

STEM Middle Skill Labor Market Outlook

STEM middle skill overview

	Employment			Avg. Ann. Openings due to growth		Avg. Ann. Total Openings	
	2014	2019	2024	2014-2019	2019-2024	2014-2019	2019-2024
Total Middle-Skills STEM	87,050	96,213	104,665	1,833	1,691	7,773	8,207
Total, All Occupations	3,509	3,837,0	4,085,2	66,804	49,694	459,933	473,732
% Middle-Skills STEM in totals	2.48%	2.51%	2.56%	2.74%	3.40%	1.69%	1.73%

Source: Washington State Employment Security Department

For the purposes of this analysis we looked at middle skill STEM occupational information, with middle skill being defined as occupations requiring minimum entry level education above high school or equivalent and less than a 4-year degree. This would include, for example, some post-secondary training up to an associate's degree. STEM occupations are defined as those found in life & physical sciences, engineering, mathematics, information technology, architecture, health, and social sciences.

Collectively, the STEM middle skill employment was 87,000 in 2014, which accounted for 2.48 percent of all employment in Washington State. This employment share is projected to grow to 2.56 percent by 2024. If we look at anticipated job openings due to growth (as opposed to total openings which include openings due to turnover) these occupations are expected to provide 3.4 percent of projected openings in the 2019-2024 period. In other words these occupations are expected to account for a disproportionately high amount of job growth in the future.

Specific Occupations

SOC code	Occupational title	Estimated Employment		Avg. Ann. Growth Rate	Avg. Ann. Openings		In-demand Status
		2014	2024		Due to Growth	Total	
151151	Computer User Support Specialists	14,680	19,150	2.7%	447	1,620	In demand
151134	Web Developers	5,558	8,431	4.3%	287	791	In demand
292021	Dental Hygienists	6,259	7,629	2.0%	137	534	In demand
151152	Computer Network Support Specialists	3,471	4,229	2.0%	76	342	Not in demand
292061	Licensed Practical and Licensed Vocational Nurses	7,649	8,405	0.9%	76	542	In demand

292071	Medical Records and Health Information Technicians	4,569	5,317	1.5%	75	343	In demand
292034	Radiologic Technologists	3,967	4,699	1.7%	73	291	In demand
292056	Veterinary Technologists and Technicians	1,944	2,615	3.0%	67	220	In demand
292012	Medical and Clinical Laboratory Technicians	3,044	3,694	2.0%	65	241	balanced
292041	Emergency Medical Technicians and Paramedics	2,470	3,064	2.2%	59	196	balanced
292032	Diagnostic Medical Sonographers	1,499	1,956	2.7%	46	133	In demand
292055	Surgical Technologists	2,011	2,412	1.8%	40	189	In demand
291126	Respiratory Therapists	1,910	2,297	1.9%	39	138	In demand
173023	Electrical and Electronics Engineering Technicians	2,454	2,803	1.3%	35	209	balanced
194091	Environmental Science and Protection Tech.	868	1,169	3.0%	30	146	In demand
292031	Cardiovascular Technologists and Technicians	949	1,216	2.5%	27	81	In demand
292057	Ophthalmic Medical Technicians	990	1,260	2.4%	27	102	balanced
299099	Healthcare Practitioners and Tech Workers, All Other	1,193	1,408	1.7%	22	82	balanced
173022	Civil Engineering Technicians	1,911	2,115	1.0%	20	154	In demand
292035	Magnetic Resonance Imaging Technologists	913	1,072	1.6%	16	66	In demand

Source: Washington State Employment Security Department

A top 20 mid-skill STEM occupations list (see above) can be constructed using the specific occupations that are projected to show the most openings due to growth over the 10-year period ending in 2024. Based on that approach, *Computer User Support Specialists* should have the most growth openings and by 2024 are forecasted to employ over 19,000 workers in Washington. Based purely on anticipated average annual employment growth, *Web Developers* are the top with a 4.3 percent rate. By comparison over the same period all occupations are projected to growth by 1.5 percent and all mid-level STEM occupations by 1.9 percent. This top occupations list is dominated by computer and health care related occupations though there are some exceptions such as *Engineering Technicians* and *Environmental Science and Protection Technicians*.

There is also an In-demand¹ list operated by the Washington State Employment Security Department which is used to help jobless workers re-train for occupations showing demand. Fourteen of the twenty occupations listed above are considered to be “in demand”; while five are considered to be “balanced”. The only occupation in the list considered as “Not-in-demand” is *Computer Network Support Specialists*.

¹ Also known as the demand-decline list. “In-demand” implies that there is a gap or that demand for a given occupation exceeds supply. “Not-in-demand” implies an over-supply or that supply for a given occupation exceeds demand. Balanced means that there in neither over supply or shortage, but supply equals demand. The list and more information can be found at <https://fortress.wa.gov/esd/wilma/wdclists/>.

Wages

Occupational title	2016 Average median wage
Total Middle-Skills STEM	\$57,601
Total, All Occupations	\$45,074
Electro-Mechanical Technicians	\$92,591
Radiation Therapists	\$90,977
Dental Hygienists	\$90,947
Web Developers	\$88,756
Diagnostic Medical Sonographers	\$88,717
Nuclear Medicine Technologists	\$88,717
Magnetic Resonance Imaging Technologists	\$88,717
Electrical and Electronics Drafters	\$88,501
Mechanical Drafters	\$74,061
Aerospace Engineering and Operations Technicians	\$74,061
Industrial Engineering Technicians	\$74,061
Electrical and Electronics Engineering Technicians	\$71,863
Engineering Technicians, Except Drafters, All Other	\$71,863
Respiratory Therapists	\$71,098
Computer Network Support Specialists	\$70,997
Cardiovascular Technologists and Technicians	\$70,997
Radiologic Technologists	\$70,997
Mechanical Engineering Technicians	\$58,580
Geological and Petroleum Technicians	\$57,412
Civil Engineering Technicians	\$57,387

Source: Washington State Employment Security Department

Taken as a whole, middle-skill STEM jobs (\$57,601) had a median annual wage 28 percent higher than overall median wages (\$45,074) in the first quarter of 2016. *Electro-Mechanical Technicians* topped the list with a median wage of \$92,591, followed by *Radiation Therapists* (\$90,977) then *Dental Hygienists* (\$90,947).

Skills in Demand

By looking at skills required in on-line job advertisements, we can see what type of skills are currently in demand now and what will be in demand in the future for middle-skill STEM positions. The approach can look at both soft skills (like communication) and hard skills (like knowing JavaScript), but for the purposes of looking forward, the below table focuses on hard skills.

Projected Demand for Hard Skills

Hard skill	Estimated Employment			Avg. Ann. Growth Rate		Avg. Ann. Total Openings	
	2014	2019	2024	2014-2019	2019-2024	2014-2019	2019-2024
Quality Assurance	3,688	4,012	4,315	1.7%	1.5%	311	326
Technical support	2,876	3,252	3,583	2.5%	2.0%	291	306
Pediatrics	3,903	4,238	4,535	1.7%	1.4%	289	299
Quality control	2,615	2,831	3,027	1.6%	1.3%	229	240
Instrumentation	1,802	1,959	2,103	1.7%	1.4%	165	173
Diagnostic image review	2,151	2,392	2,611	2.1%	1.8%	163	170
Dental charting	1,636	1,823	1,994	2.2%	1.8%	136	143
Computer Aided Design	1,759	1,794	1,829	0.4%	0.4%	132	135
Patient Electronic Medical Record	1,694	1,835	1,963	1.6%	1.4%	128	132
Geriatrics	1,589	1,723	1,840	1.6%	1.3%	117	121
Sterilization	1,337	1,480	1,615	2.1%	1.8%	115	122
Behavioral health	1,474	1,602	1,706	1.7%	1.3%	116	118
AutoCAD	1,327	1,357	1,384	0.4%	0.4%	101	103
Emergency room	1,163	1,281	1,386	1.9%	1.6%	87	90
Critical care	1,088	1,208	1,318	2.1%	1.8%	85	89
Epic software	1,060	1,155	1,241	1.7%	1.4%	83	87
Electronic Medical Record (EMR) systems	917	1,005	1,086	1.9%	1.6%	71	74
Bilingual	863	949	1,027	1.9%	1.6%	70	74
Structured query language	618	726	825	3.3%	2.6%	68	74
Animal health	566	653	738	2.9%	2.5%	62	68

Source: Washington State Employment Security Department and the Conference Board

Based on this approach the skill most associated with future job openings was quality assurance. In 2014 there were an estimated 3,688 middle skill STEM jobs that required some element of quality control, looking to grow to 4,315 by 2024. Some skills like “pediatrics” are projected higher (4,535 by 2024), but none have a stronger association with future openings. Structured query language had the highest average annual growth in openings requiring it. The above projected skills in-demand is overall heavily influenced by IT and medical skills.