

# The Gender Wage Gap

How education affects difference in men's and women's wages

By **KARINNE WIEBOLD**

**W**hile women represent nearly half of Alaska's workers and hold more of the positions requiring higher education, they earn 72 percent of what men make, on average.

A number of factors influence the gender gap in wages, and many studies have tried to measure and explain them, but that type of analysis is outside this article's scope.

We've visited this issue a handful of times over the decades, most recently in March 2017 ("The gender gap: Women earn an average of 68 percent of what men make in Alaska"). Another article, in May 2016, looked at whether traditionally male and female occupations were becoming more integrated ("Gender and nontraditional work: Are men and women branching out, and is it paying off?").

This time, we're examining the levels of education Alaska's occupations typically require and how they affect what men and women earn.

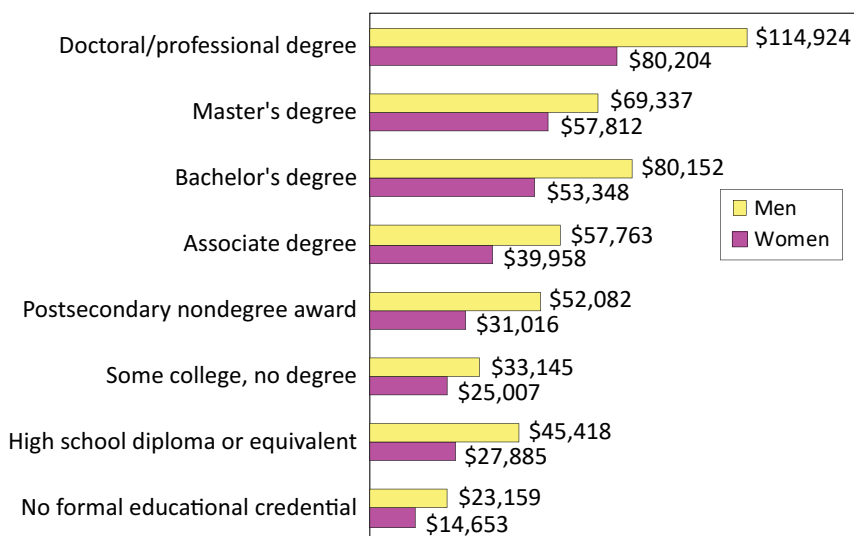
## Men earn more at every level of education occupations require

Women make up a larger percentage of workers in occupations requiring additional education, especially in those that require any type of college degree. Thirty-nine percent of women who worked in 2017 held positions that required more than a high school diploma, but just 28 percent of men did.

In general, jobs requiring more education pay more, but the data clearly show that when men and women work in occupations that require a similar level of education, the gender wage gap does not disappear.

## 1 Men Earn More At Every Level

BY EDUCATION REQUIREMENT OF OCCUPATION, ALASKA, 2017



Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

Men earn more than women at every educational level and in the vast majority of occupations, including some dominated by women. Women outnumber men nine to one as registered nurses, for example, but men make about 14 percent more. Still, the gender wage gap narrows as education increases, although not consistently.

Men are also disproportionately represented in certain occupations that pay well in Alaska despite not requiring much formal education. For example, men are much more likely than women to work in oil, mining, and construction, where workers often make higher-than-average salaries and don't need more than a high school education. (See the sidebar on page 6, on occupations' education requirements versus training requirements.)

Average wages for women ranged from nearly \$15,000 in 2017 for positions with no formal education requirements to just over \$80,000 when a doctoral or professional degree was required. Average wages for men followed the same pattern, but ranged

from \$23,000 to \$115,000.

## Education isn't the only factor in wages

How much workers are paid varies on an individual basis as well as by occupation, and a number of factors besides education determine average pay.

While we expect a job requiring a master's degree to pay more than one that doesn't require a high school diploma, the type of work also affects the typical wage. Jobs with inherent risk, remote work sites, and challenging conditions, schedules, or shifts can drive up the average wage, even among similar jobs. For example, underwater welding pays more than standard welding. Likewise, a garbage collector might make more than a fast food worker, even though neither position requires graduating high school, because it's dirty and physically demanding work.

A number of high-paying jobs in Alaska with low educational requirements have these characteristics, such as remote work on the North Slope oil fields that requires unusual schedules such as two weeks on and two weeks off.

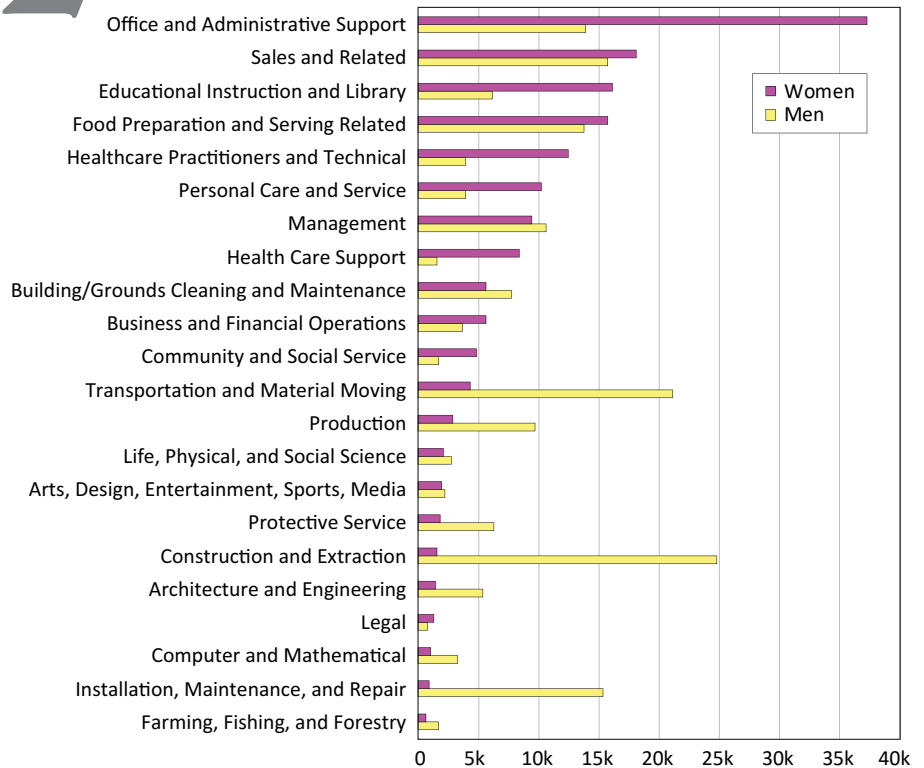
On an individual basis, a worker's job history, competence, hours worked, and negotiated starting pay also

affect wages — and some studies have shown men are more likely to negotiate when accepting an employment offer.

From here, we'll look closer at each level of educational requirements to see how women and men are repre-

# 2 Men and Women Choose Different Jobs

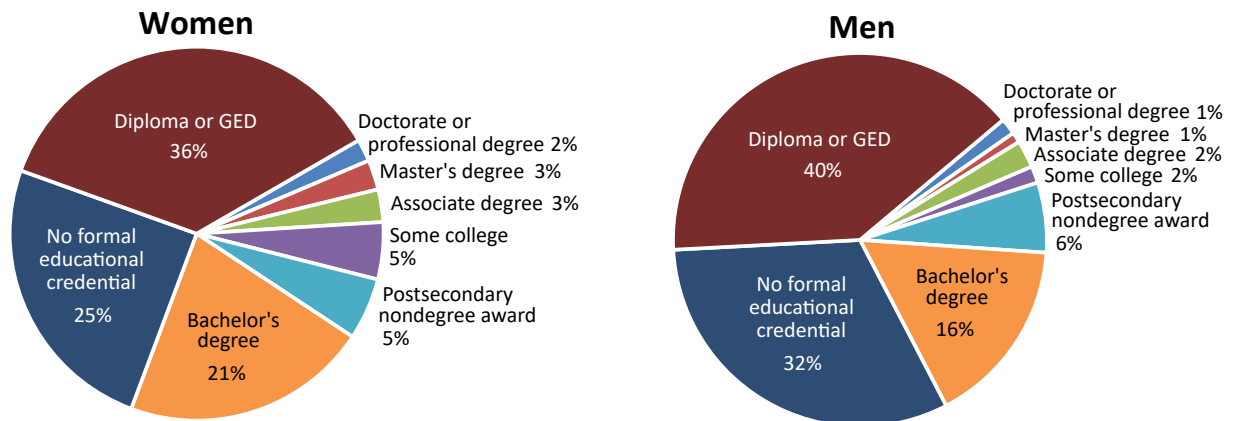
## ALASKA OCCUPATIONS AND NUMBERS OF WORKERS, 2017



Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

# 3 Women Hold Jobs With Higher Education Requirements

## ALASKA, TYPICAL EDUCATIONAL REQUIREMENTS OF OCCUPATIONS WORKED, 2017



Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

sented in these occupations and how they fare for wages.

We refer to women's average wages divided by men's as the earnings ratio. For example, the average wage for a retail salesman in 2017 was \$22,100 and the average wage for a woman in the same job was \$16,626, resulting in an earnings ratio of 75.2 percent.

It's important to note that this article determines education by what the occupation typically requires rather than the credentials workers actually have. For example, although retail sales positions don't typically require formal education, some of these workers have college degrees or other certifications.

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## Training requirements are also important, but not included here

State and federal data sets classify every occupation by the level of education it requires and, independently, by its level of training. Each occupation is assigned the level of formal education typically required for hire at the entry level, ranging from "no formal education credential" to "doctoral or professional degree." Each occupation's training classification ranges from none to "long-term on-the-job training" and, for doctors, "internship/residency."

The separate categorization of education and training requirements can lead to misunderstandings, at the occupation level and also in interpreting education and training needs for the state. For example, electricians and plumbers require only a high school diploma, but both also require successful completion of an apprenticeship program.

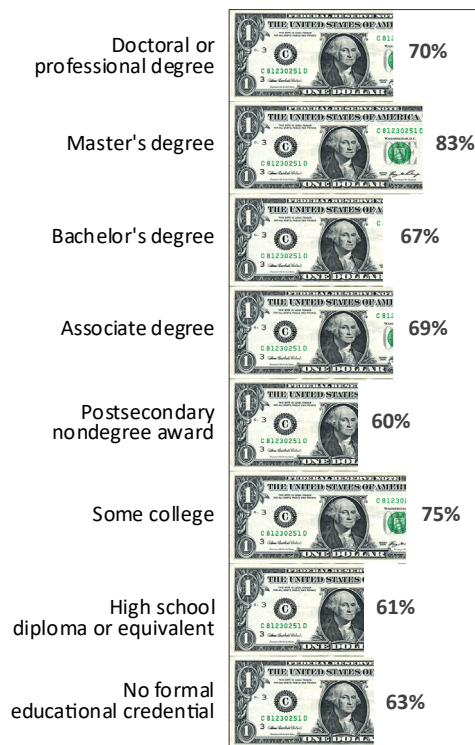
The distinction between education and training can also seem arbitrary or artificial for some occupations; for example, firefighters require an associate degree plus long-term on-the-job training while police officers require only a high school diploma and moderate on-the-job training.

Data showing Alaska has a large number of occupations that don't require formal education beyond high school doesn't mean those occupations don't require postsecondary training such as an apprenticeship, a certain number of training hours, or other specific training programs. The data shown here also shouldn't be interpreted to mean Alaska doesn't need more people with college degrees or that high school graduates are prepared for the workforce as soon as they graduate. The bulk of the occupations that don't require formal education beyond high school do require some type of postsecondary training.

# 4

## Women's Average Wages As A Percent of Men's

RATIO BY EDUCATION REQUIREMENT, 2017



Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

## About the data

To produce the data in this article, we combined information from the quarterly reports nearly all Alaska employers are required to file under state unemployment insurance law with data from Permanent Fund Dividend applications. Matching the two allowed us to determine the gender and age of Alaska resident workers (using the PFD criteria for residency) as well as their earnings and occupations.

It isn't possible to determine whether workers are full-time or part-time, a major limitation in this article. The data also exclude most nonresidents, who are about 20 percent of the state's annual workforce, as well as the self-employed, federal civilian and military workers, and PFD applicants who didn't specify a gender.

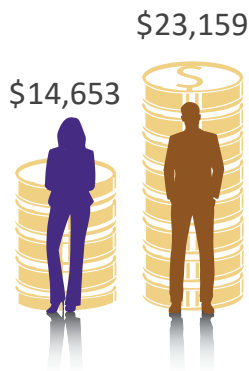
We considered only the occupation in which a worker made the most money during the year. A school teacher, for example, who made \$50,000 teaching and \$10,000 during the summer working as a construction laborer would be counted as a school teacher with wages of \$50,000.

# Occupations With No Formal Education Requirements

**Average wage: \$19,579**

*Women make about 63¢ on the dollar*

**63.3%**

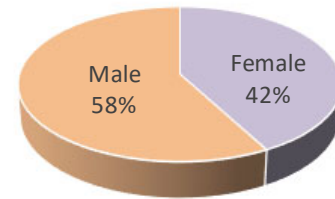


Occupations that don't require a high school diploma or GED make up the second-largest category in Alaska. This category encompasses a wide range of wages, from low-paying food service and retail jobs to high-paying oil and gas extraction jobs such as service unit operators, derrick operators, and rotary drill operators.

The types of jobs men and women choose heavily influence the earnings ratio in this category. In its nine highest-earning, male-dominated occupations, men earned \$165.7 million a year in 2017 but women, who worked in only six, earned just \$6.1 million.

These highest-paying occupations employed more than 2,100 workers, but less than 100 were women. While women in these jobs earned a higher average wage than the average for the category overall and had a high earnings ratio, they represented just 0.2 percent of all women working in jobs without any education requirements in 2017.

**Total workers: 96,242**



**Total occupations 103**

High-wage occupations (\$50k+)	9
Number of high-wage women	85
Number of high-wage men	2,058
High-wage women's average	\$71,564
High-wage men's average	\$80,497

The largest part of this category by far is the 62 occupations that pay less than \$20,000, representing nearly 74,000 workers. Half of these lowest-paid workers were women, and 91 percent of all women in this education category worked in the lowest-paid occupations in 2017, compared to 66 percent of all the men.

## 10 Largest Occupations for Women With No Formal Education Requirements, 2017

Occupation	Total Wages in Millions	Total Workers	Percent Women	Women's Avg Wage	Men's Avg Wage	Earnings Ratio	Women's Avg Age	Men's Avg Age
Retail salespeople	\$282.6	14,785	55%	\$16,626	\$22,100	75%	35	34
Cashiers	\$120.9	8,052	65%	\$13,824	\$17,193	80%	35	33
Waiters and waitresses	\$72.9	4,386	71%	\$16,332	\$17,306	94%	33	33
Combined food prep/serving, incl fast food	\$58.0	5,050	56%	\$11,215	\$11,840	95%	29	28
Maids and housekeeping cleaners	\$56.5	3,482	77%	\$15,233	\$19,551	78%	39	41
Food preparation workers	\$59.2	4,965	51%	\$11,776	\$12,085	97%	30	28
Janitors/cleaners, exc maids/housekeepers	\$105.1	5,608	36%	\$16,023	\$20,232	79%	43	43
Counter attend, cafeteria/concession/coffee	\$22.5	2,196	79%	\$10,158	\$10,483	97%	25	26
Meat, poultry, and fish cutters and trimmers	\$69.2	4,378	34%	\$15,304	\$16,061	95%	44	43
Bartenders	\$22.8	1,465	69%	\$14,563	\$17,803	82%	40	39

## 10 Largest Occupations for Men With No Formal Education Requirements, 2017

Occupation	Total Wages in Millions	Total Workers	Percent Men	Women's Avg Wage	Men's Avg Wage	Earnings Ratio	Women's Avg Age	Men's Avg Age
Retail salespeople	\$282.6	14,785	45%	\$16,626	\$22,100	75%	35	34
Construction laborers	\$154.3	5,431	90%	\$22,460	\$29,071	77%	35	36
Janitors/cleaners, exc maids/housekeepers	\$105.1	5,608	64%	\$16,023	\$20,232	79%	43	43
Laborers and freight, stock, mat movers, hand	\$92.4	4,148	87%	\$15,731	\$23,239	68%	34	36
Meat, poultry, and fish cutters and trimmers	\$69.2	4,378	66%	\$15,304	\$16,061	95%	44	43
Cashiers	\$120.9	8,052	35%	\$13,824	\$17,193	80%	35	33
Food preparation workers	\$59.2	4,965	49%	\$11,776	\$12,085	97%	30	28
Combined food prep/serving, incl fast food	\$58.0	5,050	44%	\$11,215	\$11,840	95%	29	28
Cooks, restaurant	\$41.8	2,499	79%	\$14,729	\$17,272	85%	35	36
Material moving workers, all other	\$60.8	1,623	92%	\$27,903	\$38,314	73%	37	40

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

# Occupations That Require a High School Diploma or GED

**Average wage: \$37,368**

Women make about 61¢ on the dollar

**61.4%**



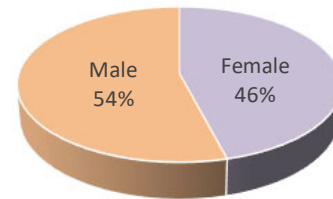
About 300 occupations in Alaska require a high school diploma or an equivalent, such as the GED, making this the largest educational requirement category. Common occupations include social and human service assistants, carpenters, and pharmacy technicians.

Nearly 129,000 Alaskans held these jobs in 2017, and nearly half were women.

As with the category requiring no formal education, this category includes a number of high-paying occupations, such as petroleum pump systems operators, production workers, and first-line supervisors of construction trades and extraction workers. Women represented a similarly tiny percentage in these three occupations, at 10 percent or less, and made less than the men.

Women working in jobs requiring a high school education are concentrated in office support jobs such as office

**Total workers: 128,723**



**Total occupations 314**

High-wage occupations (\$50k+)	83
Number of high-wage women	3,099
Number of high-wage men	24,035
High-wage women's average	\$49,397
High-wage men's average	\$69,173

and administrative support workers, office clerks, secretaries and administrative assistants, and receptionists and information clerks. Seventy-nine percent of these workers were women, and they earned slightly more than their male counterparts, at an average of \$29,100 compared to \$27,000.

## 10 Largest Occupations for Women That Require a High School Education, 2017

Occupation	Total Wages in Millions	Total Workers	Women	Percent Women	Women's Avg Wage	Men's Avg Wage	Earnings Ratio	Women's Avg Age	Men's Avg Age
Office and administrative support workers	\$219.3	7,885	5,633	71%	\$28,050	\$27,235	103%	37	33
Office clerks, general	\$152.4	5,579	4,246	76%	\$27,714	\$26,028	106%	40	36
Personal care aides	\$100.4	5,460	4,233	78%	\$17,683	\$20,801	85%	42	41
Secretaries/admin assts, exc legal/med/exec	\$97.6	3,404	2,996	88%	\$29,036	\$26,017	112%	42	36
Executive secretaries/exec admin assistants	\$115.6	3,120	2,696	86%	\$37,554	\$33,937	111%	44	39
Receptionists and information clerks	\$69.1	2,837	2,525	89%	\$24,793	\$20,685	120%	36	33
Customer service representatives	\$78.2	2,703	1,781	66%	\$28,548	\$29,633	96%	36	34
Child Care workers	\$23.2	1,901	1,689	89%	\$12,217	\$12,080	101%	33	29
1st-line supervisors of office/admin supt wkrs	\$94.3	2,070	1,489	72%	\$44,446	\$48,405	92%	43	43
Health Care support workers, all other	\$63.8	1,868	1,468	79%	\$31,938	\$42,352	75%	40	40

## 10 Largest Occupations for Men That Require a High School Education, 2017

Occupation	Total Wages in Millions	Total Workers	Men	Percent Men	Women's Avg Wage	Men's Avg Wage	Earnings Ratio	Women's Avg Age	Men's Avg Age
Operating engrs/other const equip operators	\$204.0	3,560	3,368	95%	\$40,834	\$58,233	70%	39	45
Maintenance and repair workers, general	\$134.0	3,283	3,080	94%	\$24,994	\$41,847	60%	41	44
Carpenters	\$108.8	2,900	2,843	98%	\$18,797	\$37,907	50%	36	41
Office and admin support workers, all other	\$219.3	7,885	2,252	29%	\$28,050	\$27,235	103%	37	33
Stock clerks and order fillers	\$58.6	2,801	2,032	73%	\$17,594	\$22,204	79%	36	35
Security guards	\$68.1	2,349	1,876	80%	\$20,847	\$31,071	67%	38	41
Transportation workers, all other	\$112.1	2,537	1,856	73%	\$29,004	\$49,764	58%	40	40
Electricians	\$117.7	1,879	1,811	96%	\$37,094	\$63,610	58%	37	41
Light truck or delivery services drivers	\$54.5	1,570	1,422	91%	\$24,890	\$35,758	70%	37	39
Sales and related workers, all other	\$57.9	2,255	1,347	60%	\$20,426	\$29,186	70%	37	36

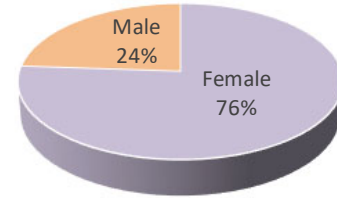
Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

# Occupations That Require Some College (But No Degree)

**Average wage: \$26,955**  
*Women make about 75¢ on the dollar*

Jobs that require a high school education plus some sort of postsecondary course or study (but no formal certification or award) is a small category of just five occupations, but it represents more than 10,000 workers in Alaska. Teacher assistants and accounting clerks are the most common examples.

Total workers: 10,611



**75.4%**



More than three-quarters of these workers were female in 2017, and their earnings ratio was higher than in any other educational category except master's degrees. Again, when women dominate an occupation, their average wages tend to be closer to equal, but men still almost always make more.

Total occupations	5
High-wage occupations (\$50k+)	0
Number of high-wage women	0
Number of high-wage men	0
High-wage women's average	\$0
High-wage men's average	\$0

Teacher assistants were the largest occupation, at 5,156 workers in 2017, of whom 83 percent were women. They earned slightly more than their male counterparts, at 101 percent, although wages were very low for both (\$16,872 and \$16,643, respectively).

Bookkeeping, accounting, and auditing clerks were the next largest group, at 4,218 workers in 2017, 85 percent of whom were women. Men outearned those women, but at an earnings ratio of 95 percent, which is far more equal than for most occupations.

## All Occupations That Require Some College Course(s) But No Degree, 2017

Occupation	Total Wages in Millions	Total Workers	Women	Percent Women	Women's Avg Wage	Men's Avg Wage	Earnings Ratio	Women's Avg Age	Men's Avg Age
Teacher assistants	\$86.8	5,156	4,268	83%	\$16,872	\$16,643	101%	44	40
Bookkeeping, accounting, and auditing clerks	\$144.4	4,218	3,566	85%	\$33,937	\$35,817	95%	44	40
Computer user support specialists	\$47.1	1,015	205	20%	\$39,757	\$48,047	83%	39	38
Computer, automated teller, and office machine repairers	\$7.0	156	9	6%	\$31,255	\$45,704	68%	42	43
Actors	\$0.8	66	23	35%	\$16,185	\$9,765	166%	33	42

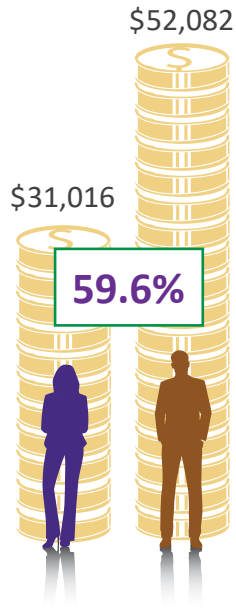
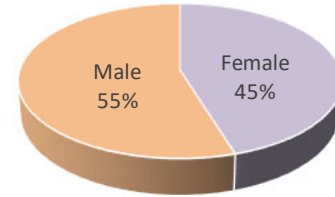
Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

# Occupations That Require a Postsecondary Award (Nondegree)

**Average wage: \$42,567**  
*Women make about 60¢ on the dollar*

This category requires some type of certification or award beyond high school at a formal educational institution, but not a college degree. Some of these programs last just a few weeks and others last a year or two. It doesn't include certification by another type of certifying body or professional organization.

Total workers: 19,379



This is another broad category, with nearly 20,000 workers employed in 44 diverse occupations from paramedics to hairstylists. It included 14 occupations that averaged at least \$50,000 in 2017, and just 10 percent of these higher-paid workers were women. They also made an average of \$25,000 less than the men in these high-wage jobs.

**Total occupations 44**

High-wage occupations (\$50k+)	14
Number of high-wage women	468
Number of high-wage men	4,072
High-wage women's average	\$41,736
High-wage men's average	\$66,576

Women in this educational category tend to be nursing assistants (2,084 workers in 2017, 88 percent women), medical assistants (1,808 workers, 89 percent women), or dental assistants (1,228 workers, 93 percent women). Again, the earnings ratios

in these occupations were high, with women earning between 87 percent and 97 percent of men's average wages, but overall wages were low for both. These types of jobs paid around \$30,000 — much lower than the average for this education category (\$42,567).

## 10 Largest Occupations for Women That Require a Postsecondary Award or Certificate, 2017

Occupation	Total Wages in Millions	Total Workers	Percent Women	Women's Avg Wage	Men's Avg Wage	Earnings Ratio	Women's Avg Age	Men's Avg Age
Nursing assistants	\$58.9	2,084	88%	\$28,015	\$30,041	93%	37	36
Medical assistants	\$56.5	1,808	89%	\$31,147	\$32,260	97%	34	34
Dental assistants	\$35.8	1,228	93%	\$28,867	\$31,193	87%	34	31
Hairdressers, hairstylists, and cosmetologists	\$15.2	706	94%	\$21,473	\$21,943	98%	34	35
Medical records and health info technicians	\$22.0	578	86%	\$36,991	\$44,920	82%	42	37
Massage therapists	\$15.0	567	87%	\$25,948	\$30,046	86%	38	41
Licensed practical and vocational nurses	\$21.9	441	84%	\$46,204	\$67,733	68%	46	45
Health care practitioners/technical workers	\$14.6	292	82%	\$48,451	\$56,414	86%	40	42
Psychiatric technicians	\$9.6	345	61%	\$27,787	\$28,034	99%	36	35
Health technologists and technicians, all other	\$12.0	290	67%	\$37,936	\$48,368	78%	39	41

## 10 Largest Occupations for Men That Require a Postsecondary Award or Certificate, 2017

Occupation	Total Wages in Millions	Total Workers	Percent Men	Women's Avg Wage	Men's Avg Wage	Earnings Ratio	Women's Avg Age	Men's Avg Age
Heavy and tractor-trailer truck drivers	\$139.8	2,922	95%	\$36,611	\$48,419	76%	43	46
Automotive svc technicians and mechanics	\$76.8	1,964	97%	\$21,626	\$39,735	54%	32	38
Aircraft mechanics and service technicians	\$66.2	1,207	96%	\$32,948	\$55,887	59%	36	44
Firefighters	\$57.5	925	84%	\$24,257	\$69,165	35%	36	39
Telecom equip install/repair, exc line installers	\$54.2	752	88%	\$69,183	\$72,507	95%	48	44
Captains, mates, and pilots of water vessels	\$32.0	538	90%	\$34,717	\$62,229	56%	37	47
Heating, air cond, refrig mechanics/installers	\$19.1	388	97%	\$21,733	\$50,224	43%	39	41
Nursing assistants	\$58.9	2,084	12%	\$28,015	\$30,041	93%	37	36
Emergency med technicians and paramedics	\$17.0	323	73%	\$42,298	\$56,371	75%	37	37
Electrical/electronics repair, comm/industrial	\$19.0	202	98%	\$102,811	\$93,908	109%	41	46

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

# Occupations That Require an Associate Degree

**Average wage: \$48,401**

Women make about 69¢ on the dollar



An associate degree in college is typically a two-year degree, although it can take up to four years to complete. Jobs that require an associate degree include mechanical drafters, respiratory therapists, and dental hygienists.

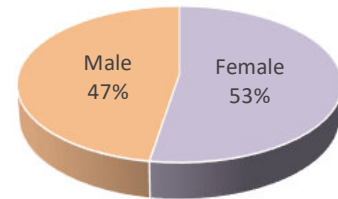
Only about 3 percent of occupations in Alaska require an associate degree, and they employed less than 9,000 workers in 2017. Women made up a slight majority, at 53 percent.

Twenty-seven occupations requiring an associate degree paid at least \$50,000 a year, and they employed more than 3,500 people in 2017.

Women made up 29 percent of these workers and earned nearly \$13,000 less than the men, on average.

Women with associate degrees are concentrated in medical, dental, and legal support occupations, while men are concentrated in engineering, computer support, and extraction.

**Total workers: 8,772**



Total occupations	46
High-wage occupations (\$50k+)	27
Number of high-wage women	1,029
Number of high-wage men	2,488
High-wage women's average	\$58,704
High-wage men's average	\$71,656

## 10 Largest Occupations for Women That Require an Associate Degree, 2017

Occupation	Total Wages in Millions	Total Workers	Percent Women	Women's Avg Wage	Men's Avg Wage	Earnings Ratio	Women's Avg Age	Men's Avg Age
Preschool teachers, exc spec ed	\$18.4	853	93%	\$21,064	\$29,164	72%	37	39
Dental hygienists	\$25.3	514	96%	\$48,493	\$67,041	72%	42	41
Paralegals and legal assistants	\$24.9	547	87%	\$45,776	\$44,216	104%	45	40
Life, physical, and social science technicians	\$20.5	887	47%	\$22,404	\$23,667	95%	37	38
Human resrc assts, exc payroll/timekeeping	\$14.7	393	87%	\$38,703	\$29,341	132%	40	37
Radiologic technologists	\$25.8	426	69%	\$57,510	\$67,370	85%	43	47
Medical and clinical laboratory technicians	\$13.9	345	71%	\$38,892	\$44,247	88%	40	40
Legal support workers, all other	\$12.8	263	74%	\$45,700	\$56,893	80%	45	44
Veterinary technologists and technicians	\$5.0	198	91%	\$25,854	\$20,823	124%	34	31
Engineering technicians, exc drafters, all other	\$40.4	562	24%	\$53,952	\$77,371	70%	39	41

## 10 Largest Occupations for Men That Require an Associate Degree, 2017

Occupation	Total Wages in Millions	Total Workers	Percent Men	Women's Avg Wage	Men's Avg Wage	Earnings Ratio	Women's Avg Age	Men's Avg Age
Life, physical, and social science technicians	\$20.5	887	53%	\$22,404	\$23,667	95%	37	38
Engineering technicians, exc drafters, all other	\$40.4	562	76%	\$53,952	\$77,371	70%	39	41
Geological and petroleum technicians	\$34.4	464	84%	\$82,531	\$72,571	114%	39	38
Civil engineering technicians	\$18.3	376	76%	\$47,425	\$49,094	97%	36	37
Computer network support specialists	\$15.0	274	91%	\$48,848	\$55,229	88%	44	40
Environmental engineering technicians	\$14.6	225	83%	\$54,270	\$67,287	81%	40	39
Forest and conservation technicians	\$7.2	203	86%	\$28,739	\$36,398	79%	35	35
Electrical and electronics engineering techs	\$13.9	167	92%	\$52,340	\$85,523	61%	39	44
Radiologic technologists	\$25.8	426	31%	\$57,510	\$67,370	85%	43	47
Chemical technicians	\$9.0	187	68%	\$43,382	\$50,243	86%	33	36

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section



# Occupations That Require a Bachelor's Degree



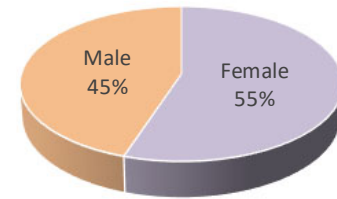
A bachelor's degree requires four or five years at a college or university. Common jobs requiring a bachelor's include budget analysts, dietitians and nutritionists, and civil engineers.

This is the third largest education category in Alaska, after occupations requiring a high school diploma and those without formal requirements. Nineteen percent of Alaska's occupations require a bachelor's degree, representing more than 63,000 workers in 2017. Women were the majority (55 percent) and earned about 67 percent of what men made.

The highest-paying occupations in this category — those averaging at least \$60,000 — employed 35,766 people, and nearly half were women. But while men made an average of \$98,832 in those occupations, women averaged nearly \$31,000 less.

The largest number of women worked as registered nurses, where they made up 88 percent of the workforce and earned an average of \$60,659 while

**Total workers: 63,479**



Total occupations	171
High-wage occupations (\$60k+)	71
Number of high-wage women	16,852
Number of high-wage men	18,914
High-wage women's average	\$67,923
High-wage men's average	\$98,832

men averaged \$69,273. As in other categories that are mostly women, the earnings ratio of 88 percent for nurses was more equal than for jobs requiring a bachelor's degree overall.

The largest occupation for men was general and operations manager, where they were 63 percent of the workers and outearned women by \$26,000 a year.

## 10 Largest Occupations for Women That Require a Bachelor's Degree, 2017

Occupation	Total Wages in Millions	Total Workers	Percent Women	Women's Avg Wage	Men's Avg Wage	Earnings Ratio	Women's Avg Age	Men's Avg Age
Registered nurses	\$356.3	5,777	88%	\$60,659	\$69,273	88%	44	43
Teachers and instructors, all other	\$108.0	4,607	71%	\$22,226	\$26,442	84%	46	46
Elementary school teachers, exc spec ed	\$137.2	2,530	80%	\$54,046	\$55,006	98%	44	45
General and operations managers	\$330.2	4,055	37%	\$65,033	\$91,266	71%	46	49
Accountants and auditors	\$118.5	1,861	74%	\$59,654	\$75,172	79%	44	43
Managers, all other	\$212.3	2,753	48%	\$63,155	\$89,804	70%	46	49
Secondary teachers, exc spec/career/tech	\$123.4	2,086	62%	\$57,566	\$61,706	93%	44	45
Administrative services managers	\$74.7	1,472	69%	\$46,921	\$59,337	79%	44	46
Business operations specialists, all other	\$92.3	1,427	56%	\$54,163	\$77,932	70%	44	44
Chief executives	\$241.1	1,818	43%	\$93,612	\$161,615	58%	48	52

## 10 Largest Occupations for Men That Require a Bachelor's Degree, 2017

Occupation	Total Wages in Millions	Total Workers	Percent Men	Women's Avg Wage	Men's Avg Wage	Earnings Ratio	Women's Avg Age	Men's Avg Age
General and operations managers	\$330.2	4,055	63%	\$65,033	\$91,266	71%	46	49
Managers, all other	\$212.3	2,753	52%	\$63,155	\$89,804	70%	46	49
Teachers and instructors, all other	\$108.0	4,607	29%	\$22,226	\$26,442	84%	46	46
Airline pilots, copilots, and flight engineers	\$146.3	1,182	93%	\$125,708	\$123,651	102%	43	46
Construction managers	\$109.4	1,178	91%	\$79,605	\$94,233	84%	45	49
Chief executives	\$241.1	1,818	57%	\$93,612	\$161,615	58%	48	52
Engineers, all other	\$127.5	1,104	80%	\$94,225	\$120,666	78%	39	44
Civil engineers	\$90.6	1,126	76%	\$70,472	\$83,700	84%	42	44
Secondary teachers, exc spec/career/tech	\$123.4	2,086	38%	\$57,566	\$61,706	93%	44	45
Registered nurses	\$356.3	5,777	12%	\$60,659	\$69,273	88%	44	43

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

# Occupations That Require a Master's Degree

**Average wage: \$60,943**

Women make about 83¢ on the dollar



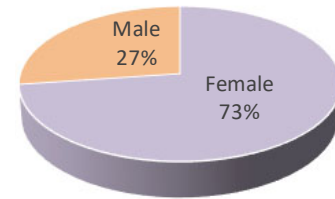
A master's degree typically requires an additional year or two of education beyond a bachelor's degree and is required for occupations such as statisticians, physician assistants, and various types of counselors.

Only about 2 percent of Alaska's occupations require a master's degree. Women held the large majority of these positions in 2017 and had the highest earnings ratio among educational categories. Only six occupations had a higher percentage of men than women, and only statistician stood out as being heavily male (80 percent).

Twelve occupations paid \$60,000 or more, and this was the only high-wage category among all educational levels where women were the majority (64 percent). However, men still earned an average of \$10,000 more.

While higher education requirements usually mean higher wages, that doesn't always hold true for master's degrees in Alaska.

**Total workers: 5,789**



<b>Total occupations</b>	<b>35</b>
High-wage occupations (\$60k+)	12
Number of high-wage women	1,177
Number of high-wage men	648
High-wage women's average	\$85,741
High-wage men's average	\$96,160

This category's occupations pay an average of \$5,000 less than those requiring a bachelor's. The bachelor's category has a much higher share of high-paying occupations, and while there are high-paying occupations in the master's category as well, it includes a number of relatively low-paying jobs such as counselors and social workers.

## 10 Largest Occupations for Women That Require a Master's Degree, 2017

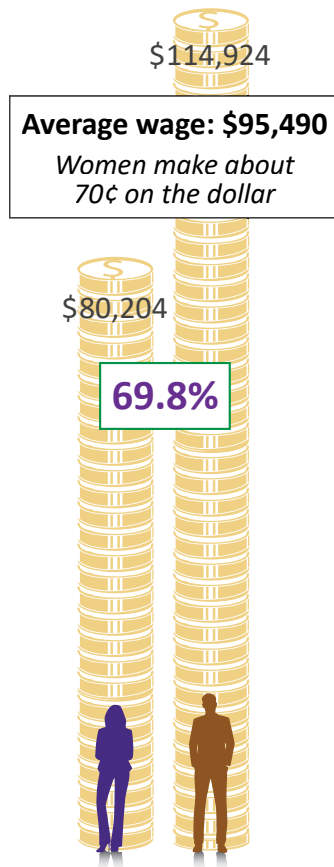
Occupation	Total Wages in Millions	Total Workers	Percent Women	Women's Avg Wage	Men's Avg Wage	Earnings Ratio	Women's Avg Age	Men's Avg Age
Mental health counselors	\$24.8	550	75%	\$44,051	\$48,370	91%	44	47
Educ, guidance, school, vocational counselors	\$28.4	523	76%	\$53,591	\$56,830	94%	44	47
Nurse practitioners	\$27.2	327	92%	\$83,468	\$79,187	105%	48	48
Physician assistants	\$45.7	472	61%	\$93,750	\$101,541	92%	44	49
Speech-language pathologists	\$16.8	297	96%	\$55,097	\$86,128	64%	42	45
Mental health/substance abuse social workers	\$16.2	395	71%	\$41,897	\$39,010	107%	41	46
Education administrators, elem/secondary	\$49.7	555	48%	\$86,648	\$92,304	94%	50	49
Instructional coordinators	\$16.6	359	74%	\$45,396	\$48,435	94%	45	46
Librarians	\$14.1	282	90%	\$49,961	\$50,845	98%	49	47
Counselors, all other	\$12.8	325	77%	\$37,261	\$46,520	80%	44	48

## 10 Largest Occupations for Men That Require a Master's Degree, 2017

Occupation	Total Wages in Millions	Total Workers	Percent Men	Women's Avg Wage	Men's Avg Wage	Earnings Ratio	Women's Avg Age	Men's Avg Age
Education administrators, elem/secondary	\$49.7	555	28%	\$86,648	\$92,304	94%	50	49
Physician assistants	\$45.7	472	39%	\$93,750	\$101,541	92%	44	49
Mental health counselors	\$24.8	550	25%	\$44,051	\$48,370	91%	44	47
Educ, guidance, school, vocational counselors	\$28.4	523	24%	\$53,591	\$56,830	94%	44	47
Mental health/substance abuse soc wkrs	\$16.2	395	29%	\$41,897	\$39,010	107%	41	46
Instructional coordinators	\$16.6	359	26%	\$45,396	\$48,435	94%	45	46
Urban and regional planners	\$11.2	189	45%	\$56,869	\$61,894	92%	44	48
Counselors, all other	\$12.8	325	23%	\$37,261	\$46,520	80%	44	48
Education administrators, postsecondary	\$14.1	169	43%	\$72,588	\$98,429	74%	52	54
Rehabilitation counselors	\$6.1	176	37%	\$34,568	\$35,181	98%	41	42

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

# Occupations That Require a Doctoral or Professional Degree



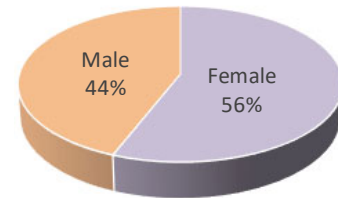
Doctorates (Ph.D.) and professional degrees usually require at least three years of full-time academic work beyond a bachelor's degree. Jobs requiring these advanced degrees include lawyers, physicists, and dentists.

Just 2 percent of Alaska's occupations are in this category, and while women are the majority, they earned 70 percent of what men earned in 2017.

Lawyer was the largest occupation for both men and women, and employment was fairly evenly split (51 percent women). Men earned considerably more, however, with an average annual wage nearly \$24,000 higher.

After lawyers, the largest numbers of women worked as physical therapists, family and general practitioners, and pharmacists. Women made up the majority of each of these categories, but the nearest their wages came to equal was pharmacists with an earnings ratio of 91 percent.

Total workers: 5,651



Total occupations	62
High-wage occupations (\$75k+)	27
Number of high-wage women	1,693
Number of high-wage men	1,614
High-wage women's average	\$106,415
High-wage men's average	\$147,526

Twenty-seven occupations in this category paid \$75,000 or more. Women made up just over half the workers but earned an average of \$41,000 less than the men, resulting in an earnings ratio of 72 percent: slightly more equitable than this educational category overall.

## 10 Largest Occupations for Women That Require a Doctoral or Professional Degree, 2017

Occupation	Total Wages in Millions	Total Workers	Percent Women	Women's Avg Wage	Men's Avg Wage	Earnings Ratio	Women's Avg Age	Men's Avg Age	
Lawyers	\$95.9	1,034	51%	\$81,143	\$104,946	77%	42	45	
Physical therapists	\$31.6	495	76%	\$60,014	\$76,239	79%	42	43	
Family and general practitioners	\$53.2	373	61%	\$128,441	\$164,688	78%	43	50	
Pharmacists	\$34.2	347	210	61%	\$94,815	\$104,452	91%	41	44
Postsecondary teachers, all other	\$7.8	293	178	61%	\$25,276	\$28,733	88%	52	53
Physicians and surgeons, all other	\$88.3	351	133	38%	\$204,104	\$280,369	73%	46	50
Clinical, counseling, school psychologists	\$9.2	169	131	78%	\$54,066	\$55,991	97%	42	44
Business teachers, postsecondary	\$9.7	235	113	48%	\$31,681	\$50,426	63%	51	55
Veterinarians	\$11.9	148	113	76%	\$77,442	\$88,731	87%	43	50
Dentists, general	\$23.5	209	96	46%	\$89,555	\$131,905	68%	36	49

## 10 Largest Occupations for Men That Require a Doctoral or Professional Degree, 2017

Occupation	Total Wages in Millions	Total Workers	Percent Men	Women's Avg Wage	Men's Avg Wage	Earnings Ratio	Women's Avg Age	Men's Avg Age	
Lawyers	\$95.9	1,034	503	49%	\$81,143	\$104,946	77%	42	45
Physicians and surgeons, all other	\$88.3	351	218	62%	\$204,104	\$280,369	73%	46	50
Family and general practitioners	\$53.2	373	145	39%	\$128,441	\$164,688	78%	43	50
Pharmacists	\$34.2	347	137	39%	\$94,815	\$104,452	91%	41	44
Business teachers, postsecondary	\$9.7	235	122	52%	\$31,681	\$50,426	63%	51	55
Physical therapists	\$31.6	495	118	24%	\$60,014	\$76,239	79%	42	43
Postsecondary teachers, all other	\$7.8	293	115	39%	\$25,276	\$28,733	88%	52	53
Dentists, general	\$23.5	209	113	54%	\$89,555	\$131,905	68%	36	49
Engineering teachers, postsecondary	\$7.5	82	66	80%	\$87,555	\$92,777	94%	46	53
Internists, general	\$15.4	105	52	50%	\$131,911	\$161,512	82%	45	51

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section