

iowa's stem jobs

2014-2024

november 2016



stem occupations by group

Occupational Title	Employment ⁽¹⁾			§ ⁽²⁾		Career Preparation ⁽³⁾			Top Skills ⁽⁴⁾ (L-R in order of significance)
	2014 Estimated	2024 Projected	Annual Growth Rate (%)	2016 Mean Wage	2016 Mean Salary	Educ	Work Exp	Job Training	
Total, All Occupations	1,795,100	1,949,240	0.9	20.12	41,843				
Management Occupations	164,320	171,670	0.4	42.68	88,765				
Computer & Information Systems Managers	2,645	3,095	1.7	55.71	115,877	BA	> 5	N	B7 B2 B3 C1 B6 B10
Financial Managers	6,015	6,785	1.3	52.01	108,187	BA	> 5	N	C1 B3 B2 B7 SY1 B9 B10
Industrial Production Managers	2,325	2,450	0.5	42.42	88,225	BA	> 5	N	SO1 B2 B6 R3 R4
Construction Managers	3,355	3,625	0.8	35.76	74,387	BA	N	M	R4 B2 B3 R3 B9
Architectural & Engineering Managers	1,360	1,455	0.7	55.74	115,933	BA	> 5	N	B2 B7 B9 B10 C1 SO1 R3 B6 T6 R4
Managers, All Other	11,460	11,385	-0.1	39.14	81,415	BA	< 5	N	
Business & Financial Operations Occupations	77,025	85,995	1.2	29.46	61,273				
Compliance Officers	1,895	2,055	0.8	29.17	60,681	BA	N	M	B1 B3 B9 C1 B7
Cost Estimators	2,085	2,345	1.2	27.38	56,947	BA	N	N	B5 B3 B9 B2 SY1
Business Operations Specialists, All Other	14,820	15,695	0.6	29.06	60,444	BA	N	N	
Accountants & Auditors	13,020	15,110	1.6	30.25	62,910	BA	N	N	B2 B5 B7 B10 B9
Credit Analysts	840	940	1.2	33.95	70,616	BA	N	N	B3 B1 B2 SY1 B7 B9
Financial Analysts	1,985	2,285	1.5	37.69	78,389	BA	N	N	B3 B7 B10 B2 C1
Personal Financial Advisors	1,560	1,980	2.7	37.63	78,272	BA	N	L	B3 B9 B7 SY1 B10
Insurance Underwriters	1,750	1,720	-0.2	28.92	60,156	BA	N	M	B2 SY1 B7 B3 B9
Financial Specialists, All Other	2,665	3,010	1.3	31.18	64,863	BA	N	M	
Computer & Mathematical Occupations	33,550	39,630	1.8	34.79	72,369				
Computer Systems Analysts	5,305	6,790	2.8	38.25	79,561	BA	N	N	B3 B2 B7 B9 SY2
Information Security Analysts	1,775	2,480	3.9	35.53	73,912	BA	< 5	N	B7 B3 C1 B9 B2 B10
Computer Programmers	3,795	3,555	-0.6	33.92	70,563	BA	N	N	T7 B7 C1 B3 B2 T8
Software Developers, Applications	3,905	4,790	2.3	39.91	83,012	BA	N	N	C1 T7 SY2 SY1 SY3
Software Developers, Systems Software	2,790	3,220	1.5	42.18	87,725	BA	N	N	B3 B2 T7 B7 C1
Web Developers	960	1,265	3.2	29.33	61,013	AS	N	N	T7 B3 T6 B2 C1 B7
Database Administrators	855	1,000	1.7	38.33	79,724	BA	< 5	N	C1 B3 B6 B1 B2 B7
Network & Computer Systems Administrators	3,260	3,605	1.1	33.60	69,885	BA	N	N	B3 B7 SY2 C1 SY1 B6 SY3
Computer Network Architects	895	1,040	1.6	42.25	87,882	BA	> 5	N	B2 T6 SY2 B1 C1
Computer User Support Specialists	4,810	5,735	1.9	20.76	43,172	SC	N	N	B2 B9 B7 B3 B10
Computer Network Support Specialists	1,665	1,880	1.3	26.15	54,398	AS	N	N	B3 B2 SY1 B7 B1 C1 B6 B9
Computer Occupations, All Other	2,115	2,365	1.2	32.75	68,118	BA	N	N	
Actuaries	525	680	3.0	46.91	97,578	BA	N	L	B5 B3 SY1 C1 B7
Operations Research Analysts	725	1,020	4.1	35.35	73,529	BA	N	N	B3 B5 C1 B7 SY1 SY2 SY3
Architecture & Engineering Occupations	19,925	21,300	0.7	33.14	68,921				
Architects, Ex L&Scape & Naval	925	1,060	1.5	33.75	70,209	BA	N	I	B2 B3 C1 B9 SY1 B7
Civil Engineers	1,725	1,955	1.3	37.32	77,633	BA	N	N	C1 B3 SY1 B5 T6 B7
Electrical Engineers	1,305	1,405	0.8	39.85	82,879	BA	N	N	B3 B7 B2 C1 B10
Industrial Engineers	2,415	2,555	0.6	36.18	75,261	BA	N	N	B7 B2 C1 B3 B10
Mechanical Engineers	2,465	2,670	0.8	36.63	76,183	BA	N	N	C1 B3 B2 SY1 B5 B7
Engineers, All Other	1,620	1,750	0.8	34.56	71,877	BA	N	N	
Civil Engineering Technicians	840	900	0.7	25.21	52,442	AS	N	N	B7 B2 B3 B10 B9
Electrical & Electronics Engineering Technicians	1,210	1,270	0.5	28.95	60,217	AS	N	N	C1 B7 R4 B2 B3 B9
Industrial Engineering Technicians	750	790	0.5	24.75	51,489	AS	N	N	B3 C1 B6 B2 B7
Engineering Technicians, Ex Drafters, All Other	775	830	0.7	25.74	53,540	AS	N	N	
Life, Physical, & Social Science Occupations	12,830	14,060	1.0	27.79	57,804				
Food Scientists & Technologists	525	550	0.5	31.49	65,496	BA	N	N	B2 B7 B10 B1 B3 B9
Soil & Plant Scientists	1,585	1,685	0.6	32.95	68,537	BA	N	N	B8 B2 B3 B9 SY1 B7
Conservation Scientists	390	420	0.6	26.72	55,572	BA	N	N	B8 B7 B2 B3 C1 B9
Medical Scientists, Ex Epidemiologists	605	665	1.1	N.A.	N.A.	DP	N	N	B3 B8 B2 B7 B10
Environmental Scientists & Specialists, Incl Health	750	855	1.4	30.23	62,880	BA	N	N	B2 B3 B7 B8 B9 B10
Clinical, Counseling, & School Psychologists	1,315	1,500	1.4	36.25	75,397	DP	N	I	B2 B7 SO6 B9 B10
Agricultural & Food Science Technicians	1,085	1,190	1.0	16.77	34,875	AS	N	M	B7 B3 B10 B2 C1 SO1 B9
Biological Technicians	770	835	0.8	19.38	40,309	BA	N	N	B7 B2 B3 B8 C1
Chemical Technicians	560	610	0.9	22.04	45,852	AS	N	M	B8 B7 B3 B6 B10
Environmental Science & Protection Technicians, Incl Health	410	485	1.7	21.64	45,017	AS	N	N	B7 B2 C1 B9 B10
Forest & Conservation Technicians	455	450	-0.1	20.75	43,158	AS	N	N	B3 B2 B7 SY1 B9
Life, Physical, & Social Science Technicians, All Other	1,265	1,440	1.4	23.22	48,302	AS	N	N	
Community & Social Service Occupations	31,495	36,095	1.5	19.71	40,987				
Education, Training, & Library Occupations	113,595	123,735	0.9	23.20	48,249				
Business Teachers, Postsecondary	1,085	1,200	1.1	45.11	93,819	DP	N	N	B9 B7 B10 SO2 B2 B3 B4
Mathematical Science Teachers, Postsecondary	630	745	1.8	36.37	75,640	DP	N	N	B5 B3 SO2 B7 B9 B10
Biological Science Teachers, Postsecondary	755	885	1.7	40.40	84,031	DP	N	N	B9 B4 B7 B10 B2 SO2 B8
Health Specialties Teachers, Postsecondary	1,920	2,320	2.1	67.20	139,771	DP	< 5	N	B7 B9 SO2 B3 B2 C1 B4 B10
Nursing Instructors & Teachers, Postsecondary	765	925	2.1	31.75	66,048	MA	< 5	N	B9 B7 B1 B2 SO2
Arts, Design, Entertainment, Sports, & Media Occupations	26,770	28,250	0.6	18.52	38,518				
Graphic Designers	2,705	2,800	0.4	21.07	43,829	BA	N	N	B2 T6 B9 B10 B3 B7
Protective Service Occupations	22,265	23,745	0.7	20.42	42,478				
Firefighters	1,725	1,845	0.7	18.20	37,850	PS	N	L	B2 SO1 B3 T5 B6 T4 SO5

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	2014 Estimated	2024 Projected	Annual Growth Rate (%)	2016 Mean Wage	2016 Mean Salary	Educ	Work Exp	Job Training	
Food Preparation & Serving Related Occupations	134,480	145,925	0.9	9.68	20,127				
First-Line Supervisors of Food Preparation & Serving Wkrs	8,380	9,385	1.2	13.83	28,759	HS	< 5	N	B9 B2 SO1 SO5 R3 B6
Cooks, Institution & Cafeteria	8,560	9,035	0.6	11.42	23,758	NE	N	S	R4 B2 B3 B6 B7 SO5
Farming, Fishing, & Forestry Occupations	18,860	18,915	0.0	16.22	33,734				
First-Line Supervisors of Farming, Fishing, & Forestry Wkrs	1,220	1,125	-0.8	26.09	54,262	HS	< 5	N	B2 SO1 B3 B9 R4
Construction & Extraction Occupations	80,275	91,315	1.4	20.91	43,501				
Electricians	7,380	8,875	2.0	25.31	52,641	HS	N	A	T11 T9 B2 B3 T5 T8
Plumbers, Pipefitters, & Steamfitters	6,500	7,375	1.3	23.11	48,072	HS	N	A	SO1 R4 B3 T5 B2 SY1 B6 B9
Healthcare Practitioners & Technical Occupations	86,030	98,955	1.5	32.87	68,370				
Chiropractors	950	1,085	1.4	34.84	72,460	DP	N	N	B2 B7 B3 B9 C1 R4
Dentists, General	1,460	1,670	1.4	89.07	185,274	DP	N	N	B3 SY1 B2 B6 SO6 B9
Dietitians & Nutritionists	705	840	1.9	26.30	54,714	BA	N	I	B2 B9 B10 B3 SO1 B7 SO6
Optometrists	505	630	2.5	62.22	129,416	DP	N	N	B8 B2 B3 B9 SO1 B7 SO5
Pharmacists	3,185	3,360	0.5	50.30	104,624	DP	N	N	B2 B7 B1 B3 B9
Family & General Practitioners	2,215	2,350	0.6	112.79	234,596	DP	N	I	B2 B3 B9 B8 SO6
Physicians & Surgeons, All Other	2,545	2,885	1.3	106.41	221,334	DP	N	I	
Physician Assistants	760	945	2.4	46.26	96,218	MA	N	N	B2 B3 B9 B7 SY1 B6 SO6
Occupational Therapists	895	1,150	2.8	35.23	73,268	MA	N	N	B2 B7 B9 B3 SO5 SO6
Physical Therapists	1,720	2,220	2.9	37.58	78,159	DP	N	N	B2 B9 B7 B3 SO6 R4
Respiratory Therapists	985	1,115	1.3	24.31	50,555	AS	N	N	B2 B3 B6 B9 B1 SO5 SO6
Speech-Language Pathologists	1,085	1,355	2.4	34.70	72,177	MA	N	N	B2 SO6 B9 B3 B7 B10
Therapists, All Other	520	680	3.2	29.94	62,274	BA	N	N	
Veterinarians	1,490	1,700	1.4	43.28	90,017	DP	N	N	B8 B2 B3 B9 SY1 B7
Registered Nurses	32,025	37,260	1.6	26.46	55,044	BA	N	N	SO6 B2 SO1 B9 B3 B7 SO5
Nurse Practitioners	835	1,070	2.8	45.34	94,309	MA	N	N	B2 B7 B8 B9 B3 B6 SO6
Health Diagnosing & Treating Practitioners, All Other	730	825	1.3	32.99	68,618	MA	N	N	
Medical & Clinical Laboratory Technologists	1,595	1,810	1.3	26.11	54,313	BA	N	N	B2 B8 B3 B7 SY1 B6 B9
Medical & Clinical Laboratory Technicians	1,500	1,730	1.5	20.36	42,344	AS	N	N	B2 B3 B7 B8 T5 B9
Dental Hygienists	2,065	2,320	1.2	32.92	68,467	AS	N	N	B2 B9 B3 B7 SO6
Diagnostic Medical Sonographers	555	695	2.4	29.86	62,106	AS	N	N	B9 B2 B7 SO6 B3 B6 B8 R4
Radiologic Technologists	2,530	2,710	0.7	23.85	49,602	AS	N	N	B9 B2 T4 SO5 SO1 B6 T5 SO6
Emergency Medical Technicians & Paramedics	2,315	2,695	1.6	15.94	33,165	PS	N	N	B3 SO5 B2 SO6 B9
Pharmacy Technicians	3,735	4,245	1.4	14.16	29,456	HS	N	M	B2 B7 B9 B3 SO5 SO6
Veterinary Technologists & Technicians	650	820	2.6	15.07	31,345	AS	N	N	B3 B6 B2 B9 SO5
Licensed Practical & Licensed Vocational Nurses	7,585	8,370	1.0	19.10	39,733	PS	N	N	B2 B9 B7 B3 SO6 R4
Medical Records & Health Information Technicians	1,990	2,240	1.2	18.83	39,176	PS	N	N	B2 B7 B9 B3 B6 R4
Opticians, Dispensing	925	1,130	2.2	14.61	30,396	HS	N	L	B9 B2 B7 B1 B3 SO5 SO6
Health Technologists & Technicians, All Other	1,375	1,645	2.0	19.48	40,524	HS	N	N	
Healthcare Practitioners & Technical Wkrs, All Other	705	845	2.0	20.56	42,767	PS	N	N	B2 B9 B3 C1 SY1 SO6 B10
Healthcare Support Occupations	50,140	59,355	1.8	13.84	28,793				
Occupational Therapy Assistants	360	520	4.3	25.83	53,717	AS	N	N	B7 B2 SY1 SO6 B9 R4 B10
Physical Therapist Assistants	805	1,115	3.9	22.10	45,966	AS	N	N	B9 B2 SO6 B6 SO1 B3 B7 B10
Physical Therapist Aides	705	935	3.2	13.62	28,319	HS	N	S	B2 SO5 SO1 SO5 B9
Massage Therapists	890	1,105	2.4	19.06	39,642	PS	N	N	B2 B9 SO5 B3 SO6
Dental Assistants	2,870	3,225	1.2	18.18	37,823	PS	N	N	B9 B2 B7 SO5 B3
Medical Assistants	3,705	4,380	1.8	15.37	31,973	PS	N	N	B2 B9 SO6 B6 B7
Medical Transcriptionists	1,980	1,905	-0.4	15.77	32,793	PS	N	N	B2 B7 B10 B9 R4
Veterinary Assistants & Laboratory Animal Caretakers	820	940	1.5	11.77	24,491	HS	N	S	B2 B6 B3 B7 SO5 SO6
Installation, Maintenance, & Repair Occupations	70,155	77,670	1.1	20.90	43,477				
Computer, Automated Teller, & Office Machine Repairers	1,860	1,965	0.6	18.29	38,040	SC	N	S	T5 B3 T4 T8 B2
Telecom Equipment Installers & Repairers, Ex Line Installers	2,235	2,135	-0.4	26.38	54,868	PS	N	M	T5 T8 T11 B2 C1 B3 T1 T9
Automotive Service Technicians & Mechanics	9,820	10,675	0.9	18.64	38,780	PS	N	S	T1 T9 T11 T2 T8
Farm Equipment Mechanics & Service Technicians	2,090	2,290	0.9	18.59	38,667	HS	N	L	T9 T1 T11 T8 B3 T4 T5
Control & Valve Installers & Repairers, Ex Mechanical Door	540	560	0.4	26.32	54,741	HS	N	M	B3 T5 T4 B2 C1 T1 SY1 B6
Heating, Air Conditioning, & Refrigeration Mechanics & Installers	3,315	3,940	1.9	23.80	49,499	PS	N	L	T3 T11 T9 T1 T5
Electrical Power-Line Installers & Repairers	1,690	1,835	0.9	29.38	61,116	HS	N	L	B2 B6 B3 T11 B1 C1 SY1 T4 T5 T8 T9
Telecommunications Line Installers & Repairers	1,190	1,325	1.1	21.08	43,855	HS	N	L	B2 B3 T4 T5 T11
Wind Turbine Service Technicians	255	560	12.0	26.41	54,931	SC	N	L	T9 T11 T1 B3 T5
Installation, Maintenance, & Repair Wkrs, All Other	3,035	3,230	0.6	18.16	37,781	HS	N	M	
Production Occupations	167,720	172,880	0.3	16.49	34,302				
Computer-Controlled Machine Tool Operators, Metal & Plastic	2,825	3,425	2.1	17.28	35,937	HS	N	M	B6 T5 B3 T8 T4
Welders, Cutters, Solderers, & Brazers	8,510	9,140	0.7	17.42	36,234	HS	N	M	B3 B2 B6 SY1 T4 T5
Weld/Solder/Braze Machine Setters, Operators, & Tenders	1,570	1,315	-1.6	17.23	35,831	HS	N	M	T5 B2 B3 B6 T4 B9
Chemical Equipment Operators & Tenders	775	835	0.8	20.70	43,049	HS	N	M	T5 T4 B6 B2 B3 SY1 B7

Legend/Methodology/Selection Criteria:

The acronym **STEM**, as used in this publication, is a combined *occupational* group made up of occupations (residual or undefined occupations were not included) from existing and/or established occupational groups adopted from the Office of Management and Budget's (OMB) Standard Occupational Classification (SOC) Manual. The Occupational Information Network (O*NET) and Iowa Workforce Development determined those occupations having a preponderance of tools and skills from Science, Technology, Engineering, and/or Mathematics.

[1] Employment includes: **Estimated** = Estimation of labor force by occupation (rounded); **Projected** = Projection of future labor force by occupation (rounded); and **Annual Growth Rate (%)** = Ten year growth rate (not shown) divided by ten. **[2]**

Mean (Average) Wage & Salary (\$) = dividing the estimated total pay for an occupation by its weighted employment. Pay provided in wage (hourly) and salary (annual) formats; Missing pay data may be derived from calculation or proration of reported wage/salary data if available (i.e., legislator pay based on 4-months service, education and coaching pay based on 12-months service); Occupations with limited or no compensation data (which inhibits either wage or salary calculated derivations) are subsequently omitted from any methodological calculations. **[3] Career Preparation** determined by the U.S. Department of Labor's Bureau of Labor Statistics (BLS). Alternative employment pathways may exist as well as differing educational, training, or licensing requirements per state. Iowa requirements are used in this publication when available. Career Preparation areas/levels include: **Education** (typical education level needed to enter an occupation): DP = Doctoral or Professional degree; MA = Master's degree; BA = Bachelor's degree; AS = Associate's degree; PS = Postsecondary non-degree award; SC = Some college, no degree; HS = High school diploma or equivalent; < HS = Less than high school; **Work Experience** (typical work experience level commonly considered necessary for entry into an occupation, or substitutable for formal types of training): > 5 = 5 years or more; < 5 = Less than 5 years; N = None; and **Job Training** (typical on-the-job training level needed to attain occupational competency): I = Internship/residency; A = Apprenticeship; L = Long-term on-the-job training; M = Moderate-term on-the-job training; S = Short-term on-the-job training; None = N. **[4] Top Skills** refers to the top five (or more if tied) most important skills for a particular occupation as identified by sampled workers' questionnaire responses conducted by occupational analysts of the U.S. Department of Labor's Occupational Information Network (O*NET). These include: **Basic Skills**: B1 = Active Learning; B2 = Active Listening; B3 = Critical Thinking; B4 = Learning Strategies; B5 = Mathematics; B6 = Monitoring; B7 = Reading Comprehension;

B8 = Science; B9 = Speaking; B10 = Writing; **Complex Problem Solving Skills**: C1 = Complex Problem Solving; **Resource Management Skills**: R1 = Management of Financial Resources; R2 = Management of Material Resources; R3 = Management of Personnel Resources; R4 = Time Management; **Social Skills**: SO1 = Coordination; SO2 = Instructing; SO3 = Negotiation; SO4 = Persuasion; SO5 = Service Orientation; SO6 = Social Perceptiveness; **Systems Skills**: SY1 = Judgment and Decision Making; SY2 = Systems Analysis; SY3 = Systems Evaluation; and **Technical Skills**: T1 = Equipment Maintenance; T2 = Equipment Selection; T3 = Installation; T4 = Operation and Control; T5 = Operation Monitoring; T6 = Operations Analysis; T7 = Programming; T8 = Quality Control Analysis; T9 = Repairing; T10 = Technology Design; T11 = Troubleshooting. N.A. = Not Available.

Sources:

Education/Work Experience/Job Training: Bureau of Labor Statistics, U.S. Department of Labor; **Employment:** 2014-2024 Occupational Projections estimates based on 2014 annual industry employment data and 2015 2nd quarter occupational staffing pattern data, Labor Market and Workforce Information Division, Iowa Workforce Development; **Skills:** Occupational Information Network (O*NET), Employment and Training Administration, U.S. Department of Labor; **Wages:** 2016 Iowa Wage Survey estimates (based on 2015 2nd quarter occupational wage data updated to 2016 2nd quarter using Employment Cost Index), Labor Market and Workforce Information Division, Iowa Workforce Development. This workforce product was funded by a grant awarded by the U.S. Department of Labor's Employment and Training Administration. The product was created by the recipient and does not necessarily reflect the official position of the U.S. Department of Labor. The Department of Labor makes no guarantees, warranties, or assurances of any kind, express or implied, with respect to such information, including any information on linked sites and including, but not limited to, accuracy of the information or its completeness, timeliness, usefulness, adequacy, continued availability, or ownership. This product is copyrighted by the institution that created it. Internal use by an organization and/or personal use by an individual for non-commercial purposes is permissible. All other uses require the prior authorization of the copyright owner. This publication was produced by the Labor Market and Workforce Information Division of Iowa Workforce Development. Revisions and/or corrections made when necessary. Inquiries may be directed to Brent Paulson at 515.281.3439 or Brent.Paulson@iwd.iowa.gov. Visit www.iowalmi.gov to obtain the latest workforce data and trends including this document. Published 11/2016.