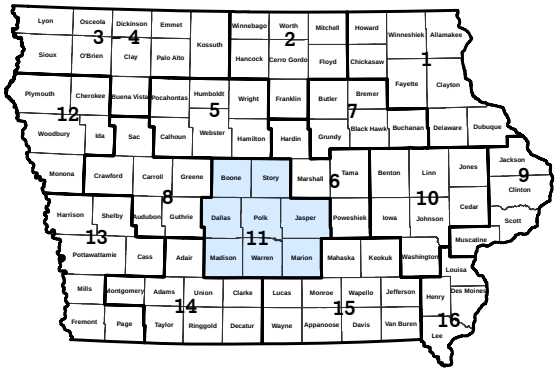
2012-2022 DECEMBER 2015

IOWA WORKFORCE DEVELOPMENT

REGION 11

STEM JOBS



STEM OCCUPATIONS BY GROUP

REGION 11

Occupational Title	Employment[1] 2012 Est	Employment[1] 2022 Proj	Employment[1] Annual Growth Rate (%)	$ [2] 2015 Mean Wage	$ [2] 2015 Mean Salary	Career Preparation[3] Educ	Career Preparation[3] Work Exp	Career Preparation[3] Job Training	Top Skills[4] (L-R in order of significance)								
Total, All Occupations	**453,900**	**518,520**	**1.4**	**22.07**	**45,907**												
Management Occupations	**40,670**	**42,775**	**0.5**	**47.26**	**98,296**												
Computer & Information Systems Managers	1,185	1,490	2.6	57.91	120,463	BA	> 5	N	B7	B2	B3	C1	B6	B10			
Financial Managers	2,635	3,185	2.1	59.65	124,070	BA	> 5	N	C1	B3	B2	B7	SY1	B9	B10		
Industrial Production Managers	565	625	1.1	42.16	87,699	BA	> 5	N	SO1	B2	B6	R3	R4				
Farmers, Ranchers, & Other Agricultural Managers	16,870	14,935	-1.1	33.72	70,145	HS	> 5	N	B3	B9	B2	SY1	B7	R4			
Construction Managers	860	1,085	2.6	37.04	77,039	BA	N	M	R4	B2	B3	R3	B9				
Architectural & Engineering Managers	260	290	1.2	51.58	107,282	BA	> 5	N	B2	B7	B9	B10	C1	SO1	R3	B6	T6	R4
Medical & Health Services Managers	1,220	1,515	2.4	39.97	83,132	BA	N	N	B7	B9	B2	B3	SY1				
Business & Financial Operations Occupations	**29,795**	**35,170**	**1.8**	**31.50**	**65,524**												
Compliance Officers	785	890	1.3	31.25	65,003	BA	N	M	B1	B3	B9	C1	B7				
Cost Estimators	485	600	2.4	29.24	60,824	BA	N	N	B5	B3	B9	B2	SY1				
Logisticians	315	405	2.9	31.46	65,446	BA	N	N	B3	B2	C1	B6	B7				
Accountants & Auditors	3,960	4,685	1.8	32.71	68,030	BA	N	N	B2	B5	B7	B10	B9				
Budget Analysts	160	180	1.3	34.02	70,771	BA	N	N	B2	B7	B9	B3	SY1				
Credit Analysts	825	1,020	2.4	37.33	77,638	BA	N	N	B3	B1	B2	SY1	B7	B9			
Financial Analysts	1,285	1,555	2.1	37.96	78,953	BA	N	N	B3	B7	B10	B2	C1				
Personal Financial Advisors	735	995	3.5	38.35	79,764	BA	N	N	B3	B9	B7	SY1	B10				
Insurance Underwriters	1,375	1,440	0.5	30.32	63,072	BA	N	M	B2	SY1	B7	B3	B9				
Financial Examiners	405	455	1.2	32.92	68,475	BA	N	M	B3	B7	B9	B1	B2	SO2	SY1	R4	B10
Computer & Mathematical Occupations	**13,995**	**17,735**	**2.7**	**36.26**	**75,415**												
Computer Systems Analysts	3,245	4,395	3.5	38.03	79,102	BA	N	N	B3	B2	B7	B9	SY2				
Information Security Analysts	235	340	4.3	35.32	73,458	BA	< 5	N	B7	B3	C1	B9	B2	B10			
Computer Programmers	800	905	1.3	33.91	70,529	BA	N	N	T7	B7	C1	B3	B2	T8			
Software Developers, Applications	2,790	3,605	2.9	39.46	82,067	BA	N	N	C1	T7	SY2	SY1	SY3				
Software Developers, Systems Software	765	985	2.9	49.11	102,140	BA	N	N	B3	B2	T7	B7	C1				
Web Developers	440	550	2.5	31.97	66,488	AS	N	N	T7	B3	T6	B2	C1	B7			
Database Administrators	410	520	2.7	41.95	87,264	BA	< 5	N	C1	B3	B6	B1	B2	B7			
Network & Computer Systems Administrators	1,410	1,695	2.1	34.14	71,021	BA	N	N	B3	B7	SY2	C1	SY1	B6	SY3		
Computer Network Architects	490	595	2.0	45.36	94,351	BA	> 5	N	B2	T6	SY2	B1	C1				
Computer User Support Specialists	1,430	1,805	2.6	21.34	44,392	SC	N	M	B2	B9	B7	B3	B10				
Computer Network Support Specialists	800	865	0.8	27.64	57,492	AS	N	N									
Actuaries	330	465	4.1	45.49	94,615	BA	N	L	B5	B3	SY1	C1	B7				
Operations Research Analysts	225	305	3.6	34.91	72,622	BA	N	N	B3	B5	C1	B7	SY1	SY2	SY3		
Architecture & Engineering Occupations	**5,020**	**5,665**	**1.3**	**32.87**	**68,370**												
Architects, Ex Landscape & Naval	355	425	2.0	33.29	69,233	BA	N	I	B2	B3	C1	B9	SY1	B7			
Civil Engineers	885	1,070	2.1	37.52	78,037	BA	N	N	C1	B3	SY1	B5	T6	B7			
Industrial Engineers	550	630	1.5	36.89	76,721	BA	N	N	B7	B2	C1	B3	B10				
Mechanical Engineers	465	540	1.5	36.96	76,868	BA	N	N	C1	B3	B2	SY1	B5	B7			
Civil Engineering Technicians	420	420	0.0	25.48	53,001	AS	N	N	B7	B2	B3	B10	B9				
Life, Physical, & Social Science Occupations	**5,035**	**5,575**	**1.1**	**30.04**	**62,489**												
Food Scientists & Technologists	185	220	1.9	32.44	67,475	BA	N	N	B2	B7	B10	B1	B3	B9			
Soil & Plant Scientists	1,370	1,495	0.9	36.49	75,905	BA	N	N	B8	B2	B3	B9	SY1	B7			
Environmental Scientists & Specialists, Incl Health	255	280	1.0	30.85	64,166	BA	N	N	B8	B3	B7	B9	B2	B10			
Clinical, Counseling, & School Psychologists	220	250	1.4	39.23	81,605	DP	N	I	B2	B7	SO6	B9	B10				
Agricultural & Food Science Technicians	530	595	1.3	17.44	36,282	AS	N	M	B7	B3	B10	B2	C1	SO1	B9		
Biological Technicians	470	460	-0.2	19.15	39,841	BA	N	N	B7	B2	B3	B8	C1				
Chemical Technicians	230	255	1.1	N.A.	N.A.	AS	N	M	B8	B7	B3	B6	B10				
Education, Training, & Library Occupations	**27,970**	**31,210**	**1.2**	**23.08**	**48,008**												
Business Teachers, Postsecondary	465	540	1.6	46.41	96,525	DP	N	N	B9	B7	B10	SO2	B2	B3	B4		
Engineering Teachers, Postsecondary	345	385	1.3	N.A.	N.A.	DP	N	N	SO2	B2	B7	B3	SY1	B4	B6	B10	
Biological Science Teachers, Postsecondary	275	330	2.0	41.77	86,878	DP	N	N	B9	B4	B7	B10	B2	SO2	B8		
Health Specialties Teachers, Postsecondary	545	750	3.7	44.35	92,238	DP	< 5	N	B7	B9	SO2	B3	B2	C1	B4	B10	
Nursing Instructors & Teachers, Postsecondary	255	350	3.7	N.A.	N.A.	MA	< 5	N	B9	B7	B1	B2	SO2				
Arts, Design, Entertainment, Sports, & Media Occupations	**8,680**	**9,730**	**1.2**	**20.90**	**43,467**												
Graphic Designers	930	1,050	1.3	21.49	44,692	BA	N	N	B2	T6	B9	B10	B3	B7			
Protective Service Occupations	**7,480**	**8,270**	**1.1**	**21.26**	**44,217**												
Firefighters	615	660	0.8	17.34	36,059	PS	N	L	B2	SO1	B3	T5	B6	T4	SO5		
Food Preparation & Serving Related Occupations	**32,765**	**36,615**	**1.2**	**9.64**	**20,045**												
First-Line Supervisors of Food Preparation & Serving Workers	2,140	2,470	1.5	14.74	30,668	HS	< 5	N	B9	B2	SO1	SO5	R3	B6			
Cooks, Institution & Cafeteria	1,655	1,855	1.2	12.01	24,973	< HS	N	S	R4	B2	B3	B6	B7	SO5			

STEM OCCUPATIONS BY GROUP

Occupational Title	Employment[1]			$ [2]		Career Preparation[3]			Top Skills[4] (L-R in order of significance)										
	2012 Est	2022 Proj	Annual Growth Rate (%)	2015 Mean Wage	2015 Mean Salary	Educ	Work Exp	Job Training											
Healthcare Practitioners & Technical Occupations	**21,490**	**25,960**	**2.1**	**35.82**	**74,498**														
Dentists, General	270	310	1.5	89.52	186,197	DP	N	N	B3	SY1	B2	B6	SO6	B9					
Dietitians & Nutritionists	245	290	1.8	25.09	52,188	BA	N	I	B2	B9	B10	B3	SO1	B7	SO6				
Optometrists	165	205	2.4	72.81	151,449	DP	N	N	B8	B2	B3	B9	SO1	B7	SO5				
Pharmacists	1,000	1,170	1.8	43.54	90,566	DP	N	N	B2	B7	B1	B3	B9						
Family & General Practitioners	835	955	1.4	106.49	221,497	DP	N	I	B2	B3	B9	B8	SO6						
Physician Assistants	200	270	3.5	40.19	83,591	MA	N	N	B2	B3	B9	B7	SY1	B6	SO6				
Occupational Therapists	315	425	3.5	35.53	73,898	MA	N	N	B2	B7	B9	B3	SO5	SO6					
Physical Therapists	460	610	3.3	36.80	76,539	DP	N	N	B2	B9	B7	B3	SO6	R4					
Speech-Language Pathologists	275	360	3.1	32.26	67,096	MA	N	N	B2	SO6	B9	B3	B7	B10					
Veterinarians	340	380	1.3	48.73	101,357	DP	N	N	B8	B2	B3	B9	SY1	B7					
Registered Nurses	7,965	9,525	2.0	27.12	56,414	AS	N	N	SO6	B2	SO1	B9	B3	B7	SO5				
Nurse Practitioners	320	430	3.4	45.75	95,166	MA	N	N	B2	B7	B8	B9	B3	B6	SO6				
Medical & Clinical Laboratory Technologists	345	375	0.9	26.78	55,703	BA	N	N	B2	B8	B3	B7	SY1	B6	B9				
Medical & Clinical Laboratory Technicians	370	465	2.6	19.14	39,809	AS	N	N	B2	B3	B7	B8	T5	B9					
Dental Hygienists	555	715	2.9	34.01	70,747	AS	N	N	B2	B9	B3	B7	SO6						
Diagnostic Medical Sonographers	270	400	4.8	30.04	62,478	AS	N	N	B9	B2	B7	SO6	B3	B6	B8	R4			
Radiologic Technologists	605	735	2.1	24.96	51,913	AS	N	N	B9	B2	T4	SO5	SO1	B6	T5	SO6			
Emergency Medical Technicians & Paramedics	455	520	1.3	19.13	39,784	PS	N	N	B3	SO5	B2	SO6	B9						
Pharmacy Technicians	1,010	1,225	2.1	14.24	29,628	HS	N	M	B2	B7	B9	B3	SO5	SO6					
Veterinary Technologists & Technicians	290	365	2.6	16.89	35,140	AS	N	N	B3	B6	B2	B9	SO5						
Licensed Practical & Licensed Vocational Nurses	1,375	1,700	2.4	19.54	40,638	PS	N	N	B2	B9	B3	B7	SO1	SO5					
Medical Records & Health Information Technicians	470	565	2.0	18.80	39,105	PS	N	N	B2	B7	B9	B3	B6	R4					
Opticians, Dispensing	230	275	2.0	15.95	33,170	HS	N	L	B9	B2	B7	B1	B3	SO5	SO6				
Occupational Health & Safety Specialists	225	255	1.3	30.16	62,726	BA	N	S	B2	B9	B3	C1	SY1	SO6	B10				
Healthcare Support Occupations	**10,035**	**12,205**	**2.2**	**14.28**	**29,697**														
Occupational Therapy Assistants	110	165	5.5	25.84	53,757	AS	N	N	B7	B2	SY1	SO6	B9	R4	B10				
Physical Therapist Assistants	195	275	4.1	22.65	47,111	AS	N	N	B9	B2	SO6	B6	SO1	B3	B7	B10			
Massage Therapists	260	345	3.1	15.77	32,792	PS	N	N	B2	B9	SO5	B3	SO6						
Dental Assistants	560	675	2.1	18.55	38,588	PS	N	N	B9	B2	B7	SO5	B3						
Medical Assistants	1,225	1,540	2.6	16.51	34,333	PS	N	N	B2	B9	SO6	B6	B7						
Construction & Extraction Occupations	**18,210**	**23,000**	**2.6**	**21.62**	**44,970**														
Electricians	2,190	2,725	2.5	26.11	54,303	HS	N	A	T11	T9	B2	B3	T5	T8					
Plumbers, Pipefitters, & Steamfitters	1,410	1,805	2.8	24.24	50,417	HS	N	A	SO1	R4	B3	T5	B2	SY1	B6	B9			
Installation, Maintenance, & Repair Occupations	**17,990**	**20,710**	**1.5**	**21.27**	**44,239**														
Computer, Automated Teller, & Office Machine Repairers	590	645	1.0	19.90	41,389	SC	N	N	T5	B3	T4	T8	B2						
Telecom Equipment Installers & Repairers, Ex Line Installers	790	810	0.3	29.02	60,370	PS	N	M	T5	T8	T11	B2	C1	B3	T1	T9			
Automotive Service Technicians & Mechanics	2,510	2,865	1.4	19.65	40,873	HS	N	L	T1	T9	T11	T2	T8						
Farm Equipment Mechanics & Service Technicians	520	575	1.1	19.86	41,310	HS	N	L	T9	T1	T11	T8	B3	T4	T5				
Heating, AC, & Refrigeration Mechanics & Installers	1,160	1,475	2.7	24.91	51,818	PS	N	L	T3	T11	T9	T1	T5						
Electrical Power-Line Installers & Repairers	245	285	1.6	25.70	53,453	HS	N	L	B2	B6	B3	T11	B1	C1	SY1	T4	T5	T8	T9
Telecommunications Line Installers & Repairers	275	330	2.2	17.76	36,939	HS	N	L	B2	B3	T4	T5	T11						
Production Occupations	**28,450**	**31,310**	**1.0**	**16.48**	**34,272**														
Food Batchmakers	245	250	0.4	14.18	29,488	HS	N	M	T4	B6	B7	T5	B2	B9					
Computer-Controlled Machine Tool Operators, Metal & Plastic	845	1,060	2.5	N.A.	N.A.	HS	N	M	B6	T5	B3	T8	T4						
Welders, Cutters, Solderers, & Brazers	875	945	0.8	17.60	36,612	HS	N	M	B3	B2	B6	SY1	T4	T5					
Welding, Soldering, & Brazing Machine Operators	305	380	2.5	18.49	38,451	HS	N	M	T5	B2	B3	B6	T4	B9					
Water & Wastewater Treatment Plant & System Operators	270	290	0.9	26.37	54,858	HS	N	L	T4	T5	B6	T8	B2	T1	B7	T11			

Legend/Methodology/Selection Criteria:
The acronym **STEM,** as used in this publication, is a combined *occupational g*roup 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 **S**cience, **T**echnology, **E**ngineering, and/or **M**athematics.

[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 the top five (or more if tied) most important skills for a particular occupation as identified by sampled workers' questionaire 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:** 2012-2022 Occupational Projections estimates based on 2012 annual industry employment data and 2013 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:** 2015 Iowa Wage Survey estimates (based on 20143 2nd quarter occupational wage data updated to 2015 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 11/2015.