

OVERVIEW

Community Colleges Meet the Workforce Challenge

Colorado community colleges constantly are adapting to provide the classes, programs and services that meet the continually shifting needs and demands of regional economies. By addressing these changing requirements, our colleges attract both those students likely to seek higher education as well as those for whom college never before appeared to be an option. This adaptability and flexibility that meets the needs of students, local business and industry and the community is the hallmark of the community colleges, setting them apart from their four-year counterparts. Our colleges provide training for jobs that actually exist in their service areas and when employers foresee emerging jobs or require different employee skill sets to be successful, our community colleges quickly respond by creating new degree and certificate programs that meet these needs head-on. By the same token, our colleges can quickly retool, eliminating programs where demand has fallen off and replacing them with leading edge curriculum and courses.

- *Our colleges are responsive to the needs of business, community, and students by being able to quickly adapt programs as demands change.*
- *Most of the high-growth high-paying jobs predicted to drive Colorado's future economy require a college degree, many two years or less.*

Over the coming decade, Colorado will experience tremendous growth in several career areas, especially health care, automotive, aviation and high technology. These career fields require workers to earn at least an associate's degree or certificate and Colorado's community colleges are poised to respond to these significant challenges that will ensure a strong workforce and prepare students for high-demand, high-skill jobs that are entrees into high-wage careers.

HIGH GROWTH OCCUPATIONS REQUIRE COMMUNITY COLLEGE TRAINING

Community Colleges Meet Industry Needs

Community Colleges provide training to citizens for jobs that businesses need. The occupations listed in Exhibit 2-1 are expected to grow at a rate of more than 20 percent with at least 100 annual job openings projected for the state of Colorado between 2004 and 2014. This is a sampling of high growth occupations that require the education that community colleges provide; many are healthcare occupations. Of these high-growth healthcare occupations, registered nurses, paramedics and emergency medical technicians are among the most crucial as first-responders. CCCS colleges fill a vital role in training workers to fill vacancies in these high-demand occupations. However, the programs that train these workers are among the most expensive to operate because they require low student-to-faculty ratios, hands-on clinical experience, and competition with industry for faculty.

These Jobs Pay Well

CCCS colleges offer programs that help students get jobs in many of the fastest growing occupations in Colorado. A large majority of these jobs pay high wages. Moreover, for most of these programs, the cost of tuition would be paid back in earnings in four months or less. Exhibit 2-1 provides a sample of Colorado high growth occupations projected from 2004-2014 along with the required CCCS credit hours, estimated tuition and fees, average wage, and the length of time earning that wage it would take to repay the student investment. For example, there are expected to be 2,150 job openings for nurses over the next ten years. A student who becomes a nurse will pay back her tuition in three months once graduated. Nurses make an average of \$53,830 per year according to the Colorado Department of Labor and Employment.

EXHIBIT 2-1 High Growth Occupations in Colorado

HIGH COST PROGRAMS							
Occupational Title	Growth Rate	Total Annual Openings	Credential	Required Credit Hours	Estimated Tuition and Fees, Colorado Resident (2006)	Average Monthly Wage	Time to Payoff
Computer Support Specialists	43.6%	700	Associate degree	61	\$4,598	\$3,950	2 months
Architectural and Civil Drafters	29.9%	120	Certificate	35	\$3,106	\$3,621	2 months
Electrical and Electronic Engineering Technicians	26.4%	130	Associate degree	61	\$4,598	\$3,777	2 months
Paralegals and Legal Assistants	51.8%	220	Associate degree	64	\$5,109	\$3,607	2 months
Respiratory Therapists	44.6%	100	Associate degree	73	\$6,140	\$3,687	2 months
Emergency Medical Services-Paramedic	35.7%	140	Associate degree	75	\$6,384	\$2,671	3 months
Medical and Clinical Laboratory Technicians	39.9%	150	Associate degree	65	\$5,437	\$2,843	2 months
Registered Nurses	45.6%	2,150	Associate degree	78	\$9,792	\$4,486	3 months
Dental Hygienists	42.0%	180	Associate degree	88	\$14,425	\$6,048	3 months
Radiologic Technologists and Technicians	40.2%	150	Associate degree	77	\$7,933	\$3,799	3 months
Aircraft Mechanics and Service Technicians	32.6%	100	Certificate	89	\$14,040	\$3,891	4 months
Automotive Service Technicians and Mechanics	26.1%	610	Certificate	60	\$5,874	\$3,073	2 months

*Used average hourly wage from the Colorado Department of Labor and Employment projection data
Source: Occupational Employment Outlook 2004-2014: Colorado Statewide Projections, CDLE

THE STATE BOARD ADMINISTERS ALL COLORADO CAREER AND TECHNICAL EDUCATION PROGRAMS

Career and Technical Education (CTE) programs provide students with the technical and leadership skills needed to work in Colorado's workforce in careers as varied as nursing, information technology, and agriculture. CTE programs engage students by providing a contextual learning environment that can result in a certificate or that can allow the student to transition into college in their Plan of Study. Students complete CTE programs at their high school and earn certificates at their Area Vocational Schools/Technical Colleges and can earn certificates and degrees from the community colleges and local district colleges. These students learn life skills and academic and technical skills that they apply in the workplace. CTE programs lead students to careers. At all levels of CTE, the focus is on preparing students with skills for the high-demand, high-wage jobs emerging in Colorado and an educated workforce to meet 21st century demands.

Programs across the state are aligned so that students who begin a CTE Career Pathway in high school or at an AVS/Technical College can transition seamlessly into a community college or an AVS/Technical College using Advanced Credit Pathways (ACP). A student who meets specific course criteria can transfer high school CTE credits to an AVS/Technical college or community college and apply them toward a certificate or degree. These students have an easier time starting college with high school courses that count toward college credits.

The State Board for Community Colleges and Occupational Education (SBCCOE) oversees all Career and Technical Education (CTE) programs for the State of Colorado. The Board approves programs and disburses Colorado Vocational Act (CVA) (CRS 23-8-101) and federal Carl D. Perkins grant funding to programs at the secondary and postsecondary level. This unique oversight of both secondary and postsecondary level programs gives Colorado an integrated view of the CTE programs that school districts, Area Vocational Schools (AVS) or Technical Colleges, and the community colleges offer.

The Colorado Community College System (CCCS) administers two large funding programs that benefit Career and Technical Education programs: the Colorado Vocational Act (CVA) and the federal Carl D. Perkins grants. Overall, these two programs (CVA and Perkins) provide more than \$36 million directly to school districts, AVS/Technical Colleges, and community colleges (including local district colleges) for expenses incurred maintaining and enhancing approved Career and Technical Education programs across the state. This investment – though it does not cover the total costs of providing these programs – helps Colorado maintain high-quality programs that produce workers who are ready for high-skill careers (Exhibit 2-2). The following describes these programs:

- **CVA Disbursement:** The General Assembly appropriates general fund dollars to fund the CVA. **In Fiscal Year 2006-07, the General Assembly appropriated \$20.6 million to secondary CTE programs through the CVA.** CCCS distributes these funds to help reimburse school districts for CTE expenses. The disbursement formula for school districts is established in statute and only allows approved CTE programs to receive these dollars. CCCS collects the data for the disbursement formula, monitors and assures compliance with the CVA, and audits all recipients over a five-year period.

- **Carl D. Perkins Act Disbursement:** This federal grant reimburses school districts and community colleges for specific expenditures on approved CTE programs. **In Fiscal Year 2006-07, secondary programs received almost \$5.6 million and post-secondary programs received \$7.7 million in federal money.** CCCS disburses these funds; submits a State Plan for CTE to the federal government; approves all Local CTE Plans; approves all local expenditures submitted for reimbursement; assures compliance with federal laws, guidelines, and State Plan guidelines; and monitors recipients as designated in the State Plan.
- **CTE Program Approval:** CCCS uses the Program Approval process to ensure program compliance with the federal and state government expectations regarding CTE. CCCS must approve all CTE programs that wish to receive either CVA or Perkins funding every five years. CTE programs that do not intend to seek Perkins or CVA funding are not required to obtain CCCS program approval. However, many programs that do not seek funding do seek CCCS program approval and they are included in all data reporting. CCCS collects enrollment and placement data for all approved CTE programs.

Exhibit 2-2: Colorado CTE Investment per Enrollee (FY 2006-07)

	Secondary	Postsecondary	Total
Total CTE Enrollments	88,085	21,975	110,060
Total CTE Funding (CVA and Perkins)	\$ 26,219,351	\$ 7,710,449	\$33,929,800
Funding per enrollee	\$ 298	\$ 351	\$ 308

RETURN ON INVESTMENT: Academic reports and statistics across the country demonstrate the success of CTE programs in providing their students with academic rigor, skills needed to meet job requirements, and higher earnings than their counterparts in high school and community college. In fact, a recent National Research Center for Career and Technical Education study found statistically significant support for higher math scores in CTE students as compared with non-CTE students in high school. Colorado teachers served as a pilot case for this method of teaching and now are traveling across the United States demonstrating it to others. Through its CTE Strategic Planning efforts, CCCS hopes to duplicate this success across many Colorado high schools.

CTE PROGRAM PROVIDERS: Colorado enjoys success in CTE programs because educators and administrators across the state have dedicated their lives and careers to CTE students. These state and local employees work hard to help students find opportunities and achieve career and life success.

Exhibit 2-3 lists the various public entities providing CTE programs in Colorado. The charts on the following pages identify the governance structure, enrollment, and CTE grant funding for the institutions listed in Exhibit 2-3.

The charts on the following pages show that overall there are 88,085 secondary CTE enrollments and 21,975 post-secondary CTE enrollments in Colorado CTE programs. The vast majority, 86,484 of secondary CTE enrollments are in the school districts, while community colleges serve the vast majority of post-secondary CTE enrollments – 16,238. Additionally, Area Vocational Schools/Technical Colleges located within K-12 school districts, have 5,354 post-secondary CTE enrollments and Mesa State College has 383 post-secondary CTE enrollments.

The dollars that flow through the SBCCOE to the school districts for career and technical education through the Colorado Vocational Act assist in offsetting the high cost of these programs. In Fiscal Year 2006-07, the school districts received \$20.6 million in CVA funding. These funds flow to school districts, some of which have created CTE technical centers to service the entire school district. The school districts may also contract with the Area Vocational Schools/Technical Colleges for the provision of secondary CTE services. In particular, T. H. Pickens Technical Center receives CVA funding through its school district since it is a Designated Area Vocational School.

The Perkins funding that flows through the SBCCOE is distributed to secondary and post-secondary recipients as required by the Carl D. Perkins Act. In Fiscal Year 2006-07, secondary recipients received just under \$5.6 million in funding and post-secondary recipients received just over \$7.7 million.

EXHIBIT 2-3: Colorado Public Providers of CTE Programs

SCHOOL DISTRICTS

School Districts (High-school diploma-granting institutions)

All Area Vocational Schools/Technical Colleges (AVS/TC)
(Certificate-granting institutions)

- Delta/Montrose Technical College
- Emily Griffith Opportunity School Technical College
- San Juan Basin Technical College
- Pickens Technical College

COMMUNITY COLLEGES

(Certificate and degree-granting, North Central Association-accredited institutions of higher education)

All Colorado Community College System colleges:

- Arapahoe Community College (ACC)
- Colorado Northwestern Community College (CNCC)
- Community College of Aurora (CCA)
- Community College of Denver (CCD)
- Front Range Community College (FRCC)
- Lamar Community College (LCC)
- Morgan Community College (MCC)
- Northeastern Junior College (NJC)
- Otero Junior College (OJC)
- Pikes Peak Community College (PPCC)
- Pueblo Community College (PCC)
- Red Rocks Community College (RRCC)
- Trinidad State Junior College (TSJC)

All Local District Colleges:

- Aims Community College (Aims CC)
- Colorado Mountain College (CMC)

FOUR-YEAR COLLEGES

- Mesa State College: Western Colorado Community College (WCCC)

WORKING WITH INDUSTRY

The Colorado Community Colleges and the Colorado Office of Economic Development jointly manage the Colorado First and Existing Industry customized training programs. Companies use these grant funds to support economic development efforts in Colorado by providing matching funds to train employees. The Colorado First program funds the training of new employees in companies that are relocating or expanding in Colorado. The Existing Industry program funds training primarily for employees of companies affected by technological change or increased global competition. Colorado community colleges direct and/or provide the training for the companies.

For a relatively modest state investment, new jobs are added and/or retained to the state economy. Between FY 2001 and 2006, 45,583 jobs were created and/or retained using these programs. Since these programs began, more than 117,000 workers have been trained. Meanwhile, the cost to the state of the Colorado First program is repaid in three years or less with increased tax revenue. Exhibit 2-2 shows that the program not only pays for itself, but actually creates new revenue for the state. As workers' salaries increase, so does the amount they pay in personal income tax. People who were unemployed entered the workforce and began paying income tax – contributing to, rather than drawing on, state resources. As a result of the Colorado First program, the state's revenue over its investment is projected to be more than \$6 million by FY 08-09.

EXHIBIT 2-4
Colorado First State Income Tax Impact - Program Years 2003 to 2006

	PY 2003	PY 2004	PY 2005	PY 2006
State Cost	\$406,207	\$448,074	\$1,288,366	\$2,381,156
Trainees Previously Employed	537	497	1264	2959
Trainees Employed Post-Training	709	785	1490	3464
Average Pre-training Wage	\$13.69	\$15.65	\$18.32	\$13.84
Average Post-training Wage	\$14.01	\$16.25	\$19.35	\$15.64
Difference in Aggregate Income Tax, Pre- and Post-Training, Year 1	\$247,004	\$476,314	\$546,527	\$1,273,563
Time to pay off	2 years	1 year	3 years	2 years
Remaining Cost to Pay				
Year 1	\$159,203	(\$28,240)	\$741,839	\$1,107,593
Year 2	(\$62,401)	(\$456,578)	\$249,555	(\$66,273)
Year 3	(\$266,207)	(\$1,298,350)	(\$182,448)	(\$1,126,965)
Excess of Revenue Over Cost, by Year 2009	\$748,186	\$4,442,768	\$561,551	\$1,126,965
Cumulative Revenue by Year 2009 for Program Years 2003-2006		\$6,879,470		

Assumptions: Income Tax rate of 4.6%
Employee Attrition Rate and Wage Inflation calculations, variable by program year
Annual Work Hours of 2080

HOW WE SERVE OUR COMMUNITIES AND THE STATE

Preparing a Skilled Work Force through Career Pathway Strategies

As the gateway to higher education, community colleges are positioned to help emerging workers and under-employed adults enter a career pathway towards livable wages. Community colleges traditionally have served a dual mission: workforce development and transfer to four-year institutions. Success in both areas contributes to the state's economic development. Community colleges provide students with affordable entry into higher education and an opportunity to continue toward a bachelor's degree via transfer to a four-year institution. The flexible curriculum and the structural partnerships community colleges have built with employers and industry enable CCCS colleges to respond quickly to the changing workforce skill needs. Studies show that this work force link will be crucial in the upcoming decade because the availability of skilled workers will shrink as the baby boom generation retires. Community Colleges play a unique role in working with business to meet their labor force needs.

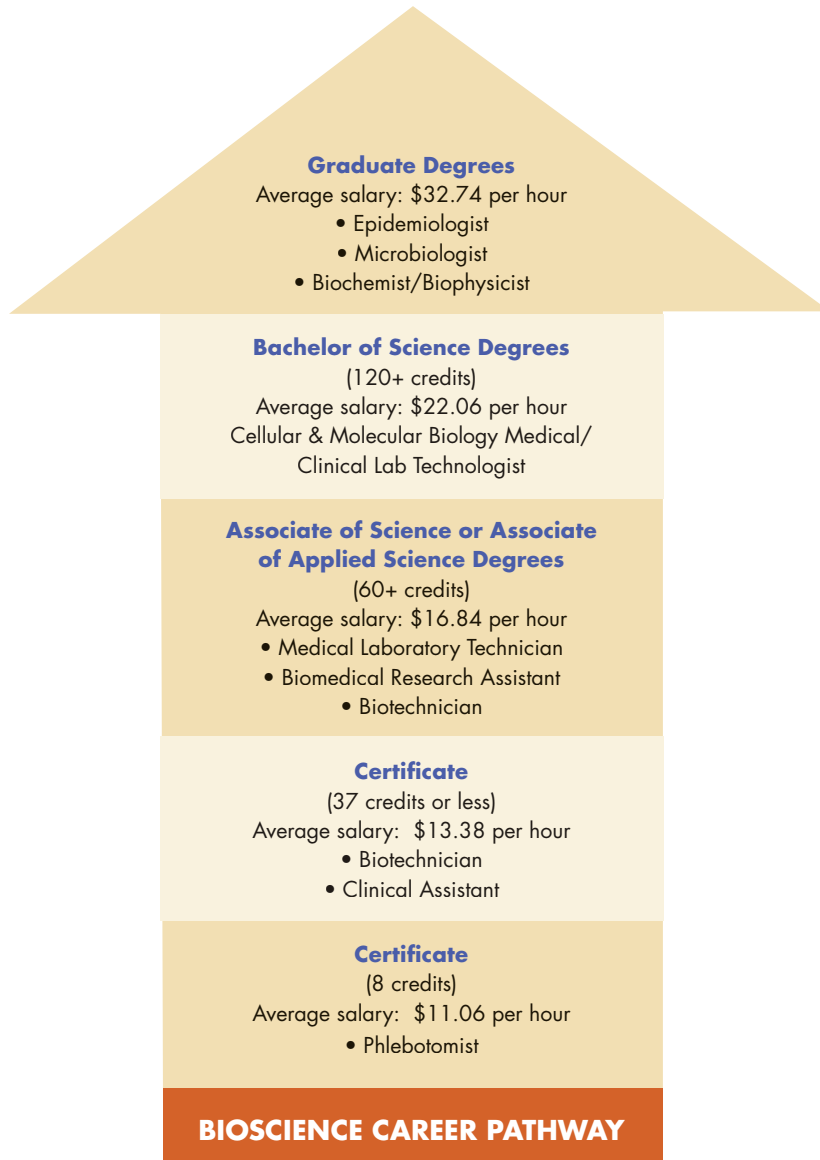
In the past five to 10 years, community colleges across the country have partnered with industry in developing career pathways – clear roadmaps that lead to advancement in an occupation or career through a seamless movement of education and training. Career pathways are particularly relevant to high-demand industries with anticipated employment growth, providing individuals with employment and advancement opportunities, while providing industry with a supply of skilled workers.

Colorado Community colleges currently are working with employers in high-demand occupations to create career pathway strategies that advance students through certificate and degree programs. Students can follow career pathways from entry-level occupations through advanced degrees and are particularly suited to community colleges – which are the most frequent point of access to higher education for low-skilled individuals. Workers who acquire basic skills at Community Colleges can gain employment and earn a wage while they prepare for the next step on their career pathway, which could include further education and training. One characteristic of a career pathway is its flexibility that allows workers to enter higher education at any stage and advance at a pace that makes sense to them. Close collaborations between community colleges and employers ensure that the skills students learn are what they need for success.

CCCS expects career pathways to play a more significant role in Colorado's economic development through the recently awarded federal Workforce Innovation for Regional Economic Development (WIRED) grant that will help the Metro Denver Economic Development Corporation build the capacity to educate and train workers in high-growth industry sectors. The intent of the grant is to provide the skilled workers for high-wage, high-growth targeted industries: aerospace, bioscience, energy, and information technology.

As an example, Biotechnology program at Community College of Aurora (CCA) offers both a certificate and an Associate of Science degree – the first step on a career pathway toward one of WIRED's targeted industries (see Exhibit 2-3). Through an established articulation agreement with Metropolitan State College of Denver, CCA students can transfer the 60 hours involved in the A.S. degree to apply to a bachelor of science degree in Biology with an emphasis in cellular and molecular biology – a “2+2”-year program.

EXHIBIT 2-5 CAREER PATHWAY EXAMPLE



COLORADO COMMUNITY COLLEGE SYSTEM BASICS

The Colorado Community College System (CCCS) provides open-door access for all Coloradans who want to pursue a higher education to be successful. The 13 accredited system community colleges are:

- Located throughout the State to provide local access to higher education;
- Dedicated to teaching by providing quality programs with fully-credentialed faculty;
- Supporting the State’s goal of having a well-educated workforce that is prepared for available jobs in new and existing industries;
- Charged by the State Legislature and the Colorado Commission on Higher Education (CCHE) to provide basic skills education to those who need skill development before they can succeed in a college curriculum;
- Committed to providing schedules for coursework that meet the needs of full- and part-time workers, adults, and youth; and
- Providing a variety of degree and certificate programs that fulfill the first step in higher education.

As a system, CCCS colleges offer preparatory work, four primary degrees, and a collection of State-approved certificates. The following are the primary degrees and programs offered by Colorado Community Colleges:

- The **Associate of Arts and Associate of Science degrees** provide the first two years of a four-year program in professional studies within the arts and sciences fields. These degrees contain a core of 35, 36, or 37 General Education credits that have been approved by CCHE and are guaranteed to transfer to the State’s four-year public institutions.
- The **Associate of General Studies degree** combines both General Education courses and pre-professional career and technical education courses. This degree is used to develop specific articulation agreements between two- and four-year institutions for specific careers such as law enforcement, firefighting, and emergency services technicians.
- The **Associate of Applied Science degree** includes a minimum of 15 credits of generally transferable coursework and a structured pattern of career and technical education courses that prepare a student for entry into the workforce. Through this degree, students gain not only a theoretical understanding of the job functions, but also real-work experience through controlled labs at the colleges, and through opportunities for actual on-the-job training.
- A structured program of **academic preparation and basic skills** courses in reading, writing, and mathematics helps students develop college-level skills. The structure of this preparatory program allows students to meet the CCHE requirement for completing remediation within the first 30 credits of enrollment. Community Colleges are charged with providing this skill development within the higher education community.
- The **certificate programs** offer short training opportunities to enhance a student’s current work skills, or add additional skills to his or her knowledge base.