THE OIL AND GAS INDUSTRY AND UA GRADUATES

FAST FACTS

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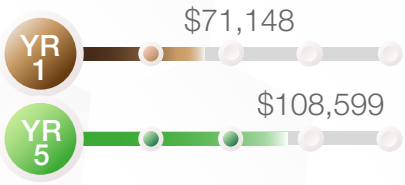
The University of Alaska has identified 54 programs whose graduates are important to the oil and gas industry. Detailed below are their employment and wage outcomes, plus other information that can be used to assess UA programs and their usefulness to one of the state's key industries.

Graduates from key UA programs

ENGINEERING

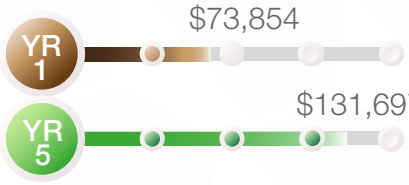
67% working in AK within a year of graduating



52.6% wage growth

PROCESS TECH

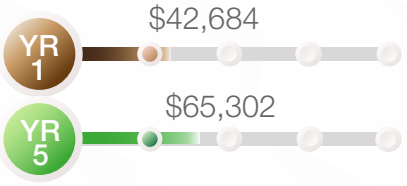
89% working in AK within a year of graduating



78.3% wage growth

WELDING

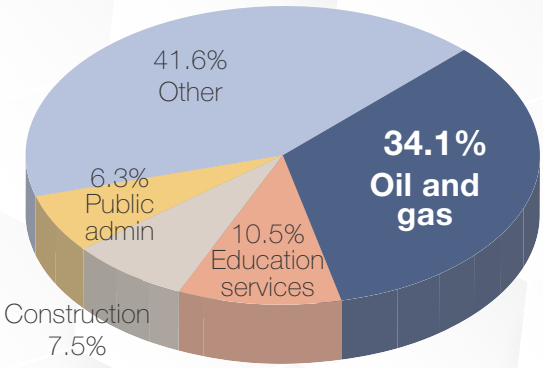
82% working in AK within a year of graduating



53.0% wage growth

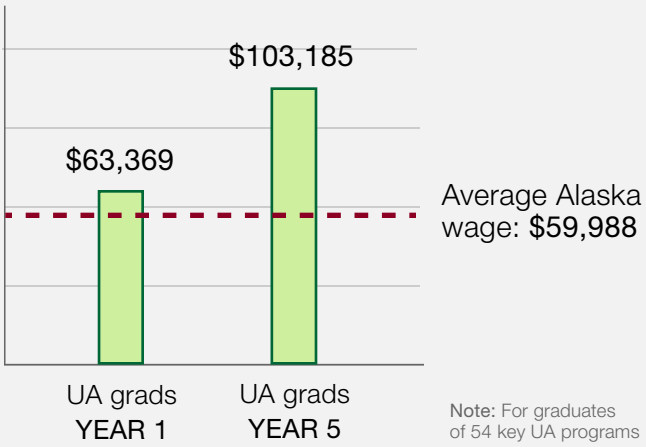
Note: Employment and wage data not limited to graduates who work in the oil and gas industry

The industries where first-year graduates work



Notes: Graduates of all 54 key UA programs. Oil and gas includes related sectors such as pipeline construction/transportation and engineering services.

Grads' wages above average



Note: For graduates of 54 key UA programs

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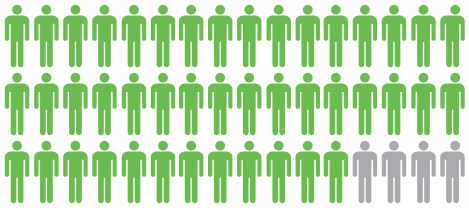
Do these programs boost the Alaska hire rate?

93.5%
of working graduates are Alaska residents



For comparison, residency is ...

- **79.3%** for all Alaska workers
- **70.9%** for oil and gas workers

Over the last 3 years, the oil and gas industry hired ...

485 Geological technicians* (includes process operators)

241 Engineers

231 Petroleum engineers

80 Occupational health and safety specialists

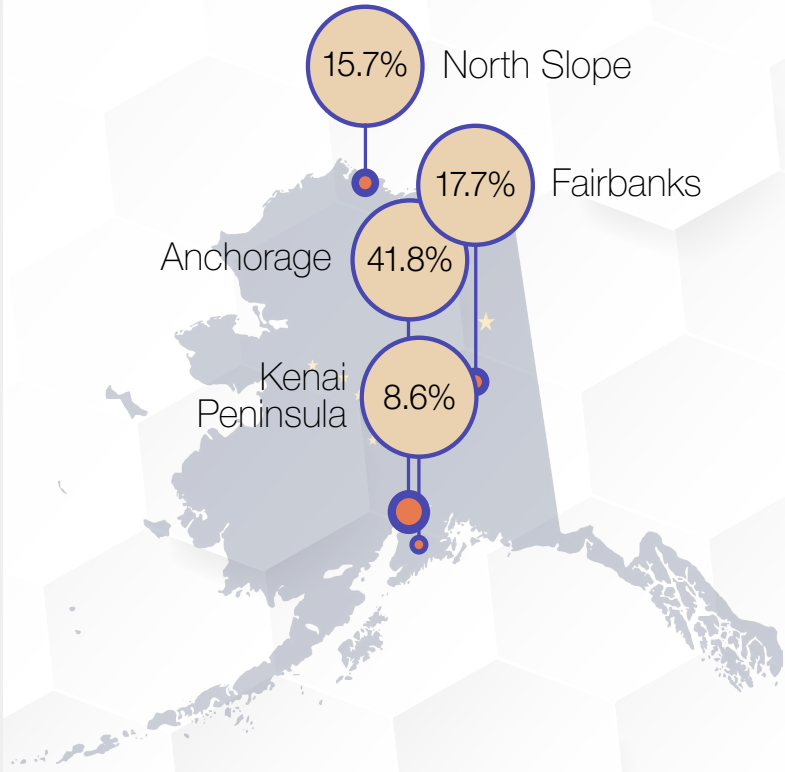
70 Mining/geological engineers

62 Environmental scientists

Note: These occupations have had the most hires in the past three years among occupations that require postsecondary education. Hires include all hires, not just UA grads, to identify where demand is greatest.

*Geological technicians assist scientists and engineers with exploring and extracting natural resources such as oil and natural gas, and with identifying sustainable well locations.

Where do program grads work?



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More information on programs and the industry connection

The economic value of training and education is abundantly clear in the relevant data. Median earnings, for example, jump from $35,328 for high school graduates to $44,619 for Alaskans with an associate degree, $57,708 for those with a bachelor's degree, and $77,402 for holders of graduate or professional degrees. More education and training also correlate strongly with lower unemployment rates.

The University of Alaska, in an effort to highlight and enhance the relationship between its programs and key Alaska industries, has prepared data on the 54 programs that are particularly relevant to the state's oil and gas industry. These include 18 that result in a certificate or occupational endorsement, 11 that result in an associate degree, and 25 that result in a bachelor's degree or above.

From 2009 through 2018, 3,651 people graduated from those programs with the following outcomes by degree type:

- **Licenses and Certificates:** 526 graduates, 437 employed in Alaska within a year of graduating with average first-year wages of $48,495 and average fifth-year wages of $76,713
- **Associate Degrees:** 1,305 graduates, 1,124 employed in Alaska within a year of graduating with average first-year wages of $65,029 and average fifth-year wages of $109,389
- **Bachelor's Degrees and Above:** 1,820 graduates, 1,208 employed in Alaska within a year of graduating with average-first-year wages of $67,092 and average fifth-year wages of $102,309

Three types of programs account for the largest share of graduates (72 percent) and warrant special mention:

- **Welding** (five certificate programs at UAA, one at UAF, and one at UAS): 335 graduates, 273 employed in Alaska within a year of graduating with average first-year wages of $42,684 and average fifth-year wages of $65,302
- **Process Technology** (an associate degree program at UAA and UAF): 773 graduates, 686 employed in Alaska within a year of graduating with average first-year wages of $73,854 and average fifth-year wages of $131,697
- **Engineering (**17 programs combined at UAA and UAF including seven bachelor's degree programs, eight master's degree programs, and two Ph.D. programs): 1,495 graduates, 1,002 employed in Alaska within a year of graduating with average first-year wages of $71,148 and average fifth-year wages of $108,599

The relationship between UA programs and oil and gas hiring

Although it can be tempting to draw straight lines between education and training programs and the occupational demand in key industries, the data consistently reveal a more complicated relationship. Engineers, for example, are hired by oil and gas companies but also by construction companies, geological consulting firms, and the state and federal government. The specific occupations into which they are hired vary widely, but their engineering credentials are clearly relevant to most of them.

The connection between a university program such as process technology and the occupations into which those graduates are hired is even more complicated. Although the data show a strong demand for those graduates (90 percent find work within a year of graduating) and impressively high earnings ($73,854 to start and more than $130,000 by their fifth year), they are hired into a variety of occupations and by a number of industries including oil and gas, mining, and construction.

Attempts to precisely match the supply of graduates with the demand for certain workers by industry would be misguided, but the data shown here are appropriate for general conclusions about the benefits of certain UA programs. More importantly, this information can help facilitate conversations with key industries about how programs could be expanded, changed, or developed to provide them with more and better-trained workers.

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Related questions and answers

Q: How were the programs and target occupations selected?

The University of Alaska analyzed labor market information to determine the largest and fastest-growing occupations in the oil and gas industry, then linked 54 programs based on occupations' titles and characteristics. While other UA programs also provide some preparation for oil and gas jobs, this report excludes general administrative training programs that are useful for all sectors, such as accountants and human resource professionals.

Q: What percentage of oil and gas hires are UA grads?

Those types of questions are better answered for specific programs and occupations than for all programs and occupations lumped together. The oil and gas industry hires a variety of workers, many for positions that don't require degrees or certificates, and the UA program graduates work for a variety of industries in addition to oil and gas.

Q: How will the current economic downturn in the oil and gas industry affect employment of UA graduates in the coming years?

Although the pandemic has resulted in the loss of thousands of oil and gas jobs, it's too early to say if or when they will come back or what growth rate we can anticipate going forward. The focus here is on recent trends in program participation and industry hiring. When making decisions about university programs, it will also be important to consider the most recent developments in key industries. While the short-term outlook is uncertain, there's little doubt the oil and gas industry will continue to need skilled workers long-term.

Q: Why is the percentage of engineering graduates who find work in Alaska lower than for welding or process tech graduates?

The main reason is that the numbers shown here are only for graduates working in Alaska, and UA engineering graduates qualified to work in oil and gas industry are more likely than welding or process tech graduates to find work outside the state or even outside the country.

Q: Can this information be used for program evaluation?

It can inform those types of decisions, as well as decisions about which programs to expand, but there's far more to consider than which programs have the highest earnings or best employment outcomes. Other data such as short-term and long-term industry and occupational projections, enrollment numbers, and tuition and program costs are important, and so are less formal insights and information gathered from industry and other key stakeholders. When making major decisions about university programs, it will be important to factor in the most recent developments in the economy, which can't yet be measured.

Q: Where do the employment numbers come from?

The Alaska Department of Labor and Workforce Development collects wage data from the quarterly Unemployment Insurance Tax and Wage Report that nearly all employers are required to file. (It excludes the federal government and the self-employed.) The records include Social Security Numbers, quarterly wages, and nationally defined codes for area, industry, and occupation.

This report is a collaboration among UA Workforce Development, UA Data Strategy and Institutional Research, and the Alaska Department of Labor and Workforce Development's Research and Analysis Section. For more information, visit https://www.alaska.edu/research/wd/.

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The 54 programs linked to oil and gas

Target occupations	Campus	Major	Degree	Gradu-ates	Employed in AK within a year	1st-year average wage	5th-year average wage
Welders (51-4121, 51-4122)	UAA	Welding	Occupational Endorsement Cert	52	44	$42,540	-
	UAF	Entry Level Welder	Occupational Endorsement Cert	87	70	$39,551	$64,225
	UAS	Welding	Occupational Endorsement Cert	62	49	$35,868	-
	UAA	Advanced Welding	Occupational Endorsement Cert	27	21	$42,597	-
	UAA	Nondestructive Testing Tech	Occupational Endorsement Cert	52	47	$52,773	-
	UAA	Welding Technology	Certificate	30	22	$47,878	$50,476
	UAA	Weld & Nondestruct Test Tech	Associate of Applied Science	77	67	$46,429	$74,149
Engineering Technicians (17-3023, 17-3029, 17-3027, 17-3026, 17-3022)	UAA	Architectural Technology	Certificate	6	6	$38,143	-
	UAA	Civil Technology	Certificate	2	2	-	-
	UAA	Mech & Electrical Technology	Certificate	2	2	-	-
	UAA	Structural Technology	Certificate	2	2	-	-
	UAF	Drafting Technology	Certificate	25	18	$39,062	$53,203
	UAS	Drafting Technology	Certificate	12	10	$46,330	-
	UAA	Archit & Engr Technology	Associate of Applied Science	127	93	$35,183	$52,293
	UAF	Drafting Technology	Associate of Applied Science	22	17	$35,252	-
Industrial & Mobile Machinery Mechanics (49-9041, 49-3042)	UAA	Millwright	Occupational Endorsement Cert	3	2	-	-
	UAS	Power Technology	Occupational Endorsement Cert	17	15	$55,839	-
	UAA	Heavy Duty Trans & Equip	Certificate	28	22	$47,447	$55,693
	UAF	Power Generation	Certificate	13	10	-	$88,139
	UAA	Diesel Power Technology	Associate of Applied Science	3	3	-	-
	UAA	Heavy Duty Trans & Equip	Associate of Applied Science	25	23	$48,642	$76,193
	UAS	Power Technology	Associate of Applied Science	39	34	$50,475	$64,727
Geological & Petroleum Technicians and Related Occupations (19-4041, 47-5013, 47-5071, 51-8093, 47-5012, 47-5099)	UAA	Petroleum Technology	Certificate	38	34	$65,803	$119,160
	UAF	Instrumentation Technology	Certificate	68	61	$57,255	$97,735
	UAA	Industrial Proc Instrumentatn	Associate of Applied Science	80	69	$70,255	$123,388
	UAA	Industrial Technology	Associate of Applied Science	18	15	$68,488	$72,092
	UAA	Process Technology	Associate of Applied Science	546	494	$77,768	$140,711
	UAF	Process Technology	Associate of Applied Science	227	192	$63,347	$107,795
Geoscientists (19-2042)	UAF	Earth Science	Bachelor of Arts	19	15	$22,914	$53,197
	UAA	Geological Science	Bachelor of Science	135	100	$38,280	$55,624
	UAF	Geoscience	Bachelor of Science	44	33	$47,737	-
	UAF	Geology	Master of Science	42	22	$65,955	$114,784
	UAF	Geophysics	Master of Science	32	17	$57,117	-
	UAF	Geology	Doctor of Philosophy	20	6	$52,356	-
	UAF	Geophysics	Doctor of Philosophy	33	13	$46,842	-
Architectural & Engineering Managers (11-9041)	UAA	Engineering Management	Master of Science	43	30	$93,802	$114,232
	UAF	Engineering Management	Master of Science	7	6	$87,405	-
	UAA	Project Management	Master of Science	171	110	$100,793	$143,201
Engineers, All Other (17-2199)	UAA	Engineering	Bachelor of Science	297	236	$61,729	$99,007
	UAA	Electrical Engineering	Bachelor of Science	37	29	$56,823	-
	UAF	Electrical Engineering	Bachelor of Science	110	81	$60,047	$94,977
	UAF	Geological Engineering	Bachelor of Science	59	43	$56,010	$86,910
	UAF	Engineering: Interdisciplinary	Master of Science	16	10	$52,066	$51,884
	UAF	Electrical Engineering	Master of Science	36	13	$58,512	-
	UAF	Environmental Engineering	Master of Science	13	10	$58,516	-
	UAF	Engineering	Doctor of Philosophy	25	13	$57,065	-
	UAF	Engineering: Interdisciplinary	Doctor of Philosophy	13	6	$74,708	-
Mechanical Engineers (17-2141)	UAA	Mechanical Engineering	Bachelor of Science	111	72	$54,329	-
	UAF	Mechanical Engineering	Bachelor of Science	275	196	$58,676	$90,425
	UAA	Mechanical Engineering	Master of Science	2	1	-	-
	UAF	Mechanical Engineering	Master of Science	34	15	$68,028	-
Petroleum Engineers (17-2171)	UAF	Petroleum Engineering	Bachelor of Science	162	103	$87,096	$150,692
	UAF	Petroleum Engineering	Master of Science	84	28	$133,904	$146,210
Occupational Health & Safety Specs/Techs (29-9011, 29-9012)	UAA	Occupational Safety & Health	Associate of Applied Science	141	117	$57,383	$67,412

Note: Graduate numbers are from 2009-18. When wages aren't shown for a program, it's because it had too few graduates.