

STEM Occupations Top Openings

2012-2022

Missouri's Science, Technology, Engineering and Math (STEM) Occupations are expected to be strong contributors to Missouri's future workforce. This includes openings created by new job growth, as well as those created through the need for replacement workers. Replacement openings occur due to retirement, turnover, or transferring to another occupation.

STEM occupations are generally higher paying than the Missouri average, and most require a Bachelor's degree or higher of education. All of the 20 Top Opening STEM occupations have a Grade A or B outlook in terms of having above average growth, openings, or wages.

Career Grade	Occupation Title	2012		2022		Openings Due to		Total Openings	2013 Average Wage
		Estimated Employment	Projected Employment	Growth	Replacement				
A	Computer User Support Specialists	14,430	16,614	2,184	2,268	4,452	\$47,667		
A+	Computer Systems Analysts	10,948	13,105	2,157	1,720	3,877	\$80,088		
A+	Software Developers, Applications	11,747	13,465	1,718	1,506	3,224	\$85,772		
B	Computer Programmers	8,863	9,054	191	2,315	2,506	\$71,515		
B+	Network and Computer Systems Administrators	8,661	9,340	679	1,361	2,040	\$69,640		
A	Computer and Information Systems Managers	6,135	6,863	728	852	1,580	\$110,412		
A	Civil Engineers	3,948	4,551	603	960	1,563	\$71,351		
B+	Mechanical Engineers	3,713	3,980	267	1,267	1,534	\$78,993		
B	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	5,806	6,174	368	1,132	1,500	\$65,849		
B+	Industrial Engineers	3,623	3,891	268	1,059	1,327	\$77,805		
B+	Electrical Engineers	3,362	3,612	250	734	984	\$88,513		
B	Database Administrators	3,694	3,897	203	698	901	\$76,224		
B+	Architectural and Engineering Managers	2,567	2,774	207	630	837	\$117,133		
A	Software Developers, Systems Software	3,014	3,437	423	386	809	\$99,086		
B+	Computer Network Architects	3,010	3,295	285	473	758	\$96,300		
B	Chemists	2,134	2,283	149	553	702	\$68,976		
A	Biochemists and Biophysicists	1,300	1,613	313	371	684	\$79,268		
A	Information Security Analysts	1,493	1,911	418	235	653	\$78,496		
B	Web Developers	2,153	2,419	266	338	604	\$59,007		
B	Agricultural and Food Science Technicians	1,203	1,333	130	434	564	\$44,413		

Data Sources: Missouri Economic Research and Information Center (MERIC) Long-term Occupational Projections, MERIC Occupational Employment and Wage Survey, and U.S. Bureau of Labor Statistics. Career Grades are assigned by analyzing an occupations percentage change, total openings and average wage relative to all other occupations in the state. An occupations combination of scores on these three variables determines its Career Grade. Product funded by the U.S. Employment and Training Administration (ETA) Workforce Information Grant. October 2014



STEM Jobs by Discipline

The chart below illustrates each STEM Discipline and its top five job openings for the state of Missouri in the past year.

	S Science	T Technology	E Engineering	M Mathematics
Top Occupations	Food Prep & Server Supervisors	Applications Software Developers	Mechanical Engineers	Accountants
	Medical Scientists	Computer System Analysts	Electrical Engineers	Operations Research Analysts
	Architectural & Engineering Managers	Computer User Support Specialists	Architectural & Engineering Managers	Postsecondary Business Teachers
	Chemists	Database Administrators	Construction Managers	Risk Management Specialists
	Chemical Engineers	Computer Programmers	Chemical Engineers	Actuaries
Specialized Skills	Chemistry	Software Engineering	Mechanical Engineering	Accounting
	Biology	Business Process	Electrical Engineering	Financial Reporting
	Experiments	Database Administration	Repair	General Ledger
	Scheduling	Relational Databases	Scheduling	Mathematics
	Chemical Engineering	Software Development	Inspection	Risk Management
Software & Programming Skills	Microsoft Office	SQL	Microsoft Office	Microsoft Office
	UNIX	Oracle	CAD	SAP
	LINUX	JAVA	AutoCAD	SQL
	PERL	Microsoft Office	Revit	Oracle
	JAVA	UNIX	SAP	SAS

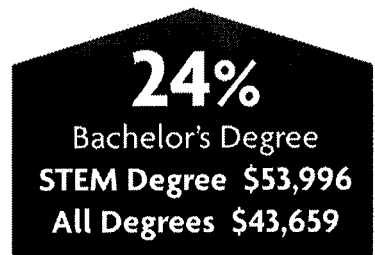
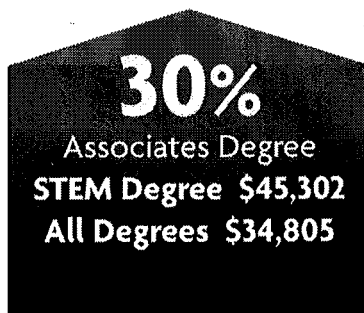
Source: Burning Glass Technologies, Labor/Insight Tool (December 1, 2012 - November 30, 2013).

STEM Pays

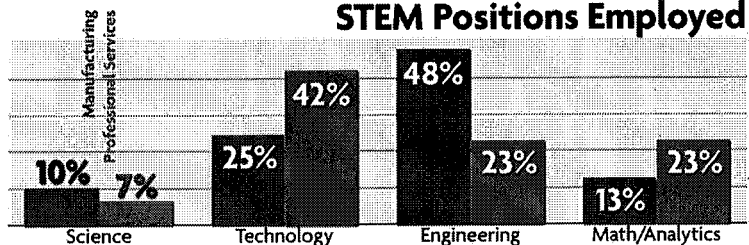
Wages of St. Louis STEM Graduates

Science Technician / Professional and Technical Services	Associates Degree	\$42,403
Science Technician / Other Industries		\$38,726
Biological / Hospitals		\$41,101
Biological / Professional and Technical Services		\$45,163
Biological / Company Headquarters		\$62,129
Physical Sciences / Chemical Manufacturing		\$78,713
Physical Sciences / Other Industries		\$72,202
Technology / Professional and Technical Services		\$60,616
Technology / Administrative and Support Services		\$84,154
Technology / Company Headquarters		\$57,643
Engineering / Professional and Technical Services		\$69,697
Engineering / Company Headquarters		\$84,851
Engineering / Machinery Manufacturing		\$59,949
Mathematics / Education Services		\$50,849
Mathematics / Other Industries	Bachelor's Degree	\$61,845

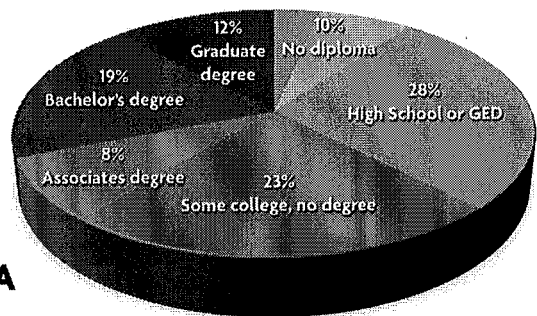
STEM Degrees Pay More



STEM Positions Employed

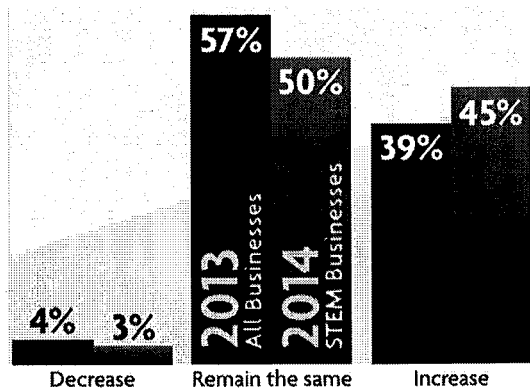


Educational Attainment of St. Louis MSA

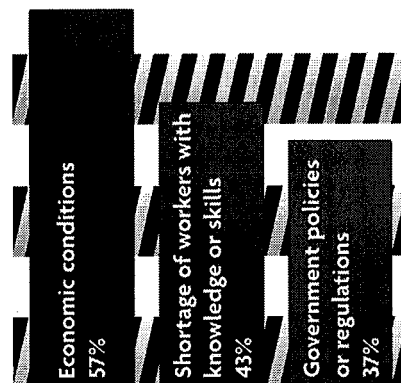


Employer Outlook

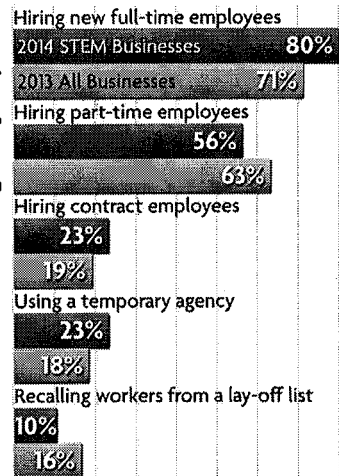
Future Plans to Change Employment Levels



Barriers to Expanding Employment



Methods for Adding Employees



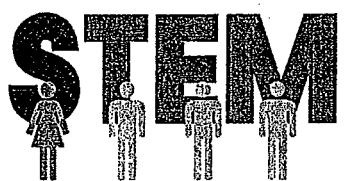


The State of Girls and Women in STEM

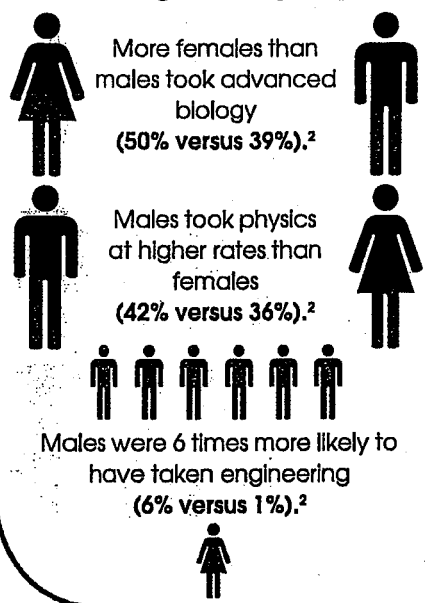
June 2013

K-12 Education

Girls and boys do not significantly differ in their abilities in mathematics and science, but do differ in their interest and confidence in STEM subjects. Male students are over three times more likely to be interested in STEM majors and careers, compared to female students.¹

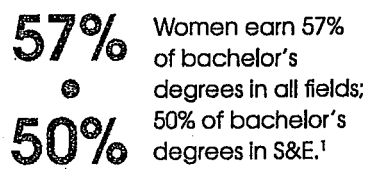


In 2009, girls and boys earned credits in advanced mathematics and science at similar rates. However, gender differences in advanced coursetaking varied by subject:



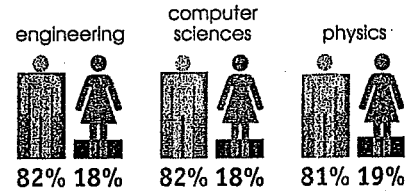
Higher Education

The rates of science and engineering (S&E) coursetaking for women shift at the undergraduate level and gender disparities begin to emerge.



Within S&E, men and women tend to study different fields.

Men earn a majority of bachelor's degrees awarded in:¹



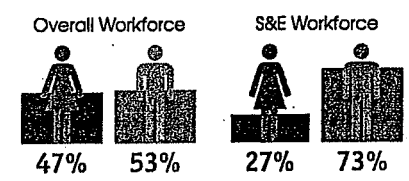
Women earn a majority of bachelor's degrees in psychology, biological sciences, and social sciences.¹

Underrepresented minority women make up 16% of the population, but only earn:

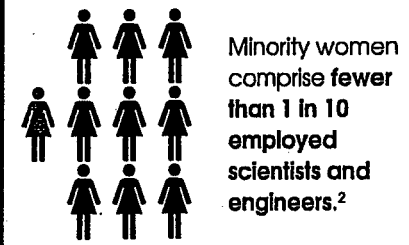
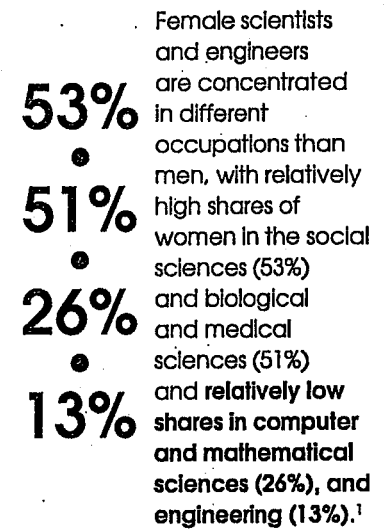
- 3% of bachelor's degrees in engineering
- 5% of bachelor's degrees in computer sciences
- 6% of bachelor's degrees in physical sciences²

STEM Workforce

Women remain underrepresented in the science and engineering workforce, with the greatest disparities occurring in engineering, computer sciences, and physical sciences.



Women constitute 47% of the overall workforce and 27% of the S&E workforce.¹



¹ STEMconnector & My College Options. (2013). *Where are the STEM Students? What are their Career Interests? Where are the STEM Jobs?*

² National Science Board. (2012). *Science and Engineering Indicators 2012*. Arlington VA: National Science Foundation (NSB 12-01).

¹ National Science Board. (2012). *Science and Engineering Indicators 2012*. Arlington VA: National Science Foundation (NSB 12-01).

² National Science Foundation, National Center for Science and Engineering Statistics. (2013). *Women, Minorities, and Persons with Disabilities in Science and Engineering: 2013*. Special Report NSF 13-304. Arlington, VA.

¹ National Science Board. (2012). *Science and Engineering Indicators 2012*. Arlington VA: National Science Foundation (NSB 12-01).

² National Science Foundation, National Center for Science and Engineering Statistics. (2013). *Women, Minorities, and Persons with Disabilities in Science and Engineering: 2013*. Special Report NSF 13-304. Arlington, VA.