Beginning in 2009 and through today, St. Louis Community College has been pleased to report to the region on the state of the St. Louis workforce. During this time the St. Louis economy has experienced varying degrees of recession, retrenchment, and recovery. We believe that during this dynamic period the State of the St. Louis Workforce Report has provided critical intelligence that has helped employers, educators, and government officials make the strategic decisions necessary to grow our economy and build a skilled workforce.

These reports, developed under the leadership of the College’s Workforce Solutions Group, have consistently documented challenges to employers in finding and developing talent. They have also highlighted solutions such as accelerated training programs, work-based learning and partnerships among business, education, and government.

This year’s report is focused on STEM (Science, Technology, Engineering, and Mathematics), and for good reason. Attracting STEM jobs and employers is a primary focus of regional business and economic developers. STEM jobs typically are high wage and high demand but also are in short supply when it comes to qualified workers. It is for this reason that the 2014 report is titled State of the St. Louis STEM Workforce.

Annually, the results of our report are released publically with the College’s media partner, the St. Louis Business Journal, and aired on HEC-TV to expand the reach of the report. The State of St. Louis STEM Report and event involve the efforts of many. We would like to express our gratitude to the employers and research partners who assisted us this year, with special acknowledgement to the Missouri Economic Research and Information Center (MERIC).

We hope that you find this report useful. We also encourage you to download the full report and join us on Twitter (@stlworkforce) to continue the conversation about the future of the St. Louis workforce.

Dennis F. Michaelis, Ph.D.
Interim Chancellor

Download the full report at STLCC.edu/STLWorkforce

Why STEM?

Job Ads vs. Job Seekers

<table>
<thead>
<tr>
<th>Category</th>
<th>Job Ads</th>
<th>Gap</th>
<th>Job Seekers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science &amp; Technology</td>
<td>31.3%</td>
<td>-27.8%</td>
<td>3.6%</td>
</tr>
<tr>
<td>Business &amp; Sales</td>
<td>22.0%</td>
<td>11.1%</td>
<td>10.9%</td>
</tr>
<tr>
<td>Healthcare &amp; Related</td>
<td>15.7%</td>
<td>6.2%</td>
<td>9.6%</td>
</tr>
<tr>
<td>Food Service</td>
<td>3.6%</td>
<td>-4.5%</td>
<td>8.1%</td>
</tr>
<tr>
<td>Transportation &amp; Logistics</td>
<td>3.6%</td>
<td>-5.8%</td>
<td>9.4%</td>
</tr>
<tr>
<td>Production</td>
<td>1.2%</td>
<td>-9.6%</td>
<td>10.8%</td>
</tr>
<tr>
<td>Management &amp; Office Support</td>
<td>19.4%</td>
<td>-10.2%</td>
<td>29.6%</td>
</tr>
<tr>
<td>Construction &amp; Repair (CIMR)</td>
<td>3.1%</td>
<td>-14.9%</td>
<td>18.0%</td>
</tr>
</tbody>
</table>

Projected Growth of STEM & Non-STEM Occupations

- Missouri STEM: 10.2%
- Missouri Non-STEM: 8.5%
- St. Louis STEM: 12.4%
- St. Louis Non-STEM: 9.2%

Number of STEM Workers in Top STEM Industries in St. Louis

- 20,915 Professional, Scientific & Tech
- 19,189 Company Headquarters
- 4,209 Telecommunications
- 2,491 Data Processing & Related
- 7,682 Transportation & Logistics
- 4,209 Manufacturing

Average Wages

- Missouri STEM Occupations: $73,837
- Missouri Non-STEM Occupations: $40,135
- St. Louis STEM Occupations: $79,290
- St. Louis Non-STEM Occupations: $44,294

All “St. Louis” data is St. Louis MSA (MO-IL)
Finding The Right Skills

Skill Shortages by Area

9% Science 40% Technology 27% Engineering 23% Math

Communication skills continues as the top employer demand

Applicant Shortcomings

54% Lack of communication or interpersonal skills

58% Lack of critical thinking and problem solving

57% Lack of knowledge about business or industry

58% Poor work ethic

44% Inability to think creatively

42% Lack of writing skills

39% Lack of technical skills specific to the job

43% Lack of willingness and ability to learn

23% Lack of teamwork and collaboration

36% Inability to understand written and graphical info

22% Lack of computer skills

Basic Skills in greatest demand

- Communication Skills
- Organizational Skills
- Writing
- Problem Solving
- Leadership
- Troubleshooting
- Project Management
- Planning
- Research
- Management

Certificates in greatest demand

- Certified Information Systems Security Pro (CISSP)
- Project Management
- Security+
- Microsoft Certified Systems Engineer (MCSE)
- Cisco Certified Network Associate
- Cisco Certified Network Professional (CCNP)
- Capability Model Maturity Integration (CMMI)
- Public Relations
- IT Infrastructure Library
- Certified Information Systems Auditor (CISA)

Specialized Skills in greatest demand

- SQL
- Oracle
- JAVA
- LINUX
- JavaScript
- Software Engineering
- Extensible Markup Language (XML)
- Business Process
- Collaboration

Percentage of employers citing ...

Reasons for Skill Shortages

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of qualified new graduates in the discipline</td>
<td>75%</td>
<td>73%</td>
<td>61%</td>
<td>42%</td>
<td>71%</td>
<td>74%</td>
<td>62%</td>
<td>66%</td>
</tr>
<tr>
<td>Increased competition for qualified graduates</td>
<td>50%</td>
<td>64%</td>
<td>43%</td>
<td>57%</td>
<td>49%</td>
<td>61%</td>
<td>41%</td>
<td>72%</td>
</tr>
<tr>
<td>Rapidly changing technology and business environment</td>
<td>42%</td>
<td>36%</td>
<td>39%</td>
<td>58%</td>
<td>35%</td>
<td>52%</td>
<td>31%</td>
<td>47%</td>
</tr>
<tr>
<td>Prohibitive cost of training existing workforce</td>
<td>33%</td>
<td>27%</td>
<td>25%</td>
<td>30%</td>
<td>31%</td>
<td>26%</td>
<td>21%</td>
<td>38%</td>
</tr>
<tr>
<td>Other</td>
<td>8%</td>
<td>9%</td>
<td>20%</td>
<td>23%</td>
<td>24%</td>
<td>13%</td>
<td>17%</td>
<td>6%</td>
</tr>
</tbody>
</table>

The State of St. Louis Workforce Report is brought to you each year by the Workforce Solutions Group of St. Louis Community College. The Workforce Solutions Group, which is centrally located at the Corporate College, leverages education for growth in the knowledge economy by offering a robust menu of entrepreneurial workforce solutions designed to advance people, businesses and communities. Visit us at STLCC.edu/workforce
Finding The Right People

Experience Levels Required

- 4 or more years: 83%
- 1 to 3 years: 81%
- Less than 1 year: 75%

Education Levels Required

- High School or GED: 61%
- Post-secondary credential: 36%
- Associates degree: 31%
- Bachelor's degree: 39%
- Post-graduate degree: 51%

2014 STEM-Intensive Businesses

2013 All Businesses

51% of surveyed employers have STEM jobs

6% of the national workforce are STEM workers

Methods of Addressing Skill Shortages

- Forced to hire less experienced workers and train them: 71%
- Hiring from outside St. Louis MSA: 42%
- Offering increased wages: 33%
- Hiring contractors: 28%
- Don't know/not sure: 10%
- Hiring from outside U.S.: 6%
- Other measures: 7%

Methods of Skill Acquisition

On the job training and in-house classroom training remain the most utilized methods to assist current workers in skill acquisition.
STEM Pays

Wages of St. Louis STEM Graduates

<table>
<thead>
<tr>
<th>Field</th>
<th>Associates Degree</th>
<th>STEM Degree</th>
<th>All Degrees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science Technician / Professional and Technical Services Associates Degree</td>
<td>$42,403</td>
<td>$45,302</td>
<td>$34,805</td>
</tr>
<tr>
<td>Science Technician / Other Industries</td>
<td>$58,726</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biological / Hospitals</td>
<td>$41,101</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biological / Professional and Technical Services</td>
<td>$45,163</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biological / Company Headquarters</td>
<td>$62,129</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Sciences / Chemical Manufacturing</td>
<td>$78,713</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Sciences / Other Industries</td>
<td>$72,202</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technology / Professional and Technical Services</td>
<td>$60,616</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technology / Administrative and Support Services</td>
<td>$84,154</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technology / Company Headquarters</td>
<td>$55,109</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineering / Professional and Technical Services</td>
<td>$69,697</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineering / Company Headquarters</td>
<td>$87,138</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineering / Machinery Manufacturing</td>
<td>$65,259</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics / Education Services</td>
<td>$59,949</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics / Other Industries</td>
<td>$50,889</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor's Degree</td>
<td>$61,845</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

30% Associates Degree

STEM Degrees Pay More

24% Bachelor's Degree

STEM Degrees

STEM Positions Employed

12% Graduate degree

26% High School or GED

8% Associates degree

23% Some college, no degree

23% No diploma

19% Bachelor's degree

48% Engineering

42% Technology

25% Science

13% Math/Analytics

Educational Attainment of St. Louis MSA

Employer Outlook

Future Plans to Change Employment Levels

<table>
<thead>
<tr>
<th>Year</th>
<th>All Businesses Decrease</th>
<th>All Businesses Remain the same</th>
<th>All Businesses Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>4%</td>
<td>50%</td>
<td>45%</td>
</tr>
<tr>
<td>2014 STEM Businesses</td>
<td>3%</td>
<td>57%</td>
<td>45%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>STEM Businesses Decrease</th>
<th>STEM Businesses Remain the same</th>
<th>STEM Businesses Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>3%</td>
<td>39%</td>
<td>45%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Method for Adding Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hiring new full-time employees</td>
</tr>
<tr>
<td>Hiring part-time employees</td>
</tr>
<tr>
<td>Hiring contract employees</td>
</tr>
<tr>
<td>Using a temporary agency</td>
</tr>
<tr>
<td>Recalling workers from a lay-off list</td>
</tr>
<tr>
<td>Others</td>
</tr>
</tbody>
</table>

Barriers to Expanding Employment

<table>
<thead>
<tr>
<th>Reason</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic conditions</td>
<td>57%</td>
</tr>
<tr>
<td>Shortage of workers with knowledge or skills</td>
<td>43%</td>
</tr>
<tr>
<td>Government policies or regulations</td>
<td>37%</td>
</tr>
<tr>
<td>Barriers</td>
<td></td>
</tr>
</tbody>
</table>

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For source references, please download the full report.

Find out more!
STLCC.edu/STLworkforce

More with timely targeted intelligent

Workforce Solutions Group

St. Louis Community College