



COLORADO RISES:

Maximizing Value

for Students and our State

Colorado Department of Higher Education's
Annual Return on Investment Report

Statute: CRS 23-1-135





COLORADO

Department of Higher Education

This report was prepared by the
Colorado Department of Higher Education (CDHE)

Statute: CRS 23-1-135

<https://highered.colorado.gov/Data/Workforce/ROI.html>

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Jared Polis
Governor

Dr. Angie Paccione
Executive Director

In every corner of our state, we find hardworking Coloradans making a better life for themselves and their families. For many, that path to prosperity means earning a postsecondary certificate or degree—and for good reason. Those who continue their education beyond high school earn more money, feel healthier and engage more deeply with their communities.

This social mobility yields benefits for our state. Postsecondary graduates contribute more tax dollars and rely on fewer government programs. They're less likely to be involved with the criminal justice system and fare better during economic downturns. Higher education makes our economy stronger and more efficient.

But with rising tuition and student debt, the value of college has been called into question. We know many Colorado families are sitting around the kitchen table today asking, *is a postsecondary certification or degree even worth it?*

The data clearly show that yes, it is—as long as students finish what they start. This inaugural report aims to help Coloradans understand their options and maximize their higher education investment.

As the report details, a credential's worth isn't neatly expressed in spreadsheets and numbers—it depends on where a student goes to school, how long they attend, what they major in and, most importantly, if they graduate. Other choices—like living at home or on campus—can significantly change the calculus of college. To understand this complex dynamic, we've broken down the report in four key pillars: price, debt, choice and value.

Despite flagging state funding, institutions have worked hard to put college in reach. Close to 90 percent of students at two-year colleges and 72 percent at four-year universities receive a mix of federal, state and institutional aid that reduces the overall cost of attendance. Thanks to this support, students from low and middle-income families often attend for very low cost or even tuition-free.

What's more, the proportion of students taking on debt, as well as the average amount, has leveled off at four-year colleges and even declined at two-year schools. Countering national trends, just 10 percent of Colorado undergraduate students at four-year institutions took on more than \$40,000 in debt; those rates and averages are even lower for community college students. With improved advising and academic planning, colleges can substantially reduce the risk of default by getting students through quickly and efficiently.



In addition to maximizing financial aid, our administration is focused on decreasing higher education costs and helping to put a postsecondary credential in reach for every student. This means focusing on interventions like concurrent enrollment, which provides students with the opportunity to take higher education coursework while in high school, and expanding the use of open educational resources, which can significantly decrease textbook costs for students.

Improving access is vitally important in our advanced economy, which all but requires a certificate or degree to participate. About 75 percent of all Colorado jobs and 97 percent of top ones—those with high growth rates and that pay a living wage—require further education and training. It's these demands that inspired us to reach 66 percent educational attainment by 2025, up from 56.9 percent currently. To power our economy, we must meet that mark and go even higher.

Getting to 66 is not just a lofty goal, it's a call to action for state, business and education leaders to work together and create a Colorado that works for everyone. Armed with this robust data, individuals—and our state—can make the most of higher education investment.

Sincerely,



Jared Polis
Governor



Dr. Angie Paccione
Executive Director
Colorado Department of Higher Education



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Introduction

To ensure Colorado continues to be an attractive place to live, work as well as conduct business, we must empower and educate our workforce and meet the demands of employers.

Increasingly, that means expanding opportunity to earn a postsecondary credential. Analysis by the Georgetown Center on Education and the Workforce shows that in the current economy, approximately 56 percent of good jobs¹ require a bachelor's degree, and another 24 percent require some other postsecondary experience.²

Colorado's public system of higher education educates and trains most of our citizens. To meet industry demands, The Colorado Department of Higher Education (CDHE) and the Colorado Commission on Higher Education (CCHE) released *Colorado Rises: Advancing Education and Talent Development*, a statewide master plan that aims to reach 66 percent educational attainment among Colorado's adults by 2025.³ This plan highlights the value of postsecondary education for individuals, the economy and Colorado broadly.

The strategic goals outlined in this master plan focus on what public colleges and universities in Colorado can do to improve measurable postsecondary outcomes. These goals include:



STRATEGIC GOAL 1:
Increase Credential
Completion



STRATEGIC GOAL 2:
Erase Equity Gaps



STRATEGIC GOAL 3:
Improve Student
Success



STRATEGIC GOAL 4:
Invest in Affordability
and Innovation

Return on Investment Factors

To assist lawmakers, taxpayers, students and families in understanding the value of postsecondary education in Colorado, HB18-1226, [Higher Education Review Degree Program Costs and Outcomes](#), directed CDHE to publish an annual return on investment report. This inaugural volume explores four key factors that, in concert, describe return on investment.

Price



How much education costs and how much students and families pay out-of-pocket

Debt



The number of students who take on loans and their average debt load

Choice



How students' chosen educational pathways impact their overall return

Value



The public and personal value of completing a postsecondary credential

The actual cost of attendance goes beyond tuition costs, including fees, room and board and other costs associated with being a successful college student.

As the report explains, return on investment varies by individual. The actual **price** of attendance goes beyond tuition costs, including fees, room and board and other costs associated with being a successful college student. Since most students receive financial aid, few pay the published cost of attendance; however, more students in Colorado and nationally are graduating with **debt** to finance their education. Debt and price are also influenced by **choices** available to and made by students and families along their credential pathway, including academic program, career opportunities, living arrangements and more. Taken together, these elements help students and families understand the **value** of their credential.



Data in this report show that higher education costs overall have been increasing. Although this report focuses on the costs and benefits to individuals, it's also important to understand the factors driving increased costs of higher education—one of which is personnel. Personnel are essential to providing quality education services, and institutions must employ many highly educated faculty and staff to serve students well. As in other industries, the cost to employ such individuals has risen in the modern economy; personnel costs are also driving increases in industries like medicine, legal services, banking and engineering. Another factor is the growing need for high cost equipment and technology to deliver educational services.

As more postsecondary students with limited economic means enroll in college, Coloradans must have access to information on the economic returns of different credential paths. This report aims to improve overall student success, erase equity gaps and maximize the return of higher education investments by helping individuals and policymakers better understand the individual economic value of the postsecondary education system. For institutions, this report underscores the importance of making higher education more affordable and innovative to contain costs.

Finally, this report details strategies that maximize the value of Colorado's postsecondary education system and ensure all Coloradans have access to education beyond high school to pursue their dreams and improve our communities.

Cost

The increasing costs of higher education has attracted public scrutiny over the last decade. Although cost increases at public colleges have leveled out recently, tuition increases have far outpaced inflation for many years⁴. The published “sticker price” for tuition and fees at public two-year institutions grew 37 percent between 2008 and 2018 to \$3,670; during the same period, tuition at four-year institutions across the US grew 32 percent to \$10,270⁵. In Colorado, these numbers are even more dramatic, with tuition at public two-year institutions growing by 52 percent (to \$4,470) and tuition at public four-year institutions increasing 68 percent (to \$11,130).⁶

There are many reasons for these national and state level trends. Notably, the most dramatic tuition increases at public colleges happened

between 2009 and 2012 when states, faced with declining revenues due the Great Recession, dramatically cut higher education budgets. During this time higher education appropriations declined 24.2 percent nationally. Higher education institutions, also financing benefits and personnel costs, offset decreases in state appropriations by raising tuition. In fact, higher education funding levels in Colorado and nationally are still 11 percent below pre-recession funding levels.⁷

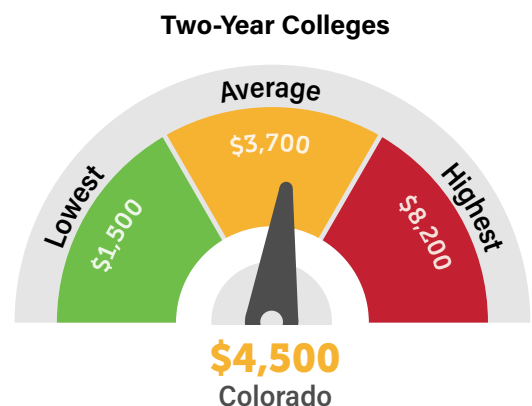
Despite these trends, Colorado institutions must continue to find innovative ways to control costs while educating diverse populations of students; guiding more to graduation and offering innovative, workforce-aligned programs. This means rethinking some traditional models and structures of higher education.

Given low state investment—Colorado ranks 47th in the nation for state appropriations for postsecondary education—institutions have worked hard to keep in-state tuition costs close to the national average.

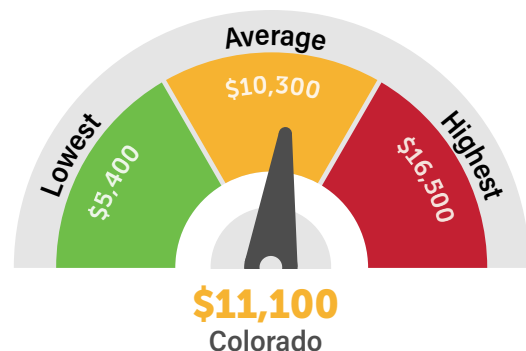
In-state tuition and fees in Colorado four-year institutions are about \$11,140 (*10 percent above the national average*), ranking Colorado 15th nationally. Tuition at two-year institutions is \$4,510 (*about 20 percent above the national average*), ranking Colorado 23rd nationally.⁸

Because the state and the institutions have 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.

View program level tuition and fee data by institution.
<https://higher.ed.colorado.gov/Data/Workforce/ROI/files/programleveltuitionandfeedata.xlsx>

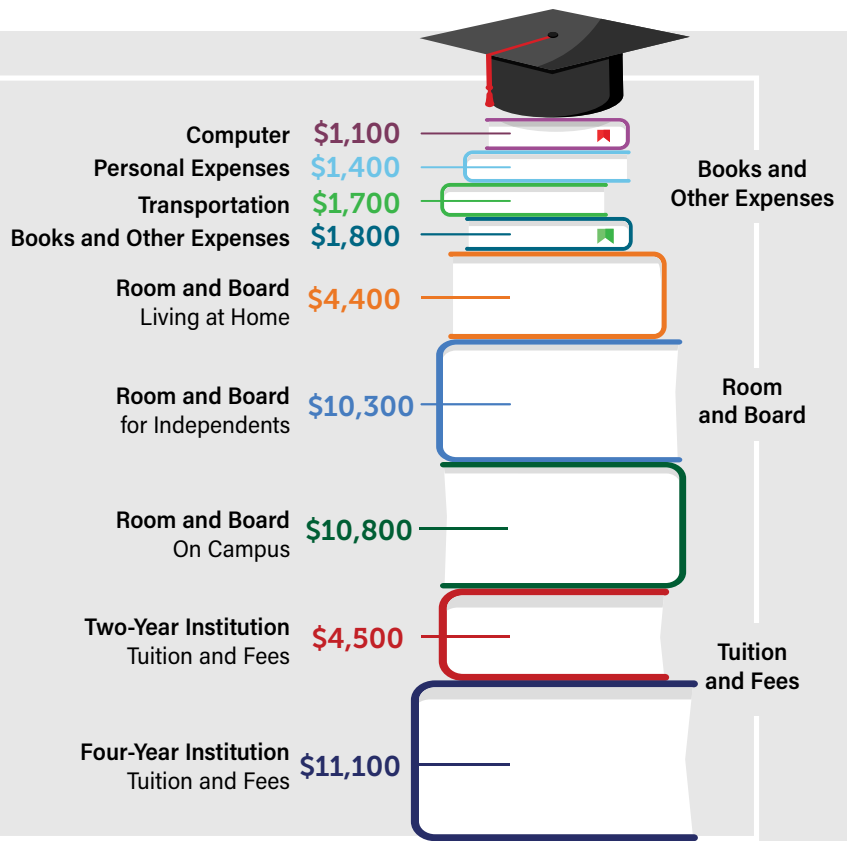


Four-Year Colleges and Universities



What is the total cost?

When attending postsecondary education, students pay costs beyond the listed price for tuition and fees. These expenses include housing, food, books and other costs associated with being a successful student. The full cost burden of college is referred to as the **total cost of attendance**.



Price

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 pays of-out-of-pocket.

Cost of Attendance

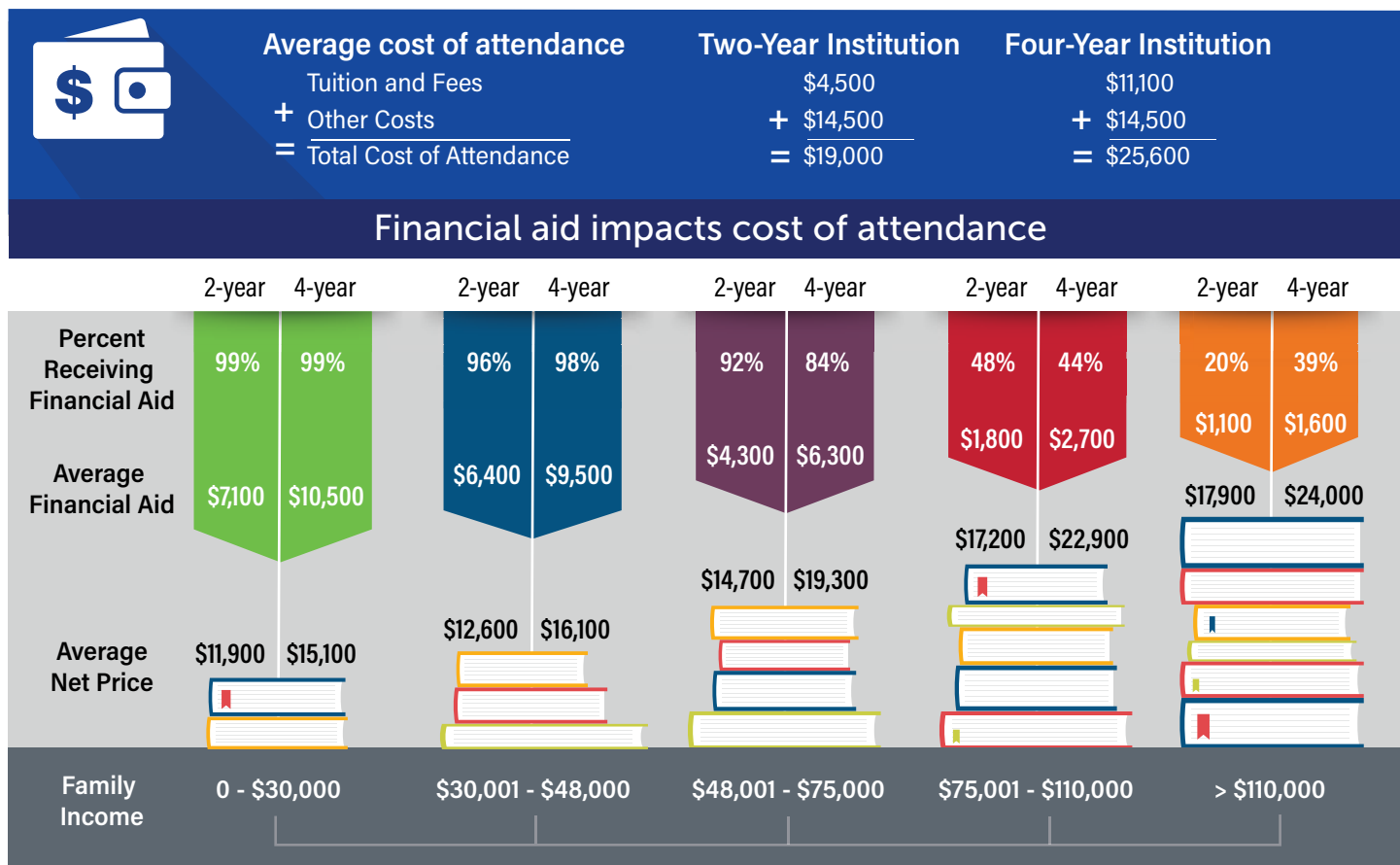
- Tuition and Fees
- Room and Board
- Books and Other Expenses

Financial Aid

- Federal Grants
- State Grants and Scholarships
- Institutional Grants and Scholarships

Net Price

What Students and Families Must Pay



KEY Strategies

COST AND PRICE

Increasing FAFSA Completion

Students are required to complete the Free Application for Federal Student Aid (FAFSA) to apply for federal and most state financial aid, and most institutions use this form to determine institutional aid. Colorado is ranked 47th nationally for FAFSA completion, and as a result, CDHE estimates high school seniors missed out on \$47 million in federal student aid for which they would have been eligible. Prior funding allowed the Department to assist students and families in filling out the FAFSA; as those resources have diminished, FAFSA completion rates have declined. HB19-1187, [Increase Student Aid Application Completion Rates](#), signed by Governor Polis earlier this year, replaces some of these resources and aims to increase the number of students who complete the FAFSA, helping reduce the total cost of attending college for individuals.

Increasing Investments in Need-Based Student Aid and the Colorado Opportunity Scholarship Initiative (COSI)

As the state works to reach pre-recession funding levels, need-based aid for students continues to be an essential strategy in reducing the costs of college. In 2019 Colorado awarded more than \$150 million in need-based financial aid to students (*including work study*); COSI leveraged \$7.5 million in matching state funds to provide \$15 million in new student scholarships. In May, Governor Polis signed HB19-1196, [Financial Aid For Students With In-State Tuition](#), which allows all Colorado residents, regardless of immigration status, to receive these state funds.



Student Debt

To pay the net price of college, families and students depend on private scholarships, savings, income earned while a student is enrolled in school, and increasingly, student debt. Recent reports by the New York Federal Reserve show that student debt is one of the fastest growing forms of debt nationally⁹.

Countering these trends, debt among graduates of Colorado's public institutions has declined 5 percent among those who attended four-year schools and 10 percent for those who attended two-year schools since 2014. In 2018, two-thirds of bachelor's degree graduates and half of two-year college graduates accrued student loan debt. In 2018, the average student loan debt for a Colorado bachelor's degree graduate was approximately \$25,500.

Average debt for students attending public colleges and universities has leveled off and even declined recently

When adjusting for inflation, debt levels at two and four-year institutions have declined since 2014.

Certificate or Associate Graduate

2014	2016	2018
Percent of Graduates with Debt		
65%	60%	56%
Average Debt		
\$14,900	\$14,300	\$13,300

Bachelor's Graduate

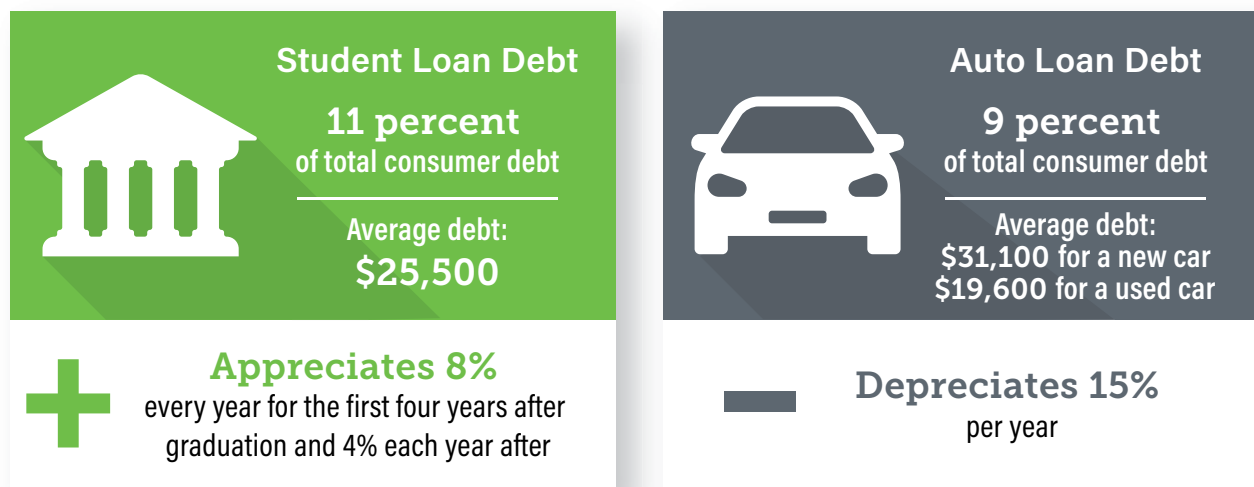
2014	2016	2018
Percent of Graduates with Debt		
69%	71%	69%
Average Debt		
\$26,900	\$27,200	\$25,500

View average debt by institution over time.

<https://higherred.colorado.gov/Data/Workforce/ROIfiles/avgdebtbyinstitution.xlsx>

Attending college remains a good investment

To put this debt in context, consider a similar investment: buying a new car. Automobile debt makes up almost the same level of consumer debt as student loan debt. A loan for a new car averages to more than \$31,000, and cars depreciate 15 percent a year.¹⁰ A postsecondary credential, on the other hand, appreciates more than 4 percent each year over more than ten years¹¹.



When including graduate student debt and debt brought to the state after attending private non-profit, for-profit and out-of-state public institutions, more than 700,000 Coloradans owe a collective \$26.4 billion in outstanding student debt.¹²

While these are troubling numbers, it is important to understand that not all debt is problematic, and much is taken on by students outside Colorado's undergraduate programs. In fact, just 10 percent of bachelor's degree graduates and zero community college students acquired more than \$40,000 in debt after graduating from a Colorado public institution.



By the numbers

Associate Degree Graduates

56 percent graduated with debt for an average of \$13,300.

Only 3 percent of graduates accrued debt greater than \$30,000.

Bachelor's Degree Graduates

69 percent graduated with debt for an average of \$25,500.

Just 10 percent of graduates accrued debt greater than \$40,000.

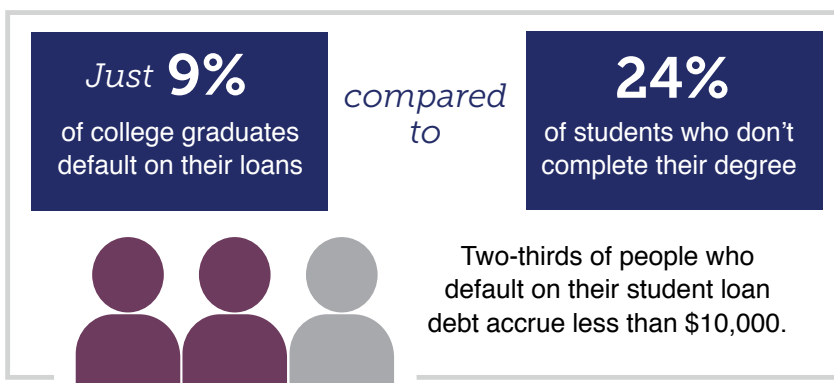
Finally, debt can be an important tool to achieve affordability if students finish what they start.

Students who do not graduate are more likely to default than completers—24 versus 9 percent respectively. Among those who default, two-thirds default on less than \$10,000.¹³

Encouraging timely completion, providing more intensive wraparound services and building targeted loan forgiveness programs will help more Coloradans meet their obligations, avoid default and benefit from credential completion. In fact, two recent studies illustrate that discouraging debt can reduce completion and increase default rates—particularly for community college students.¹⁴ To stave off default risk, Colorado leaders and policymakers should continue to discuss stronger protections for student borrowers and monitor how student loan debt affects economic behavior.

How to make the most of student loans

Although taking on debt feels daunting for many, it's a tool to make college affordable—as long as students finish what they start:



There are also several programs that can help reduce graduates' debt burden once they begin working:

Income Driven Repayment

These plans make payments manageable by basing them on a borrower's ability to pay. Graduates pay lower amounts over a longer period and may qualify for loan forgiveness at the end of the loan term (*typically after 15 to 25 years*).

Student Loan Forgiveness

The federal government allows teachers in high needs areas and individuals who work in public service for more than 10 years to have their student loans forgiven after a shorter time frame if they meet the program requirements.

Colorado holds loan servicers accountable

In 2019, Governor Jared Polis signed SB19-002, [Regulate Student Education Loan Servicers](#), which creates a new student loan ombudsperson in the Colorado Attorney General's office and provides other important protections for student loan borrowers.

Why does the average debt seem less than what's often reported nationally?

These data reflect undergraduate debt taken on by students attending Colorado public institutions. Debt accrued while attending graduate school, private schools, for-profit educational institutions or out-of-state institutions inflated averages reported in other sources.





KEY Strategies

STUDENT DEBT

Expanding the use of 529 Accounts

CollegelInvest is a not-for-profit division of the Colorado Department of Higher Education committed to helping Colorado families take the critical first steps in accessing education beyond high school. CollegelInvest Savings Plans, otherwise known as 529 savings plans, allow Colorado residents to deduct every dollar they save from their Colorado state income taxes in addition to receiving federal tax benefits. HB19-1280, [Child College Savings Accounts](#), will provide all children, born or adopted, in Colorado from 2020 to 2040 with a \$100 credit to kickstart their college education savings.

CCHE's Affordability Framework

To meet workforce demands, continue robust economic growth and ensure all Coloradans can pursue their dreams, we must expand educational opportunity and erase equity gaps. However, these goals are only achievable if all Coloradans can afford higher education, whether they pursue a certificate, degree or other credential. This imperative inspired the Colorado Commission on Higher Education to establish an affordability framework in May of 2019 that will drive a bold, students-first policy agenda. This framework will guide the Commission's policy decisions, such as supporting SB19-003, [Educator Loan Forgiveness Program](#), which aims to alleviate the debt burden for Colorado teachers.

Affordability Framework

A postsecondary education is affordable when all Coloradans can access financial resources that cover the costs of earning a credential of their choice, and institutions, the state, the federal government, students and families work together to put that opportunity in reach. On top of federal, state, and institutional aid, resources may include student and family contributions, including savings; private grants and scholarships; income from reasonable work expectations while in school; and a manageable debt load relative to the value of the student's course of study and overall higher education experience. While students and families can make choices that impact what they pay, the decisions and policies of institutions, the state, and federal government have a responsibility to contain costs.

Guiding Principles



Cost Containment

To reduce the burden on students, Colorado institutions commit to containing costs and operating as efficiently as possible while maintaining quality.

Equal Opportunity

Multiple postsecondary pathways should be accessible to all Coloradans regardless of age, income, race and zip code.

Reasonable Debt

Student debt can be a tool to achieve affordability, depending on total cost of credential, student loan terms and potential future earnings.

Accelerating Time

Student's educational choices—such as course selection in college, prior learning, and participation in precollegiate programs like Concurrent Enrollment, Advanced Placement and International Baccalaureate—can reduce the cost and time it takes to earn a credential.

Public Investment

State investment in higher education provides Coloradans access to the skills and knowledge they need to thrive, yielding social, civic and economic returns for our state and advancing the public good.

DEFINITIONS

Cost: The listed cost to attend a higher education program, commonly referred to as the "sticker price." This includes tuition and fees as well as room and board, books and other education related expenses.

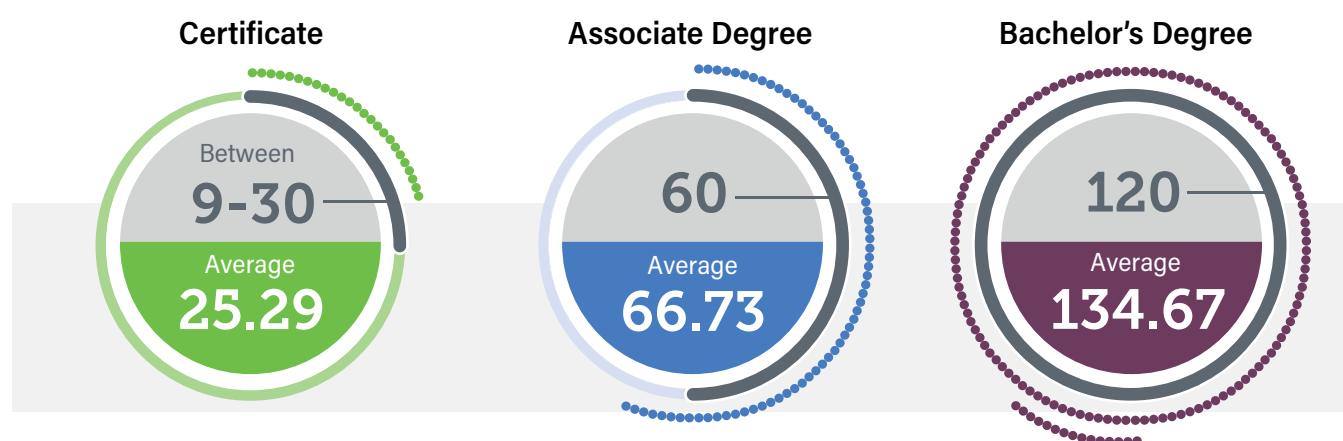
Price: The final amount paid by the student, subtracting financial aid, scholarships and additional resources.

Reasonable Debt: Students can repay the debt they must incur to complete their educational programs within a 10-year period based on a reasonable expectation of earnings they receive from completing their program without undue burden or hardship.

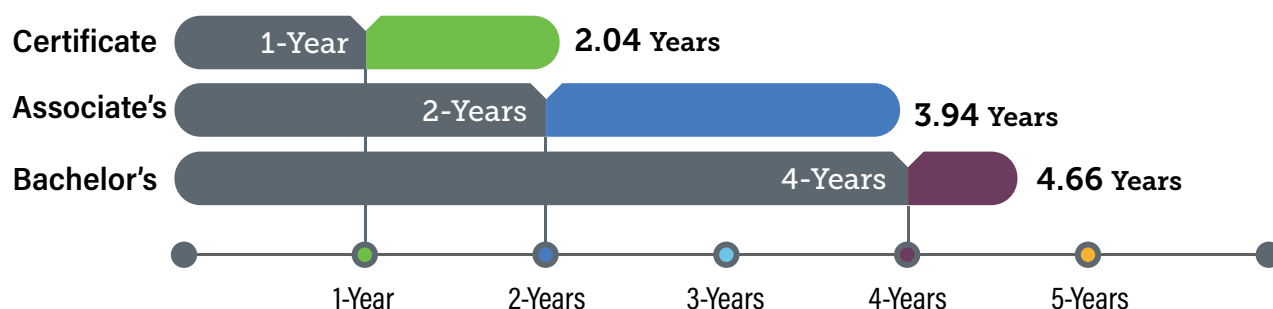
Factoring Choice into the Equation: Time and Credits to Credential for First Time Students

Many choices impact the affordability of a student's education pathway, including their institution, living arrangements, degree and program choice. Students can dramatically reduce the cost of education by reducing the time and credit load it takes to complete a postsecondary credential—a strategy that also increases their likelihood of success.¹⁵

Average Credits at Credential



Average Time to Degree



To maximize the return on investment of a credential, students and institutions should act to reduce the time it takes to and minimize the number of credits accumulated in route to a credential. This mitigates opportunity costs while lowering net price.

Compared to other states, Colorado students complete credentials faster and with fewer credits—largely due to Colorado's long-standing statewide transfer and articulation agreement framework, Prior Learning Assessment opportunities and accelerated developmental education strategy.¹⁶ There is still a long way to go, however, to support students, and the Department continues to work with Colorado institutions to implement best practices that reduce excess time and credits toward graduation.

View average time and credits to credential by institution.

https://highered.colorado.gov/Data/Workforce/ROIfiles/timetodegree_2019.xlsx



KEY Strategies

CHOICE



In 2018

2,800
HIGH SCHOOL
STUDENTS

Completed a postsecondary credential
before high school graduation
through Concurrent Enrollment



Complete College America Momentum State, Developmental Education Reform and Guaranteed Transfer Pathways

In October 2018, Colorado became a Complete College America (CCA) Momentum Pathways State, working with institutions to implement evidence-based strategies that help students meet key, first-year benchmarks.¹⁷ This designation builds on the Department's existing leadership to reform developmental education through HB19-1206, [Higher Education Supplemental Academic Instruction](#). This bill requires developmental education placement policies to maximize student success and ensures all students have access to co-requisite developmental education, thus reducing the number of students placed into developmental education and time and credits to credential for those who are. Moreover, CCA's guided pathways approach, already rolled out on many Colorado campuses, assists students in choosing their education pathway earlier. Guided pathways also leverage Guaranteed Transfer (or GT) Pathways that improve transparency and minimize credit loss in the transfer process.

Concurrent Enrollment

Concurrent Enrollment is a key strategy that enables students to reduce their time and cost to credential by enrolling in college courses while in high school. Almost all districts in Colorado offer Concurrent Enrollment, and participation grew 10 percent last year. In fact, 2,800 high school students completed a postsecondary credential before high school graduation through Concurrent Enrollment in 2018.¹⁸ Governor Polis recently signed SB19-176, [Expanding Concurrent Enrollment Opportunities](#), which will help more students access high quality Concurrent Enrollment opportunities and ensure all credits earned transfer to every state public institution.

The Value of Postsecondary Education

The final pillar of return on investment is value. This report builds on CDHE's prior work outlining key factors about the investment required for college and the return that students receive when they graduate.

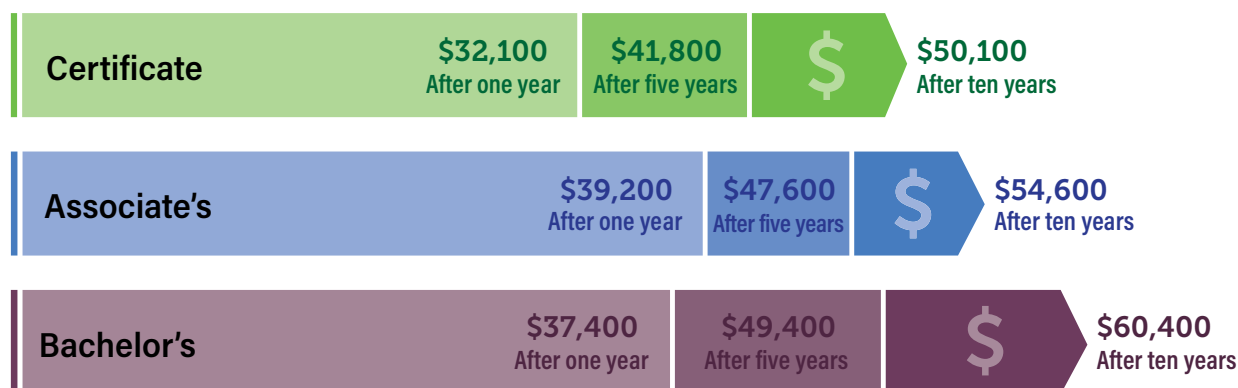
Individual returns for those who complete postsecondary education are significant. According to Georgetown University, more than 95 percent of jobs created during the recovery from the Great Recession have gone to workers with at least some college education, while those with a high school diploma or less education are being left behind.¹⁹ Over the last ten years, the unemployment rate for Americans with only a high school degree has been twice as high on average compared to individuals who have earned a bachelor's degree.²⁰ Not only are individuals with postsecondary education more likely to find jobs, but their lifetime earnings are also significantly higher compared to those who only complete high school.²¹

Some form of postsecondary education after high school completion can have a dramatic impact on an individual's earning potential over the course of their life. Research by the Social Security Administration shows that median lifetime earnings for those with some type of postsecondary credential can be more than \$1 million higher than those of a high school graduate.²²

To get a more detailed picture for Colorado, the state has a long history of measuring the wage outcomes for individual credential programs. Through collaboration between state agencies, CDHE calculates the median one-year, five-year and 10-year earnings outcomes for completers of postsecondary credentials in Colorado. These calculations show the impact that postsecondary education can have on an individual's earning potential.

View statewide median earnings by academic program.
https://higherred.colorado.gov/Data/Workforce/ROIfiles/wageoutcomes_2019.xlsx

Median Wage Outcomes for Graduates Over 10 years





As shown above, wage growth increases between the first, fifth, and tenth year of earnings for those that complete credentials. Median one-year earnings, however, are higher for some associate degree programs compared to some bachelor's degree programs.

More specific wage outcome data by various institutions of higher education, programs, and credential types are available online through CDHE's Postsecondary Degree Earnings Outcomes Tool
<https://higherred.colorado.gov/Data/Workforce/EdPays.html>

Median 1-, 5-, and 10-year earnings outcomes are calculated by CDHE using unemployment insurance (UI) data from CDLE. These calculations are limited to graduates from Colorado postsecondary institutions who, after graduation, enter the workforce in Colorado. Additionally, certain categories that have different methods of unemployment insurance, like federal employees, are not included. Student-level wage data for graduates from Colorado postsecondary institutions who do not work in Colorado post-graduation are not currently available and are not included in these calculations. Rates for the degree completion and wage data match by credential type and program grouping are available in the appendix of this report on page 26.

CDHE led the country by linking wage data to postsecondary education data as part of their partnership with College Measures, a project of the American Institutes of Research.²³ This project led to several resources being made available to students and families displaying the average expected earnings of graduates with specific credentials from specific institutions, namely Launch My Career Colorado.²⁴ This tool displayed expected earnings for credentials as well as the expected amount of time for a student to pay back postsecondary education costs, enabling students to explore the various postsecondary education paths available to them based on their interests and life goals.

<div>  <div> <div>Median Wage Outcomes by Program</div> </div> </div>			
<div> <div>Certificate</div> <div> <div>Time to Credential 2.04 YEARS</div> <div>Credits at Credential 25.29</div> </div> </div>	1-YEAR	5-YEAR	10-YEAR
	Median wage outcome	Median wage outcome	Median wage outcome
	\$32,111	\$41,763	\$50,130
Earnings by Credential Type and Program Grouping			
Arts, Humanities and Communication	\$25,325	\$33,082	\$37,186
Business	\$38,928	\$42,272	\$47,237
Education	\$23,806	\$28,835	\$24,009
Health	\$26,084	\$38,861	\$46,200
Science, Technology, Engineering and Math	\$38,822	\$44,890	\$48,832
Social and Behavioral Sciences and Human Services	\$28,323	\$36,884	\$40,014
Trades	\$39,734	\$48,221	\$58,422
<div> <div>Associates</div> <div> <div>Time to Credential 3.94 YEARS</div> <div>Credits at Credential 66.73</div> </div> </div>	1-YEAR	5-YEAR	10-YEAR
	Median wage outcome	Median wage outcome	Median wage outcome
	\$39,223	\$47,558	\$54,595
Earnings by Credential Type and Program Grouping			
Arts, Humanities and Communication	\$29,168	\$40,195	\$46,122
Business	\$35,404	\$42,765	\$46,845
Education	\$24,384	\$26,704	\$30,471
Health	\$51,048	\$57,815	\$64,922
Science, Technology, Engineering and Math	\$40,346	\$48,657	\$55,262
Social and Behavioral Sciences and Human Services	\$28,102	\$35,944	\$37,004
Trades	\$40,284	\$53,150	\$64,637



Median Wage Outcomes by Program

<div> <div>Bachelor's</div> <div> Time to Credential 4.66 YEARS Credits at Credential 134.67 </div> </div>	1-YEAR	5-YEAR	10-YEAR
	Median wage outcome	Median wage outcome	Median wage outcome
	\$37,364	\$49,351	\$60,370
Earnings by Credential Type and Program Grouping			
Arts, Humanities and Communication	\$29,634	\$42,507	\$50,092
Business	\$43,363	\$57,101	72,448
Education	\$34,218	\$40,320	\$45,152
Health	\$55,231	\$59,954	\$66,651
Science, Technology, Engineering and Math	\$43,420	\$60,049	\$76,054
Social and Behavioral Sciences and Human Services	\$29,988	\$44,389	\$52,926
Trades	\$37,723	\$50,489	\$60,156



Beyond economic gains, postsecondary education yields individual and societal benefits.

For individuals, research suggests that people who earn postsecondary credentials have more social mobility, better health outcomes and greater life expectancy. They are also significantly less likely to interact with the criminal justice system and much more likely to volunteer and/or be civically engaged.²⁵ For society, citizens who earn a postsecondary credential contribute more tax dollars to the local and state economy and are less likely to be dependent on government assistance programs.²⁶



KEY Strategies

VALUE



30+
BILLS

have become law based on the findings
of the Talent Pipeline Report
over the past five years



Talent Pipeline Report

[The Colorado Talent Pipeline Report](#)

(TPR), written by the Colorado Workforce Development Council in partnership with the Colorado Department of Higher Education (CDHE) and other state agencies, is the guiding document on Colorado's workforce. The annual report highlights areas of growing workforce demand within the state and Colorado's progress in meeting that demand. The TPR also highlights key strategies while recommending new policies that further the state's workforce goals. CDHE and stakeholders use this report to guide career pathways and strategic development.

My Colorado Journey

Colorado state agencies—from workforce development, higher education and human services—have teamed up with pioneering data and technology firms to launch [My Colorado Journey](#), a groundbreaking education and career planning initiative. This powerful, personal and private system provides step-by-step guidance for accomplishing life goals, whether it's applying to the right college, finding the best job or successfully switching careers. A free resource, My Colorado Journey integrates collaborative case management tools that connect users to the professionals who support them.

This platform allows students and job seekers of all ages to navigate Colorado's education system in an informed way and find and complete an education and training path of their choice. The tool also allows students to know workforce needs in their region to enable postsecondary education choices that match workforce needs.

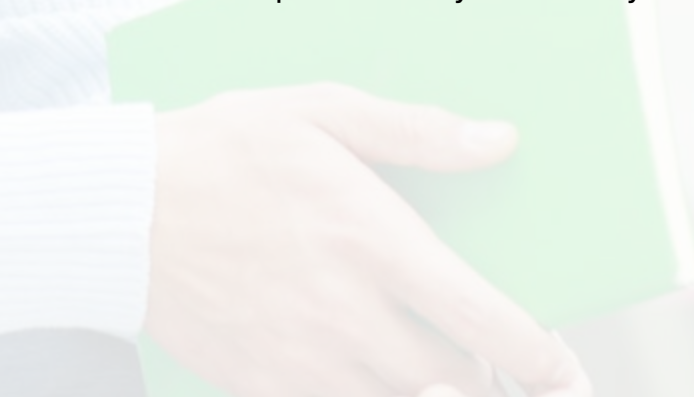


Conclusion and Future Areas of Focus

Earning a postsecondary credential can positively impact the lives of students and improve Colorado's society broadly.

Increased wages among postsecondary graduates enhance Colorado's labor market, which provides more opportunities to support families across the state. Additionally, societal benefits beyond economic gains, such as higher social mobility, higher likelihood of civic engagement and reduced likelihood to be involved with the criminal justice system, benefit all Coloradans.

However, as outlined in this report, barriers to achieving postsecondary education can hinder a student's postsecondary success. To improve odds of success, the state must provide information on the price and expected debt for postsecondary education as well as the value of postsecondary education and the various education choices available to them. This report highlights key strategies the Governor's office, the Colorado General Assembly and CDHE are already pursuing to ensure Colorado maximizes the return on investment of its postsecondary education system.



CDHE will continue to invest time and talent in initiatives aimed at removing barriers to students. The bold areas of focus below show promise in ensuring that all Coloradans have an education beyond high school to pursue their dreams and improve our communities.

☐ **Expanding the use of Prior Learning Assessment (PLA)**

Almost 40 percent of students who attend Colorado postsecondary institutions are older than 25 and increasingly work while in school. Some estimates suggest that as many as 75 percent of Colorado students are working more than 20 hours a week.²⁷ Additionally, many of these individuals have life experiences and other academic experiences that may translate to credit. To make higher education more accessible, affordable and efficient for these students, Colorado must begin recognizing competencies and knowledge honed outside a traditional classroom.

The state's existing Prior Learning Assessment (PLA) infrastructure awards credential-applicable college courses for demonstrated learning and competencies. Using this infrastructure to award credit for more student experiences will save adult students two precious commodities: time and money.

☐ **Expanding Concurrent Enrollment and Open Education Resources Access**

The state's Concurrent Enrollment program has shown rich, scalable impact year-over-year. Participation of high school students in Concurrent Enrollment courses can be an effective strategy that levels the playing field for students by providing them exposure to postsecondary coursework, saving them time and money. CDHE plans to continue to find ways for more high school students to experience Concurrent Enrollment by reducing barriers to participation.

In total, Colorado students paid an estimated \$148 million dollars on textbooks in 2016.²⁸ The high cost of textbooks can lead students to enroll in fewer courses—which threatens successful graduation—or forego purchasing required textbooks. When students can't afford course materials, they get set back in learning, retention and earning a college degree. The state currently has an Open Education Resources Council leading this work and has awarded significant grant aid to encourage further innovation. These innovations should be used to reduce costs to students and maximize their likelihood of achieving a credential.

☐ **Focusing Resources Toward Need Based Financial Aid Programs and Wraparound Support Services**

The state can reduce costs to students by increasing need-based financial aid funds, including work study and the Colorado Opportunity Scholarship Initiative (COSI). Their approach to complement financial resources with wraparound support services, through Community Partner Program (CPP) grantees, ensures that Colorado's investment in need-based aid yields better results. Internal studies using the latest available data show that 87 percent of COSI students enrolled in CPP—TRIO-style support services—persist in their education path.²⁹ This is a significant outcome, as the persistence rate of CPP students is 15 percentage points higher than that of peers in similar demographic groups. Students who receive COSI Matching Student Scholarships (MSS) perform even better: 89 percent continue in their second and third years, outpacing their non-COSI counterparts by 25 percentage points.

Further investments in this and other programs that provide resources directly to students would help more students get the financial assistance needed to maximize the return of their credential and the wraparound support that leads to credential completion.

□ **Find Innovative Ways to Reduce Costs for Credential with High Social Value but low Economic Returns Beginning with Rethinking Educator Preparation**

Educators empower the citizenry of Colorado and ensure we have a bright civic and economic future. Without strong educators, the higher education system will not be able to produce the workforce our state needs to thrive. However, the findings of this report suggest that the return on investment for Colorado educators may not add up. Ten years after graduation, students who graduate with a bachelor's degree in education make an average of just \$45,000. Although there may be other benefits associated with being an educator, the low economic return and increasing costs limit who can pursue a career in education.

To reverse these trends, the state may consider growing the [Educator Loan Forgiveness Program](#), which authorizes the Colorado Department of Higher Education to offer loan repayment for educators serving in hard-to-fill positions. Additionally, SB19-190, [Teacher Preparation Program Support](#), asks CDHE, in collaboration with CDE, to create a report on best practices in education preparation by January 2020. In identifying best practices, the state should prioritize those that ensure quality

educator preparation while also minimizing the financial burden. Apprenticeship models, paid field experience opportunities and other approaches that allow educators to earn while they progress to a credential may show promise in making an education career more economical to more people and helping to diversify the educator ranks.

□ **Ensuring Accountability**

Enhancing accessibility to data like the metrics outlined in this report improves transparency and accountability for postsecondary institutions and the system of higher education in Colorado. Additionally, these data also inform students (*of all ages*) and families in making the best choice for their future. Further development of metrics associated with postsecondary success using data from institutions continues to be a goal of the Department. Showcasing these data and metrics on interactive dashboards (like an enhanced [Colorado Rises Master Plan Dashboard](#)) enables this valuable information to reach a wide audience. Additionally, the My Colorado Journey platform serves up information relevant to users' goals and life situation, whether they are high school students choosing between education pathways; military veterans transitioning into civilian life; adults changing careers; justice-involved individuals re-entering society; or opportunity youth starting a more promising life. The platform connects students to government tools and professionals for coaching, goal-setting, and wraparound information and resources, leveraging partner professionals and resources throughout the state.

Data and Methodology

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. The summary below lists several metrics outlined in this report and the methods used to calculate those metrics.

Program groupings

Programs were grouped into categories using by two- digit CIP codes and the Complete College America Meta Major framework that has been adopted by the Bill and Melinda Gates Foundation, SHEEO, NCHEMS and other foundations. Grouping programs provides higher match rates (*by overarching program*) and more aggregated counts of students (*to address data privacy concerns*).

Cost Data

To allow for national comparisons, state level published tuition and fees estimates were taken from the College Board's [Trends in College Pricing Report](#). These data are closely aligned with the numbers reported in the Department's annual [Tuition and Fees report](#). Institutional and program data on tuition and fees in this report come from the CDHE Tuition and Fees report. Estimates for other 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. Finally, average financial aid data is derived from data reported on the Financial Aid portion of the [Integrated Postsecondary Data System](#) (IPEDS).

Debt

State and institutional level debt was calculated using 2017-18 SURDS Financial Aid File. It includes students who completed at a Colorado institution of higher education and were classified as resident students through the duration of their education. For graduates from four-year institutions, it includes debt that they incurred up to six years before graduation; for graduates from two-year institutions, it includes debt that was incurred up to three years before graduation.

View average debt by institution over time. <https://higherred.colorado.gov/Data/Workforce/ROIfiles/avgdebtbyinstitution.xlsx>

Time to credential and credits at credential

Time to credential was calculated using completion data from the 2017-2018 SURDS Degree file. Of those who completed 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 then the students 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 who transfer to other institutions and students receiving a credential via the state's Reverse Transfer process were removed from the calculations. Credits at credential data was calculated using the maximum cumulative credits hours accumulated by a student at the time of their credential completion. A data file with more detailed time to credential and credits at credential information by IHE can be found [here](#).

Median earnings

CDHE's work over several years to link credential completion and UI wage data has resulted in the ability to provide valuable insights into actual wage outcomes for those that complete and credential in Colorado and stay in Colorado post-graduation to work. Median one, five and 10-year earnings data were calculated matching degree completion and UI wage data. A detailed methodology for these calculations as well as median wage outcomes by IHE, program grouping (2-digit CIP) and program (4-digit CIP) can be found via [CDHE's Postsecondary Degree Earnings Outcomes Tool](#).

Cohorts of graduates included in wage outcomes:
1-Year 2002-2017
5-Year 2002-2013
10-Year 2002-2008

Endnotes

- 1 Good jobs are defined as jobs paying a minimum of \$35,000 for workers between the ages of 25 and 44 and \$44,000 for those 45 to 64 years old.
- 2 Carnevale, A., Strohl, J., Ridley, N., and Gulish, A. (2018). Three Educational Pathways to Good Jobs. Georgetown University Center on Education and the Workforce
- 3 <https://highereducationcolorado.gov/Publications/CDHE-Master-Plan-2017.pdf>
- 4 <https://trends.collegeboard.org/college-pricing>
- 5 Author's Calculations from Figure 3 in College Board Trends in College Pricing 2018. Available here:
- 6 <https://trends.collegeboard.org/college-pricing>
- 7 Authors Calculations from Table 5 in College Board Trends in College Pricing 2018. Available here:
- 8 <https://trends.collegeboard.org/college-pricing/figures-tables/published-prices-national#Published%20Charges,%202018-19>
- 9 New York Federal Reserve, Household Debt and Credit Report (Q1 2019) available at: <https://www.newyorkfed.org/microeconomics/hhdc.html>
- 10 <https://www.newyorkfed.org/newsevents/news/research/2019/20190212>
- 11 Author's calculations based on data presented on later sections of this report.
- 12 <https://neweracolorado.org/updates/#4959>
- 13 <https://trends.collegeboard.org/student-aid/figures-tables/two-year-default-rates-sector-and-completion-status>
- 14 <http://www.edworkingpapers.com/sites/default/files/ai19-89.pdf>, <https://pubs.aeaweb.org/doi/pdfplus/10.1257/pol.20180279>
- 15 <https://www.luminafoundation.org/resources/time-is-the-enemy>
- 16 Compared to data reported at: <https://completecollege.org/>
- 17 <https://completecollege.org/article/colorado-idaho-join-complete-college-americas-national-momentum-pathways-project/>
- 18 https://highereducationcolorado.gov/Publications/Reports/Enrollment/FY2018/2018_Concurrent_Enrollment_April_2019.pdf
- 19 <https://cew.georgetown.edu/cew-reports/americas-divided-recovery/>
- 20 Author's calculation's based on data available at: Bureau of Labor Statistics, U.S. Department of Labor, The Economics Daily, Unemployment rate 2.1 percent for college grads, 3.9 percent for high school grads in August 2018 on the Internet at <https://www.bls.gov/opub/ted/2018/unemployment-rate-2-1-percent-for-college-grads-3-9-percent-for-high-school-grads-in-august-2018.htm>(visited July 01, 2019).
- 21 <https://www.ssa.gov/policy/docs/research-summaries/education-earnings.html>
- 22 <https://www.ssa.gov/policy/docs/research-summaries/education-earnings.html>
- 23 <https://www.air.org/resource/higher-education-pays-initial-earnings-graduates-colorado-s-colleges-and-universities>
- 24 <https://launchmycareercolorado.org/>
- 25 <https://www.luminafoundation.org/files/resources/its-not-just-the-money.pdf>
- 26 https://www.urban.org/sites/default/files/publication/99078/evaluating_the_return_on_investment_in_higher_education.pdf,
<https://trends.collegeboard.org/sites/default/files/education-pays-2016-full-report.pdf>
- 27 https://younginvincibles.org/wp-content/uploads/2018/11/LuminaFactsheets_Colorado_Workers.pdf
- 28 Colorado Open Educational Resources Council Report: https://highereducationcolorado.gov/Publications/Reports/legislative/OER/OER_Nov2017.pdf
- 29 COSI Outcomes Reports: <https://sites.google.com/a/state.co.us/cosi/about#TOC-Program-Reports>

Appendix

The wage data does have limitations since not all graduates can be matched. Notably federal employees, self-employed individuals; and individuals working outside of the Colorado are not included in the Unemployment Insurance (UI) data used for these estimates. The number of graduates who were matched, the "Match Rate" is defined below. Please note that HB18-1226 defines this as the "employment rate"

Wage Match Rate for Graduates by Program				
Certificate		1-YEAR	5-YEAR	10-YEAR
		Median wage outcome	Median wage outcome	Median wage outcome
	Statewide	46%	45%	44%
Wage Match Rate by Credential Type and Program Grouping				
Arts, Humanities and Communication		32%	35%	31%
Business		42%	39%	37%
Education		37%	37%	36%
Health		44%	44%	43%
Science, Technology, Engineering and Math		39%	37%	31%
Social and Behavioral Sciences and Human Services		45%	39%	32%
Trades		53%	52%	54%
Associates		1-YEAR	5-YEAR	10-YEAR
		Median wage outcome	Median wage outcome	Median wage outcome
	Statewide	51%	51%	49%
Wage Match Rate by Credential Type and Program Grouping				
Arts, Humanities and Communication		39%	42%	40%
Business		53%	50%	46%
Education		42%	45%	57%
Health		74%	68%	62%
Science, Technology, Engineering and Math		54%	53%	50%
Social and Behavioral Sciences and Human Services		52%	45%	42%
Trades		57%	56%	58%
Bachelor's		1-YEAR	5-YEAR	10-YEAR
		Median wage outcome	Median wage outcome	Median wage outcome
	Statewide	50%	52%	48%
Wage Match Rate by Credential Type and Program Grouping				
Arts, Humanities and Communication		44%	47%	42%
Business		59%	61%	56%
Education		59%	57%	47%
Health		68%	63%	56%
Science, Technology, Engineering and Math		49%	50%	48%
Social and Behavioral Sciences and Human Services		45%	48%	45%
Trades		54%	59%	56%

Acknowledgements

Completion of this inaugural report on the return on investment of postsecondary education would not have been possible without support from the Colorado General Assembly and the hard work of several employees at the Colorado Department of Higher Education, including *(but not limited to)*:

Emma Fedorchuk, Budget and Finance Analyst

Lauren Gilliland, Lead Finance Analyst

Beth Hunter, Graphic Designer

Megan McDermott, Director of Communications

Dr. Chris Rasmussen, Director of Academic Affairs

Lindsay Sandoval, Communications and Social Media Strategist

Bradley Tugan, Data Analyst

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