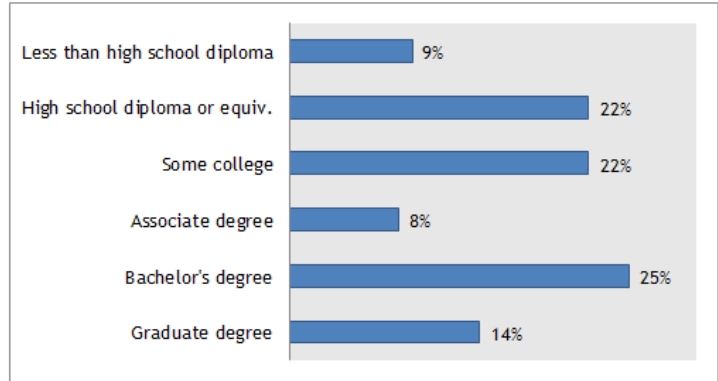




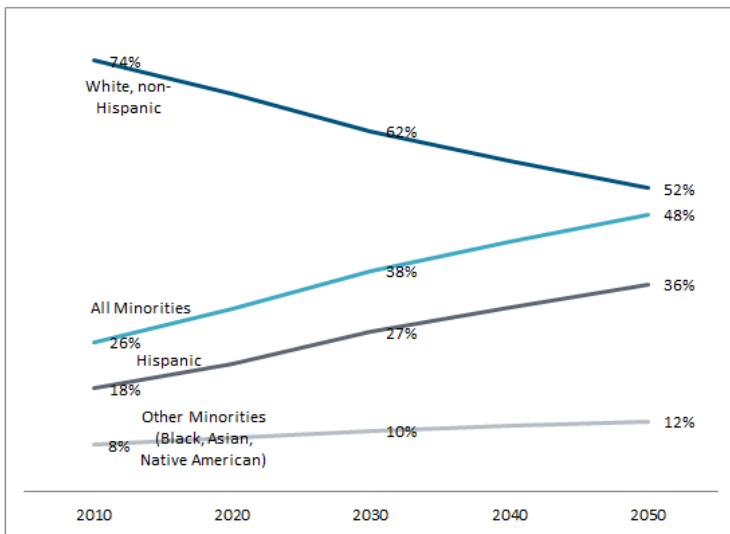
**Colorado Educational Attainment
Adults 25 and Older**

47% of Colorado adults have an associate degree or higher. It is estimated that about 6% of adults hold a certificate and an additional 16% have taken or are enrolled in college courses. Yet, there is a significant attainment gap in the education levels of our non-Hispanic white and Asian population, and those of our Hispanic, African American and Native American Coloradans.



Source: U.S. Census Bureau; 2015 American Community Survey, 1-year estimates

Changing Workforce Demographics in Colorado

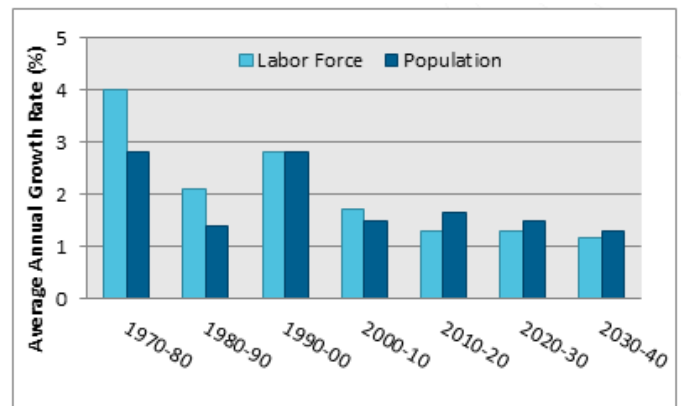


Source: Based on Colorado State Demographer's population projections

Growth Rate for the Colorado Labor Force

While we've had a younger population than the nation in recent years, the aging of Baby Boomers will impact Colorado's age distribution. We are increasingly looking more like the nation. The labor force in Colorado will continue to increase in size, but at a slower rate than historical growth. By 2040, the labor force will be larger in number, older and include a larger share of females. It will also be smaller relative to the total population it supports.

The racial and ethnic composition of our state's population is changing—by 2050 our workforce will near a 50-50 balance between our majority and minority populations. Why does this matter? We have significant disparities in education levels between the majority white non-Hispanic adult population and Hispanic, African American and Native American populations—so much so that if we do not see continued improvement in educational attainment, we will see declines in the education levels of our adult population. This is not just an "education" issue, but a "workforce" issue.



Source: Colorado State Demographer

Who is Nearing Retirement?

Certain occupation types have high numbers of workers nearing retirement, including:

- **Office and administrative support occupations**
(100,000 workers, or 25% of workers in this occupation cluster)
- **Sales and related occupations**
(65,000 workers, or 22% of workers in this occupation cluster)
- **Business and finance occupations**
(43,000 workers, or 24% of workers in this occupation cluster)
- **Education, training and library occupations**
(42,000 workers, or 27% of workers in this occupation cluster)
- **Management occupations**
(36,000 workers, or 26% of workers in this occupation cluster)

Where are the Largest Potential Supply-Demand Gaps?

Through analyzing education and labor data, we've highlighted general fields where Colorado postsecondary institutions are likely not producing enough credentials to fill anticipated job openings in the state. This is not exhaustive of all job types that are difficult to fill.

The largest potential gaps for occupations that typically require a certificate, associate degree or apprenticeship include jobs in the **skilled trades**.

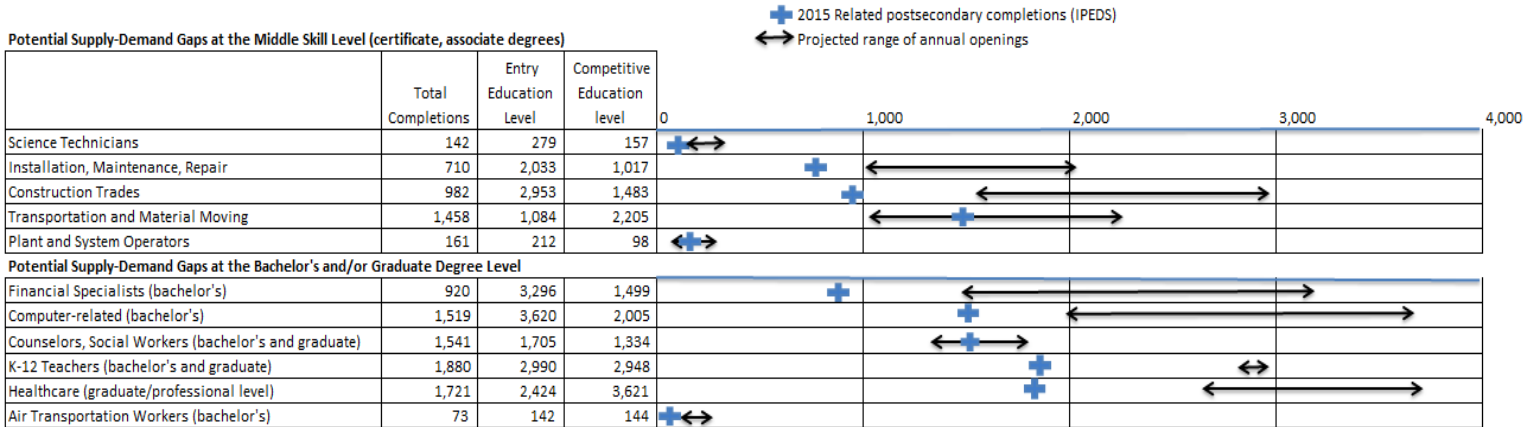
The largest potential gaps for occupations that typically require a bachelor's or graduate degree include **finance, IT, K-12 teachers and healthcare professionals**.

The following charts provide estimated annual openings by occupation groups and education level clusters (certificate/associate degree level, bachelor's degree level and graduate degree level). The annual openings range is established by entry education level demand (education requirements assigned to each occupation by the Bureau of Labor Statistics) and competitive education level demand (actual education levels of workers employed in these jobs) alongside related postsecondary certificate and degree completions.

Limitations include:

- This type of analysis examines general trends within large occupation clusters and there may be deficits or excesses in completions for individual occupations within a larger occupation group. It is worthwhile to further examine the nuances in supply-demand relationships for jobs within these occupation groups.
- Not all credential completers enter into the specific occupation to which the education program typically aligns, and some occupation codes do not link to a specific program, or they link to multiple programs, etc. Not all graduates directly enter the Colorado workforce following program completion and this analysis does not account for education/training of people entering the state.
- There are a number of private occupational schools or apprenticeship programs that are not accounted for in the IPEDS data set.
- These labor market projections are calculated annually and can shift as a result of economic changes throughout the year.

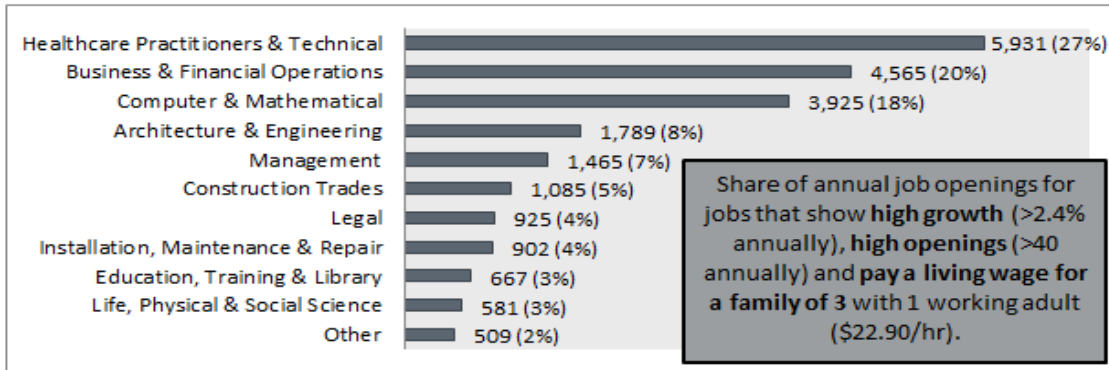
Supply-Demand Analysis by Occupation Cluster and Education Level



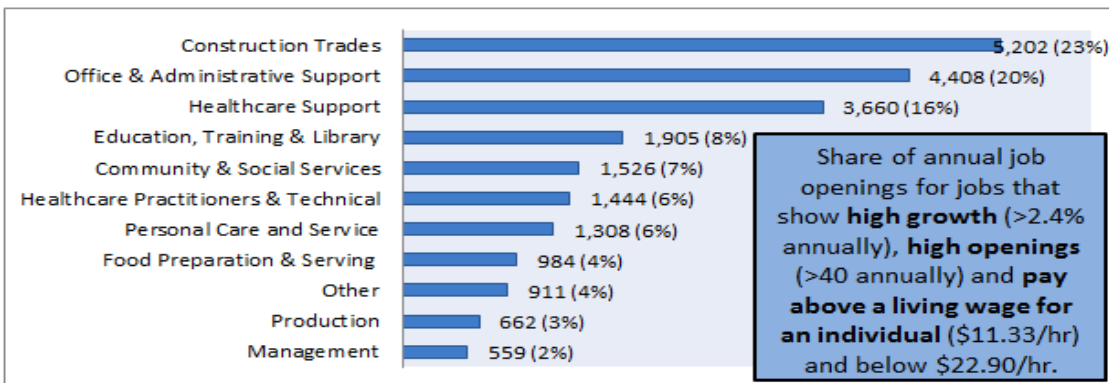
Top Jobs in Colorado

Looking at jobs that have above average growth rates, high annual openings, and offer a living wage helps us anticipate where there are great opportunities for Coloradans, the education required, and where we may wish to prioritize talent development strategies.

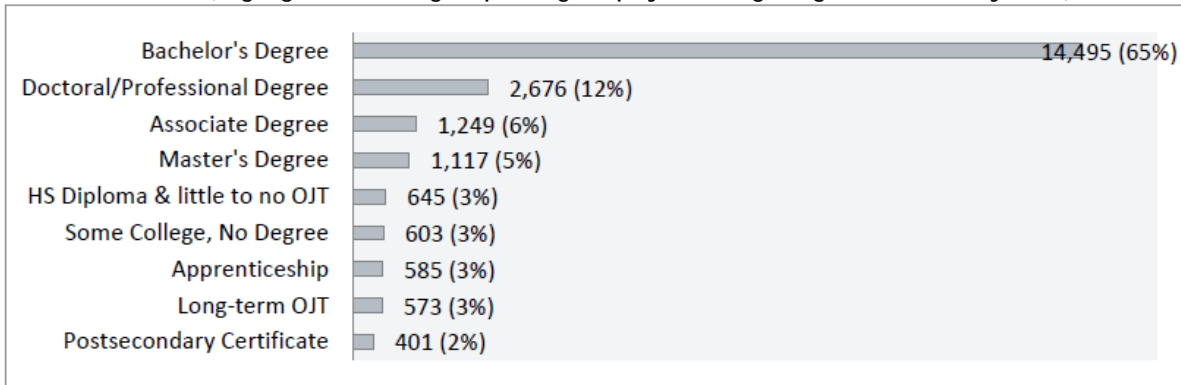
“Top Jobs” Annual Job Openings by Occupation Cluster Tier 1 (high growth + high openings + pay a living wage for a family of 3)



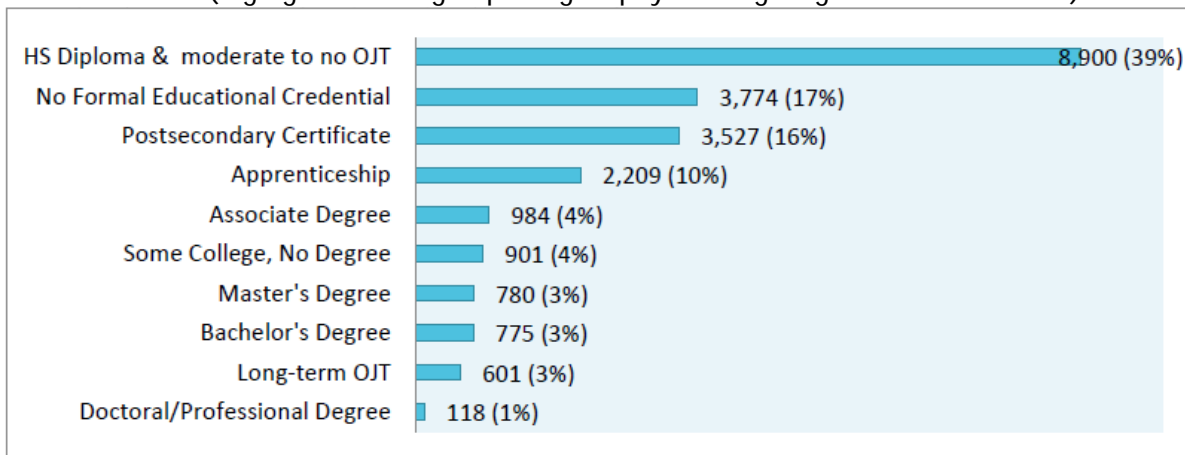
Tier 2 (high growth + high openings + pay a living wage for an individual)



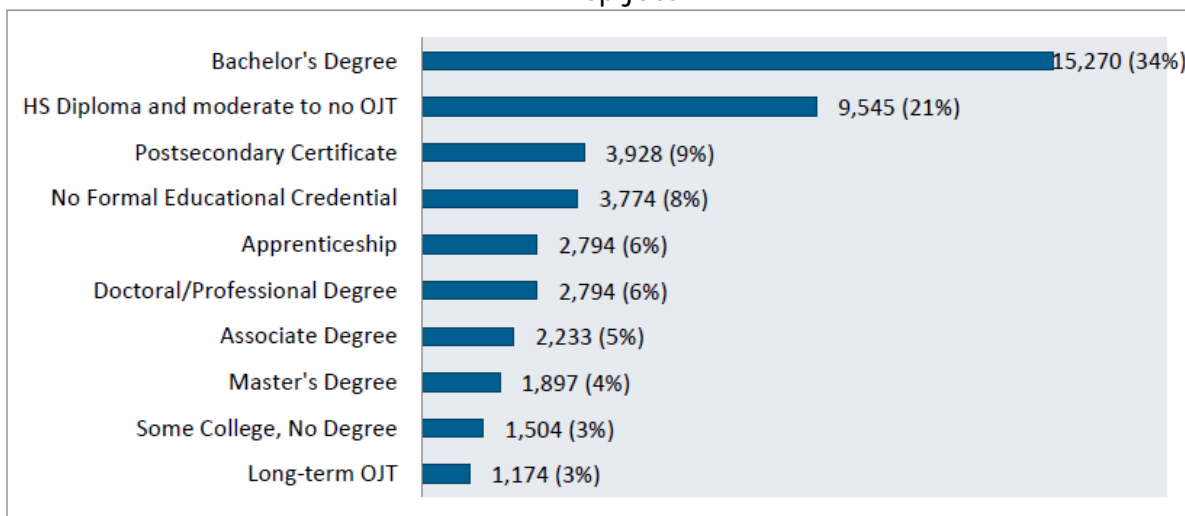
“Top Jobs” Annual Job Openings by Typical Education Needed for Entry
Tier 1 (high growth + high openings + pay a living wage for a family of 3)



Tier 2 (high growth + high openings + pay a living wage for an individual)



All Top jobs



Nearly all of Tier 1 jobs typically demand formal education or training beyond high school, while less than 50% of Tier 2 jobs typically demand formal education or training beyond high school. Across both tiers, 70% of job openings typically require some level of formalized postsecondary education or training.

Definitions for On-the-Job (OJT) Training Categories

OJT, or on-the-job training, has three categories as defined by the Bureau of Labor Statistics:

- **Short-term OJT**—skills can be acquired during 1 month or less of OJT experience and informal training (e.g. retail salesperson).
- **Moderate-term OJT**—1 to 12 months of OJT experience and informal training (e.g. transit bus driver).
- **Long-term OJT**—More than 12 months of OJT or combined OJT experience and formal classroom instruction (e.g. power plant operator or air traffic controller).

List of Tier 1 “Top Jobs”

Minimum Education Required	SOC	Occupation Title	Median Annual Wage	2015-2025 Growth Rate (%)	Annual Avg. Openings	Related Postsecondary Awards (IPEDS, 2015)	Workers with Some College and Higher	Workers with Typical Minimum Entry Education & Higher
High School Diploma, Little to No On-the-Job Training	11-9051	Food Service Managers	\$58,297	24.81	145	143**	62%	90%
	47-1011	First-Line Supervisors of Construction Trades and Extraction Work	\$64,462	25.70	500	N/A	44%	86%
Long-Term On-the-Job Training or Apprenticeship	47-2021	Brickmasons and Blockmasons	\$48,776	53.55	109	16**	24%	66%
	47-2152	Plumbers, Pipefitters, and Steamfitters	\$47,699	38.39	476	56**	36%	84%
	49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	\$48,203	30.47	224	230**	39%	86%
	49-9041	Industrial Machinery Mechanics	\$53,941	33.97	349	N/A**	48%	89%
Postsecondary Certification or Associate Degree	29-2055	Surgical Technologists	\$48,261	40.15	72	68	75%	75%
	49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	\$54,243	44.41	329	280**	49%	49%
	15-1151	Computer User Support Specialists	\$53,017	30.79	603	12	88%	88%
	15-1134	Web Developers	\$55,542	50.05	210	257	95%	95%
	23-2011	Paralegals and Legal Assistants	\$50,069	30.07	327	270	64%	88%
	29-1126	Respiratory Therapists	\$58,199	36.38	109	82	98%	85%
	29-2021	Dental Hygienists	\$81,407	28.67	214	125	96%	88%
	29-2031	Cardiovascular Technologists and Technicians	\$66,765	50.16	43	N/A	92%	70%
	29-2032	Diagnostic Medical Sonographers	\$79,843	50.45	62	17	92%	70%
	29-2034	Radiologic Technologists and Technicians	\$60,793	29.27	159	199	92%	70%
	31-2011	Occupational Therapy Assistants	\$49,280	40.28	40	73	97%	88%
31-2021	Physical Therapist Assistants	\$51,481	50.70	85	85	92%	75%	
Bachelor's Degree	11-2021	Marketing Managers	\$135,990	25.68	146	N/A	91%	68%
	11-3021	Computer and Information Systems Managers	\$146,478	33.65	301	N/A	96%	73%
	11-3121	Human Resources Managers	\$125,204	29.41	94	N/A	85%	56%
	11-9021	Construction Managers	\$85,877	24.43	406	N/A	67%	34%
	11-9111	Medical and Health Services Managers	\$102,382	36.79	270	616	91%	64%
	11-9151	Social and Community Service Managers	\$65,367	28.06	103	129	91%	69%
	13-1051	Cost Estimators	\$61,916	31.63	297	837	73%	32%
	13-1111	Management Analysts	\$81,063	33.22	504	7,833	95%	77%
	13-1151	Training and Development Specialists	\$64,472	25.44	282	407	86%	52%
	13-1161	Market Research Analysts and Marketing Specialists	\$68,377	35.05	675	343	96%	80%
	13-2011	Accountants and Auditors	\$67,631	29.15	2,111	1,242*	96%	79%
13-2021	Appraisers and Assessors of Real Estate	\$55,528	27.26	109	N/A	87%	53%	

	13-2051	Financial Analysts	\$76,512	33.62	232	*	97%	86%
	13-2052	Personal Financial Advisors	\$82,396	45.64	355	*	96%	80%
	15-1121	Computer Systems Analysts	\$90,021	40.95	484	107*	95%	73%
	15-1122	Information Security Analysts	\$98,142	40.74	95	198*	94%	66%
	15-1132	Software Developers, Applications	\$102,195	36.85	1,249	236*	98%	84%
	15-1133	Software Developers, Systems Software	\$108,278	35.04	659	236*	98%	84%
	15-1141	Database Administrators	\$96,790	32.21	132	318*	94%	84%
	15-1142	Network and Computer Systems Administrators	\$80,261	25.04	432	686*	92%	52%
	15-2031	Operations Research Analysts	\$84,967	45.53	61	140	94%	71%
	17-1011	Architects, Except Landscape and Naval	\$66,327	30.22	164	232	99%	89%
	17-1021	Cartographers and Photogrammetrists	\$67,260	43.88	55	106	100%	79%
	17-2011	Aerospace Engineers	\$123,878	24.66	121	254	98%	86%
	17-2051	Civil Engineers	\$80,362	29.28	507	473	98%	87%
	17-2061	Computer Hardware Engineers	\$108,114	29.96	197	85	95%	75%
	17-2071	Electrical Engineers	\$93,620	25.24	186	431	97%	81%
	17-2081	Environmental Engineers	\$90,384	42.35	161	116	94%	88%
	17-2141	Mechanical Engineers	\$82,772	30.43	398	837	96%	75%
	19-2021	Atmospheric and Space Scientists	\$93,654	38.22	99	52	100%	81%
	19-2041	Environmental Scientists and Specialists, Including Health	\$75,433	27.88	183	415	100%	93%
	21-1091	Health Educators	\$51,493	33.12	41	5	86%	55%
27-3042	Technical Writers	\$68,328	28.28	72	97	96%	78%	
27-3091	Interpreters and Translators	\$52,609	61.51	136	N/A	86%	50%	
29-1031	Dietitians and Nutritionists	\$58,097	33.85	43	366	84%	72%	
29-1141	Registered Nurses	\$68,542	39.59	2,981	2,611	99%	57%	
29-2011	Medical and Clinical Laboratory Technologists	\$63,735	34.62	154	56*	89%	53%	
Master's Degree	21-1022	Healthcare Social Workers	\$52,162	39.68	135	39	93%	38%
	25-1072	Nursing Instructors and Teachers, Postsecondary	\$62,272	37.42	69	N/A	100%	43%
	25-1121	Art, Drama, and Music Teachers, Postsecondary	\$53,355	27.02	101	N/A	100%	43%
	29-1071	Physician Assistants	\$96,631	49.07	174	73	95%	49%
	29-1122	Occupational Therapists	\$80,015	42.22	171	48	99%	46%
	29-1127	Speech-Language Pathologists	\$82,736	32.24	187	185	99%	88%
	29-1171	Nurse Practitioners	\$101,078	54.87	195	316	99%	91%
29-1199	Health Diagnosing and Treating Practitioners, All Other	\$48,895	44.76	85	153	96%	70%	
Doctoral or Professional Degree	19-1042	Medical Scientists, Except Epidemiologists	\$56,385	27.11	71	759	100%	62%
	19-3031	Clinical, Counseling, and School Psychologists	\$74,233	38.42	228	112	100%	49%
	23-1011	Lawyers	\$111,139	25.03	598	486	100%	91%
	25-1011	Business Teachers, Postsecondary	\$75,439	24.77	65	N/A	100%	43%
	25-1032	Engineering Teachers, Postsecondary	\$80,511	29.76	56	N/A	100%	43%
	25-1042	Biological Science Teachers, Postsecondary	\$58,345	32.68	46	N/A	100%	43%
	25-1071	Health Specialties Teachers, Postsecondary	\$110,899	37.00	279	N/A	100%	43%
	25-1081	Education Teachers, Postsecondary	\$54,338	25.17	51	N/A	100%	43%
	29-1011	Chiropractors	\$49,414	27.68	69	N/A	99%	89%
	29-1021	Dentists, General	\$158,229	28.39	125	116	100%	96%
	29-1041	Optometrists	\$116,133	40.02	73	N/A	99%	95%
	29-1051	Pharmacists	\$120,798	26.02	275	250	100%	55%
29-1067	Surgeons	\$192,958	33.79	79	*	100%	94%	

	29-1069	Physicians and Surgeons, All Other	\$192,942	28.71	157	*	100%	94%
	29-1123	Physical Therapists	\$74,630	53.30	389	146	99%	28%
	29-1131	Veterinarians	\$76,607	31.19	115	144	100%	95%

N/A - Directly associated postsecondary program or completions could not be identified

* - Completions are shared across multiple occupations and are likely insufficient to meet demand

** - Incomplete data--does not include all apprenticeship or other industry certification program completions

Highlighted SOC indicates that occupation was on previous year's "top jobs" list

List of Tier 2 "Top Jobs"

Minimum Education Required	SOC	Occupation Title	Median Annual Earnings	2015-2025 Growth Rate (%)	Annual Avg. Openings	Related Postsecondary Awards (IPEDS, 2015)	Workers with Some College and Higher	Workers with Typical Minimum Entry Education & Higher
No Formal Credential	31-1011	Home Health Aides	\$24,000	56.73	1,004	9	53%	100%
	33-9091	Crossing Guards	\$25,591	26.67	76	N/A	39%	100%
	45-2091	Agricultural Equipment Operators	\$32,177	39.44	47	N/A**	17%	100%
	47-2051	Cement Masons and Concrete Finishers	\$36,876	42.39	260	N/A**	17%	100%
	47-2061	Construction Laborers	\$32,085	32.76	1,477	N/A**	28%	100%
	47-2081	Drywall and Ceiling Tile Installers	\$40,697	33.29	125	N/A**	19%	100%
	47-2131	Insulation Workers, Floor, Ceiling, and Wall	\$34,618	34.49	45	N/A**	32%	100%
	47-2141	Painters, Construction and Maintenance	\$36,317	35.26	327	6**	27%	100%
	47-2151	Pipelayers	\$37,049	27.84	44	N/A	36%	100%
	47-2181	Roofers	\$36,234	42.96	194	N/A	17%	100%
53-3041	Taxi Drivers and Chauffeurs	\$25,440	28.45	175	N/A	47%	100%	
High School Diploma or Equiv. and Moderate to No On-the-Job Training	11-9013	Farmers, Ranchers, and Other Agricultural Managers	\$41,868	33.71	509	415	51%	88%
	21-1093	Social and Human Service Assistants	\$32,592	31.85	134	153	81%	98%
	25-3021	Self-Enrichment Education Teachers	\$36,374	31.26	333	N/A	88%	98%
	29-2052	Pharmacy Technicians	\$33,436	30.68	202	230	75%	98%
	29-2099	Health Technologists and Technicians, All Other	\$39,534	44.05	166	104**	79%	98%
	31-9093	Medical Equipment Preparers	\$36,209	37.76	57	N/A	51%	92%
	35-1011	Chefs and Head Cooks	\$45,185	25.86	105	666	53%	83%
	35-1012	First-Line Supervisors of Food Preparation and Serving Workers	\$34,920	29.75	879	156	53%	88%
	39-1021	First-Line Supervisors of Personal Service Workers	\$36,215	27.46	268	N/A	70%	95%
	39-9011	Childcare Workers	\$23,864	33.31	843	222**	55%	87%
	43-3021	Billing and Posting Clerks and Machine Operators	\$38,267	31.91	324	419	67%	97%
	43-4051	Customer Service Representatives	\$32,998	27.69	2,394	N/A	69%	96%
	43-4111	Interviewers, Except Eligibility and Loan	\$33,574	26.15	213	N/A	75%	99%
	43-4171	Receptionists and Information Clerks	\$29,256	25.25	1,081	N/A	63%	96%
	43-5021	Couriers and Messengers	\$27,991	30.57	54	N/A	56%	92%
	43-6013	Medical Secretaries	\$35,503	36.96	342	826	69%	98%
	47-2073	Operating Engineers and Other Construction Equipment Operators	\$44,832	27.73	413	15**	28%	80%
	47-4099	Construction and Related Workers, All Other	\$34,634	33.85	48	17**	35%	79%
49-2098	Security and Fire Alarm Systems Installers	\$42,646	31.97	73	N/A	56%	93%	

	51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic	\$37,035	39.11	66	141*	51%	92%
	51-9012	Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	\$42,161	26.17	86	N/A**	58%	94%
	51-9111	Packaging and Filling Machine Operators and Tenders	\$26,413	24.91	268	N/A	23%	65%
	51-9122	Painters, Transportation Equipment	\$44,576	26.65	42	N/A	31%	77%
Long-Term On-the-Job-Training or Apprenticeship	47-2044	Tile and Marble Setters	\$37,287	35.93	60	16**	22%	64%
	51-3011	Bakers	\$23,878	27.66	200	266**	38%	75%
	27-4021	Photographers	\$27,137	25.41	112	95	86%	98%
	29-2081	Opticians, Dispensing	\$34,855	39.52	88	N/A	70%	98%
	47-2031	Carpenters	\$41,866	31.34	861	62**	32%	75%
	47-2111	Electricians	\$46,220	45.38	1,056	681**	55%	92%
	47-2121	Glaziers	\$42,203	29.80	42	6**	27%	80%
	47-2211	Sheet Metal Workers	\$43,524	35.77	210	41**	39%	85%
	47-2221	Structural Iron and Steel Workers	\$41,380	27.48	40	N/A**	37%	83%
49-3021	Automotive Body and Related Repairers	\$47,546	27.11	141	269**	29%	79%	
Some College or Postsecondary Certificate	25-9041	Teacher Assistants	\$26,718	24.34	901	1	68%	68%
	27-4011	Audio and Video Equipment Technicians	\$36,495	27.62	55	51	82%	82%
	29-2041	Emergency Medical Technicians and Paramedics	\$36,307	39.04	236	1,407	85%	85%
	29-2061	Licensed Practical and Licensed Vocational Nurses	\$46,536	28.62	312	272	80%	80%
	29-2071	Medical Records and Health Information Technicians	\$45,612	34.07	128	145	75%	75%
	31-1014	Nursing Assistants	\$28,709	34.31	1,118	1,936	53%	53%
	31-9011	Massage Therapists	\$40,976	40.79	428	839	81%	81%
	31-9091	Dental Assistants	\$37,342	28.53	334	629**	67%	67%
	31-9092	Medical Assistants	\$32,779	37.15	548	1,328**	75%	75%
	31-9094	Medical Transcriptionists	\$41,947	25.00	49	N/A	79%	79%
	31-9097	Phlebotomists	\$34,625	44.47	122	242	71%	71%
	39-5011	Barbers	\$29,977	33.98	132	120**	39%	39%
39-5094	Skincare Specialists (Estheticians)	\$27,927	32.38	65	496	40%	40%	
Associate Degree	17-3022	Civil Engineering Technicians	\$46,696	25.24	57	120	73%	40%
	19-4091	Environmental Science and Protection Technicians, Including Health	\$43,106	26.22	62	17	82%	59%
	25-2011	Preschool Teachers, Except Special Education	\$27,265	42.65	553	756	85%	63%
	29-2012	Medical and Clinical Laboratory Technicians	\$38,245	39.04	131	56*	89%	70%
	29-2056	Veterinary Technologists and Technicians	\$29,894	42.84	181	528	75%	40%
Bachelor's Degree	11-9031	Education Administrators, Preschool and Childcare Center/Program	\$43,184	42.96	50	N/A	95%	82%
	21-1011	Substance Abuse and Behavioral Disorder Counselors	\$41,226	40.32	77	N/A	94%	79%
	21-1021	Child, Family, and School Social Workers	\$44,604	29.16	351	709	93%	79%
	21-1023	Mental Health and Substance Abuse Social Workers	\$39,362	41.26	117	N/A	93%	79%
	21-1029	Social Workers, All Other	\$47,339	26.70	67	709	93%	79%
	27-1025	Interior Designers	\$46,215	27.91	113	119	88%	58%

Master's Degree	21-1012	Educational, Guidance, School, and Vocational Counselors	\$46,691	25.40	211	133	94%	53%
	21-1014	Mental Health Counselors	\$44,949	40.19	342	58	94%	53%
	21-1015	Rehabilitation Counselors	\$36,465	35.09	78	10	94%	53%
	21-1099	Community and Social Service Specialists, All Other	\$38,788	28.08	149	233	86%	23%
Doctoral/ Professional Degree	25-1022	Mathematical Science Teachers, Postsecondary	\$45,094	33.52	55	N/A	100%	43%
	25-1123	English Language and Literature Teachers, Postsecondary	\$44,615	26.67	63	N/A	100%	43%

N/A - Directly associated postsecondary program or completions could not be identified

* - Completions are shared across multiple occupations and are likely insufficient to meet demand

** - Incomplete data--does not include all apprenticeship or other industry certification program completions

Highlighted SOC indicates that occupation was on previous year's "top jobs" list

For more information on education and workforce issues in Colorado, visit:
<http://highered.colorado.gov/Data/Workforce/>