5%
University of Colorado Denver	2,109	10.0%
University of Colorado Colorado Springs	1,782	8.4%
CSU-Global Campus	1,731	8.2%
University of Northern Colorado	1,395	6.6%
Colorado Mesa University	949	4.5%
Colorado School of Mines	707	3.3%
Colorado State University – Pueblo	524	2.5%
Statewide	21,171	100.0%