LABOR MARKET INFORMATION TRAINING MODULES

These modules were developed as part of JFF’s Greenforce Initiative in partnership with the National Wildlife Federation.

Please contact Sara Lamback (slamback@jff.org) with any questions regarding the content.
Part I: Analyzing and Applying Labor Market Information
1. Understand the definition of labor market information (LMI)
2. Understand key terms and concepts related to labor market information research
3. Understand the difference between traditional and real-time LMI (RT LMI)
4. Understand the benefits and limitations of both traditional and RT LMI
**Labor Market Information** can be defined as the systematic collection, analysis, reporting, and publishing of a broad range of data that describes current economic conditions within a given geographic area.

- Wages/benefits
- Unemployment rate
- Skill requirements
- Career information
- Projections
- Demographics
- Geography
- Company downsizing and expansion
- Job opportunities
- Industry trends
- Demand and growth
Labor market information can inform decisions related to workforce and economic development, education and training, and other key policies.

It is an important tool for a variety of stakeholders, including:

- Businesses
- Workforce agencies
- Researchers
- Colleges
- Policymakers
- Job seekers
- Students
WHY IS LABOR MARKET INFORMATION USEFUL FOR COLLEGES?

**Demand Driven Programming**
- **OUTCOMES:** Match and revise program offerings to economic demand

**Curriculum Content**
- **OUTCOMES:** Align learning outcomes to identified skill and qualification requirements

**Employer Engagement**
- **OUTCOMES:** Spur and enhance conversations with employers

**Career Guidance**
- **OUTCOMES:** Improve matching for student employment

*LMI Also adds significant value to overall strategic and administrative planning*
THE IMPORTANCE OF LMI

**Supply**
- Education enrollees
- Education completers
- Unemployed
- Employed

**Demand**
- New hires
- Replacement hires

**Strategic Alignment**
- Qualified job referrals
- Improved placements
- Improved employer relationships
- Improved counseling tools
- Sector strategy alignment
1. Understand the definition of labor market information (LMI)

2. Understand key terms and concepts related to LMI research

3. Understand the difference between traditional and real-time LMI (RT LMI)

4. Understand the benefits and limitations of both traditional and RT LMI
COMMON LMI CLASSIFICATION SYSTEMS

Industry
E.g., Agriculture

Occupation
E.g., Construction Worker

Program
E.g., Computer Science

NAICS
SOC
CIP
North American Industry Classification System (NAICS): These codes are used to classify businesses into 20 industry sectors, according to the type of economic activity in which an establishment is involved (e.g., manufacturing, agriculture)
The North American Industry Classification System (NAICS) is the standard used by federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy.

- Agriculture, Forestry, Fishing & Hunting (11)
- Mining (21)
- Utilities (22)
- Construction (23)
- Manufacturing (31-33)
- Wholesale Trade (42)
- Retail Trade (44-45)
- Transportation/Warehousing (48-49)
- Information (51)
- Finance & Insurance (52)
- Real Estate, Renting & Leasing (53)
- Professional, Scientific, & Technical Services (54)
- Management Services (55)
- Administrative and Support and Waste Management and Remediation Services (56)
- Educational Services (61)
- Health & Social Services (62)
- Arts, Entertainment & Recreation (71)
- Accommodation & Food Services (72)
- Other Private Services (81)
- Public Administration (92)

To learn more about NAICS: See [http://www.bls.gov/bls/naics.htm](http://www.bls.gov/bls/naics.htm)
### TOP 10 U.S. NAICS SECTORS BY EMPLOYMENT, 2015

<table>
<thead>
<tr>
<th>NAICS</th>
<th>Description</th>
<th>2015 Jobs</th>
<th>2010 - 2015 % Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>90</td>
<td>Government</td>
<td>24,235,811</td>
<td>(1%)</td>
</tr>
<tr>
<td>62</td>
<td>Health Care and Social Assistance</td>
<td>21,479,992</td>
<td>13%</td>
</tr>
<tr>
<td>44</td>
<td>Retail Trade</td>
<td>18,855,600</td>
<td>8%</td>
</tr>
<tr>
<td>72</td>
<td>Accommodation and Food Services</td>
<td>13,769,288</td>
<td>16%</td>
</tr>
<tr>
<td>54</td>
<td>Professional, Scientific, and Technical Services</td>
<td>13,097,549</td>
<td>12%</td>
</tr>
<tr>
<td>31</td>
<td>Manufacturing</td>
<td>13,032,746</td>
<td>8%</td>
</tr>
<tr>
<td>56</td>
<td>Administrative and Support and Waste Management and Remediation Services</td>
<td>11,908,009</td>
<td>15%</td>
</tr>
<tr>
<td>81</td>
<td>Other Services (except Public Administration)</td>
<td>10,397,432</td>
<td>4%</td>
</tr>
<tr>
<td>52</td>
<td>Finance and Insurance</td>
<td>10,171,975</td>
<td>10%</td>
</tr>
<tr>
<td>23</td>
<td>Construction</td>
<td>9,907,033</td>
<td>13%</td>
</tr>
</tbody>
</table>

*Source: EMSI Analyst 2015.4*
# Apple Orchards

<table>
<thead>
<tr>
<th>NAICS Level</th>
<th>NAICS Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic Sector</td>
<td>11</td>
<td>11: Agriculture</td>
</tr>
<tr>
<td>Subsector</td>
<td>111</td>
<td>111: Crop Production</td>
</tr>
<tr>
<td>Industry Group</td>
<td>3</td>
<td>1113: Fruit and Tree Nut Farming</td>
</tr>
<tr>
<td>NAICS Industry</td>
<td>3</td>
<td>11133: Non-citrus Fruit and Tree Nut Farming</td>
</tr>
<tr>
<td>National Industry</td>
<td>1</td>
<td>111331: Apple Orchards</td>
</tr>
</tbody>
</table>

11-111331
> **Standard Occupational Classification (SOC):** These six-digit codes classify workers into occupational categories; all workers are classified into one of 840 occupations (e.g., medical assistant, hydrologist, or machinist).
SOC covers all occupations. Occupations are classified based on work performed, and the skills, education, or training needed to perform the work competently.

The 23 Broad SOC Clusters are:

- Management
- Business & Financial Operations
- Computer & Mathematical Science
- Architecture & Engineering
- Life, Physical, & Social Science
- Community & Social Service
- Legal
- Education, Training, & Library
- Arts, Design, Entertainment, Sports, & Media
- Healthcare Practitioner & Technical
- Healthcare Support
- Protective Service
- Food Preparation & Serving Related
- Building & Grounds Cleaning & Maintenance
- Personal Care & Service
- Sales & Related
- Office & Administrative Support
- Farming, Fishing, & Forestry
- Construction & Extraction
- Installation, Maintenance, & Repair
- Production
- Transportation & Material Moving
- Military Specific Occupations
## COMPONENTS OF A SOC CODE

### SOC Code for Construction Workers

<table>
<thead>
<tr>
<th>SOC Level</th>
<th>SOC Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Group</td>
<td>47</td>
<td>47-0000: Construction and Extraction Occupations</td>
</tr>
<tr>
<td>Minor Group</td>
<td>2</td>
<td>47-2000: Construction Trade Workers</td>
</tr>
<tr>
<td>Broad Occupation</td>
<td>06</td>
<td>47-2060: Construction Laborers</td>
</tr>
<tr>
<td>Detailed Occupation</td>
<td>1</td>
<td>47-2061: Construction Laborers</td>
</tr>
</tbody>
</table>
MORE ON SOC CODES

Classification of Instructional Programs (CIP): A six-digit code that enables data to be collected and analyzed for a field of study or academic discipline within U.S. institutions of higher education.
Developed by the National Center for Educational Statistics (NCES) within the U.S. Education Department in 1980. CIP provides a classification scheme for accurate tracking, assessment, and reporting of fields of study and program completions activity.

**SAMPLE 2-DIGIT CIP SERIES**

- Agriculture, agriculture operations, and related sciences (01)
- Natural resources and conservation (03)
- Architecture and related services (04)
- Area ethnic, cultural, gender, and group Studies (05)
- Communication, Journalism, and related programs (09)
- Communications technologies/ technicians and support services (10)
- Computer and information sciences and support services (11)
- Personal and culinary services (12)
- Education (13)
- Engineering (14)
CIP Code for Computer Science Programs:

11: Computer and Information Sciences and Support Services

11.07: Computer Science

11.0701: A program that focuses on computer theory, computing problems and solutions, and the design of computer systems and user interfaces from a scientific perspective. Includes instruction in the principles of computational science, computer development and programming, and applications to a variety of end-use situations.
A region is your geographic unit of analysis; it can be defined in a variety of ways, such as:

- Nation
- State
- Metropolitan (or micropolitan) Statistical Area (MSA)
- Labor Market Area (LMA)
- Workforce Investment Area
- Multi-county area
- City
- County
- ZIP code
EXAMPLES OF REGIONS

> **Metropolitan Statistical Areas** (MSAs): large multi-county regions that describe major city economies.
  
  > Contain areas with at least one urban area with a population over 50,000

> **Labor Market Area** (LMAs): describe the integration between cities, towns, and unincorporated areas not included in metro- or micro-politan statistical areas.

> **Counties**: Regions within states.

> **Zip Codes**: Smaller regions within counties.
SUMMARY: COMMON CLASSIFICATION SYSTEMS USED IN LMI

**Industry**
- North American Industry Classification System (NAICS)
  - Categorizes types of businesses

**Occupation**
- Standard Occupation Classification (SOC)
  - Categorizes types of jobs

**Instructional Programs**
- Classification of Instructional Programs (CIP)
  - Academic and occupationally-specific programs

**Geography**
- Statewide
- County
- Workforce Investment Area
- Metropolitan Statistical Area

SOURCE: USDOL / ETA
1. Understand the definition of labor market information (LMI)

2. Understand key terms and concepts related to labor market information research

3. Understand the difference between traditional and RT LMI

4. Understand the benefits and limitations of both traditional and RT LMI
Traditional LMI provides a robust picture of national, local, and regional labor markets based upon government surveys.

Data collection:
- Drawn from tax records or mandatory surveys of employers and workers

Types of data:
- Provides information on workforce employment, trends, and projections for standardized industries and occupations.
WHERE IS TRADITIONAL LMI AVAILABLE?

**Federal Resources**
include:

- Bureau of Labor Statistics
- JOLTS: Job Openings and Labor Turnover Survey
- U.S. Census Bureau
- O*NET: The Occupational Information Network

**State and Local LMI**
resources include:

- Such as Floridajobs.org, TexasTracer, etc.
- Local WIBs

**Other**

- Private vendors (e.g., EMSI)
WHAT CAN TRADITIONAL LMI TELL US ABOUT BOSTON?
## TRADITIONAL LMI: TOP BOSTON INDUSTRIES

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>General Medical and Surgical Hospitals</td>
<td>116,054</td>
<td>122,509</td>
<td>6,456</td>
<td>6%</td>
<td>$86,696</td>
</tr>
<tr>
<td>Colleges, Universities, and Professional Schools</td>
<td>112,771</td>
<td>117,356</td>
<td>4,584</td>
<td>4%</td>
<td>$60,285</td>
</tr>
<tr>
<td>Elementary and Secondary Schools (Local Government)</td>
<td>108,655</td>
<td>112,327</td>
<td>3,672</td>
<td>3%</td>
<td>$79,254</td>
</tr>
<tr>
<td>Full-Service Restaurants</td>
<td>83,459</td>
<td>96,774</td>
<td>13,315</td>
<td>16%</td>
<td>$24,844</td>
</tr>
<tr>
<td>Local Government, Excluding Education and Hospitals</td>
<td>65,721</td>
<td>63,738</td>
<td>(1,983)</td>
<td>(3%)</td>
<td>$87,072</td>
</tr>
<tr>
<td>Supermarkets and Other Grocery (except Convenience) Stores</td>
<td>52,790</td>
<td>57,533</td>
<td>4,743</td>
<td>9%</td>
<td>$26,275</td>
</tr>
<tr>
<td>State Government, Excluding Education and Hospitals</td>
<td>50,691</td>
<td>52,626</td>
<td>1,935</td>
<td>4%</td>
<td>$100,906</td>
</tr>
<tr>
<td>Corporate, Subsidiary, and Regional Managing Offices</td>
<td>48,619</td>
<td>54,525</td>
<td>5,906</td>
<td>12%</td>
<td>$141,772</td>
</tr>
<tr>
<td>Offices of Physicians (except Mental Health Specialists)</td>
<td>43,212</td>
<td>47,203</td>
<td>3,990</td>
<td>9%</td>
<td>$120,788</td>
</tr>
<tr>
<td>Janitorial Services</td>
<td>38,648</td>
<td>39,755</td>
<td>1,107</td>
<td>3%</td>
<td>$27,383</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Occupation</th>
<th>2009 Jobs</th>
<th>2014 Jobs</th>
<th>Change</th>
<th>% Change</th>
<th>Median Earnings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial Production Managers</td>
<td>3,016</td>
<td>3,027</td>
<td>11</td>
<td>0%</td>
<td>$47.79</td>
</tr>
<tr>
<td>Nuclear Technicians</td>
<td>74</td>
<td>75</td>
<td>1</td>
<td>1%</td>
<td>$38.77</td>
</tr>
<tr>
<td>Solar Photovoltaic Installers</td>
<td>69</td>
<td>78</td>
<td>9</td>
<td>13%</td>
<td>$22.29</td>
</tr>
<tr>
<td>Wind Turbine Service Technicians</td>
<td>49</td>
<td>30</td>
<td>(19)</td>
<td>(39%)</td>
<td>$21.52</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>3,208</strong></td>
<td><strong>3,210</strong></td>
<td><strong>2</strong></td>
<td><strong>0.1%</strong></td>
<td><strong>$46.74/hr</strong></td>
</tr>
</tbody>
</table>

Characteristics of traditional labor market information:

- Released at set intervals, typically every year or every five years
- Can answer questions such as:
  - How many jobs are there in a particular industry/occupation?
  - Has there been job growth or decline in an industry/occupation?
  - What are the typical earnings for a particular position?
  - How many jobs in an industry/occupation will an area have in five years (projections)?
Real-time LMI refers to online job postings and resume data obtained from Internet job boards, company websites, and newspapers using “spidering” technology.
**HOW IS RT LMI COLLECTED?**

<table>
<thead>
<tr>
<th>“Spidering” of Internet Job Boards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job postings collected from thousands of online job boards</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>De-duplication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Removal of jobs posted on more than one website</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Clean Up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Removal of jobs with inappropriate content</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignments to industry, occupation, geography, skills</td>
</tr>
</tbody>
</table>
WHAT’S IN A JOB POSTING?

Job Title: Software Engineer
SOC: Software developers and programmers (15-1130)

Company name and location
Company: Gorbel
Location: Rochester, NY, 14694

Industry: Manufacturing (NAICS 31-33)

Job tasks
As a Software Engineer, you will:
- Be part of a team that creates software tools that differentiate Gorbel from its competitors
- Work with customers, both internal and external, to turn their requirements into working software
- Participate and collaborate on teams to improve products and/or services
- Work individually on smaller, short-term projects

Education and experience
Years of Experience: 2-5 years

To be successful, you will need:
- A Bachelor's Degree in Software Engineering, Computer Science, or a related degree
- Five or more years of programming experience
- Experience developing software in a Microsoft environment, Windows, Server, SQL Server, Visual Studio, IIS, Team Foundation Server (TFS)
- ASP.NET, programming experience
- SQL programming and familiarity with Microsoft SQL Server
- Object-Oriented Programming and Analysis experience
- XML experience
- Strong HTML, JavaScript, DHTML skills
- To be detail oriented and quality focused

It would be nice if you had:
- Graphical design and layout skills, familiar with Photoshop or similar editing software
- Experience producing technical diagrams

How much will you be paid:
We competitively compensate based on your experience

What's in it for you:
Medical, dental, vision, life insurance, disability, paid time off package, 401k with company contribution, FSA or HSA opportunities, educational assistance, dependant scholarship program, onsite fitness center, and more.

KEY CHARACTERISTICS AND STRENGTHS

- **Timeliness:** Vendors spider up to 20,000 sites daily.

- **Quality assurance:** Complex algorithms to increase integrity and reliability of data provided for analysis and decision making. Some benchmark against Job Opening and Labor Turnover Survey (JOLTS).

- **Current hiring trends:**
  - In-demand experience levels, education requirements, skills and certifications
  - Not based on estimates or projections
  - Does not require active employer participation
  - Key word searches allow us to find information on new and emerging industries and occupations
    - Job Title Search – Health Informatics, medical coder
    - New Industry Search – Nanotechnology
    - Emerging skills – “cloud computing or apps developer”

WHAT TYPES OF JOBS DOES RT LMI CAPTURE BEST?

Well Represented
• Arts, design, entertainment
• Building and grounds cleaning and maintenance
• Food preparation and serving related
• Legal
• Office & Administrative
• Personal Care and service
• Production
• Protective Services
• Sales & Retail positions
• Transportation & Material moving

Under Represented
• Construction
• Farming
• Community and social services*
• Military Specific*

* RT LMI algorithms have difficulty with these postings

Source: Burning Glass
NOT ALL JOB ADVERTISEMENTS ARE CLEAR CUT

How many is MANY?!  Where?!

Source: USA Jobs: http://www.usajobs.gov/GetJob/ViewDetails/310926400
WHAT CAN REAL-TIME LMI TELL US ABOUT BOSTON?
Top Boston-Area Hospital Employers
(18,287 job postings)

- Partners Healthcare: 1,920
- Kindred Healthcare Incorporated: 1,379
- Children's Hospital Boston: 979
- Boston Medical Center: 948
- Massachusetts General Hospital: 718
- Boston Children's Hospital: 699
- Beth Israel Deaconess Medical Center: 649
- Hospital Corporation of America: 613
- Harvard Vanguard Medical Associates: 519
- MetroWest Medical Center: 417

Source: Burning Glass Labor/Insight data for Boston, Cambridge, Quincy MA-NH, 1/14-12/14
Top Boston-Area Skills for the Hospital Industry
(18,287 total job postings)

- Patient Care: 2,821
- Scheduling: 1,462
- Collaboration: 1,123
- Treatment Planning: 1,087
- Administrative Support: 888
- Medical Coding: 810
- Appointment Setting: 805
- Data Entry: 792
- Therapy: 705
- Daycare: 658

Source: Burning Glass Labor/Insight data for Boston, Cambridge, Quincy MA-NH, 1/14-12/14
Characteristics of RT LMI:

- Collected frequently—typically every day
- Can answer questions such as:
  - Which businesses are hiring in a particular region?
  - What skills are employers seeking in a specific industry or occupation?
  - What certifications are in high demand for an occupation?
  - What type of candidates are employers looking to hire?
  - Other information on current trends, emerging occupations, and current and emerging skill requirements.
1. Understand the definition of labor market information (LMI)

2. Understand key terms and concepts related to labor market information research

3. Understand the difference between traditional and real-time LMI (RT LMI)

4. Understand the benefits and limitations of both traditional and RT LMI
<table>
<thead>
<tr>
<th>Benefits</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Traditional LMI</strong></td>
<td></td>
</tr>
<tr>
<td>Reliable and robust</td>
<td>Looks backward to forecast; lacks current labor market perspective</td>
</tr>
<tr>
<td>Consistent and methodologically rigorous</td>
<td>Significant lag time between data collection and publication</td>
</tr>
<tr>
<td>Regional comparisons</td>
<td>Lacks data on employers’ requirements</td>
</tr>
<tr>
<td>Public, no-cost distribution</td>
<td>May not effectively capture emerging occupations/skills requirements/certifications</td>
</tr>
<tr>
<td><strong>Real-time LMI</strong></td>
<td></td>
</tr>
<tr>
<td>Reveals new and emerging trends in occupational definitions</td>
<td>Some duplication errors (though this is less of a problem as the technology improves)</td>
</tr>
<tr>
<td>Offers insight into the skills and certifications sought by employers</td>
<td>Certain types of jobs, including the trades (construction, manufacturing) are underrepresented in the data.</td>
</tr>
<tr>
<td>Identifies early indications of market shifts; data is collected regularly</td>
<td>Online job ads can be vague or incomplete</td>
</tr>
<tr>
<td>Tracks hiring demand</td>
<td>Not every job posting represents an actual vacancy</td>
</tr>
<tr>
<td>Consistently updated</td>
<td>Proprietary software—users must purchase licenses</td>
</tr>
</tbody>
</table>
COMPLEMENTARITY OF TRADITIONAL LMI AND RT LMI
Traditional LMI and RT LMI both offer valuable information on local labor markets; they are best employed as complementary resources—since each has benefits and limitations.
Part 2: Assessing Your Local Labor Market
PART 2: LEARNING OBJECTIVES

> Identify the labor market demand in your area for target occupation(s)

> Identify the labor supply in your area for target occupation(s)
Download the Supply and Demand Data Elements Matrix

- Identify program(s) of focus
- Identify target occupation(s)
- Determine geographic unit of analysis (MSA, counties that comprise the college catchment area, etc.)
Institution: Bunker Hill Community College (Boston, MA)
Program: Energy and Sustainability Management Certificate Program
Occupation: Environmental Science and Protection Technicians, Including Health (SOC 19-4091)
Geographic area: Boston MSA
2014-2024 OCCUPATIONAL GROWTH

Source: EMSI Analyst. Data for Environmental Science and Protection Technicians, Including Health (19-4091) for both the Boston MSA and nationally. 2016.Q1 Dataset.

<table>
<thead>
<tr>
<th>Region</th>
<th>2014 Jobs</th>
<th>2024 Jobs</th>
<th>Change</th>
<th>% Change</th>
<th>Median Hourly Earnings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boston-Cambridge-Newton, MA NH</td>
<td>771</td>
<td>942</td>
<td>171</td>
<td>22%</td>
<td>$24.80</td>
</tr>
<tr>
<td>United States</td>
<td>39,392</td>
<td>47,774</td>
<td>8,382</td>
<td>21%</td>
<td>$22.59</td>
</tr>
</tbody>
</table>
## Top 5 Industries: Environmental Science and Protection Technicians

Source: EMSI Analyst. Data for Environmental Science and Protection Technicians, Including Health (19-4091) for both the Boston MSA and nationally. 2016.Q1 Dataset.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative Management and General Management Consulting Services</td>
<td>130</td>
<td>16.3%</td>
<td>0.5%</td>
</tr>
<tr>
<td>State Government, Excluding Education and Hospitals</td>
<td>58</td>
<td>7.2%</td>
<td>0.1%</td>
</tr>
<tr>
<td>Marketing Consulting Services</td>
<td>58</td>
<td>7.2%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Testing Laboratories</td>
<td>57</td>
<td>7.1%</td>
<td>2.1%</td>
</tr>
<tr>
<td>Local Government, Excluding Education and Hospitals</td>
<td>54</td>
<td>6.8%</td>
<td>0.1%</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-----------</td>
<td>-----------</td>
<td>--------------------</td>
</tr>
<tr>
<td>New York-Newark-Jersey City</td>
<td>2,843</td>
<td>3,313</td>
<td>470</td>
</tr>
<tr>
<td>Houston</td>
<td>1,193</td>
<td>1,467</td>
<td>274</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>1,176</td>
<td>1,609</td>
<td>433</td>
</tr>
<tr>
<td>Chicago</td>
<td>1,172</td>
<td>1,433</td>
<td>261</td>
</tr>
<tr>
<td>Philadelphia</td>
<td>862</td>
<td>993</td>
<td>131</td>
</tr>
<tr>
<td>San Francisco</td>
<td>794</td>
<td>1,017</td>
<td>223</td>
</tr>
<tr>
<td>Washington, DC</td>
<td>791</td>
<td>1,089</td>
<td>298</td>
</tr>
<tr>
<td>Boston</td>
<td>771</td>
<td>942</td>
<td>171</td>
</tr>
<tr>
<td>Dallas</td>
<td>654</td>
<td>857</td>
<td>203</td>
</tr>
</tbody>
</table>

MAKE SURE TO CONSIDER THE LOCAL/REGIONAL LIVING WAGE

Living wage information for the Boston Metropolitan Statistical Area:

Source: MIT Living Wage Calculator. Data retrieved from: http://livingwage.mit.edu/counties/51510
PROJECTED GROWTH BY MSA: 2014-2024

TAKE ADVANTAGE OF YOUR STATE LMI SHOP
The Occupational Employment Statistics (OES) program produces employment and wage estimates annually for over 800 occupations. These estimates are available for the nation as a whole, for individual States, and for metropolitan and nonmetropolitan areas; national occupational estimates for specific industries are also available.

For Your Information

- **NEW Spotlight on Statistics:** Employment and Wages in Healthcare Occupations

Next Releases:

- Occupational Employment and Wages—May 2015 are scheduled to be released on March 30, 2016, at 10:30 A.M. Eastern Time. The May 2015 area level estimates will be the first OES estimates to use the 2010 metropolitan statistical area definitions.

On This Page

- OES News Releases
- OES Data
- OES Charts
- OES Maps
- OES Publications
- OES Databases
- OES FAQs
- Contact OES
NEXT STEPS: IDENTIFY REAL-TIME DEMAND

LABOR INSIGHT/JOBS

Snapshot Report Options (6,798,203 job postings)

For This Time Period
- Last 90 days
- Within
  - Select time period
- Between

And This Location
- Nationwide

Show Me Information About
- any
TOP INDUSTRY SECTORS: ENVIRONMENTAL SCIENCE AND PROTECTION TECHNICIANS

Professional, Scientific, and Technical Services: 18
Manufacturing: 16
Health Care and Social Assistance: 9
Administrative and Support and Waste Management and Remediation Services: 5
Transportation and Warehousing: 4
Finance and Insurance: 3
Educational Services: 3
Wholesale Trade: 1
Real Estate and Rental and Leasing: 1

Distribution of education and experience: environmental science and protection technicians

- High school or vocational training: 33% (24), 67%
- Associate's degree: 29% (21), 67%
- Bachelor's degree: 4% (4), 33%, 58% (45)
- Graduate or professional degree: 17% (12), 42%, 42%

> Identify the labor market demand in your area for target occupation(s)

> Identify the labor supply in your area for target occupation(s)
You may also want to research (from state or other resources):

- Number of individuals who completed a related CIP program statewide (or regionally), to include other training institutions in your area.

Calculate the following:

- **Ratio of number employed to number of job postings**
  
  *This ratio estimates the number of experienced workers who may compete for a given job opportunity*

- **Ratio of college completions to projected annual openings**
  
  *This is an indication of the number of graduates competing for a typical opening*

- **Subtract the number of completions from the projected annual openings**
  
  *This provides an indication of whether supply is meeting demand*
<table>
<thead>
<tr>
<th>LABOR SUPPLY &amp; STUDENT OUTCOMES</th>
<th>Data Collection Category</th>
<th>Data Source</th>
<th>Description/Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community College Program</td>
<td>Institution / College</td>
<td></td>
<td>Identify programs for analysis.</td>
</tr>
<tr>
<td>2014-2015 Number of Students by Program</td>
<td>Institution / College</td>
<td>2013-2014</td>
<td></td>
</tr>
<tr>
<td>2014-2015 Number of Graduates by Program</td>
<td>Institution / College</td>
<td></td>
<td>Provide completion by program f</td>
</tr>
<tr>
<td>2014-2015 All Completions</td>
<td>Institution / College</td>
<td></td>
<td>Provide completion by program f</td>
</tr>
<tr>
<td>Job Placement/Entered Employment (number or percentage)</td>
<td>Institutions can choose to supply placement information based on student surveys (e.g. Perkins) or use institution/college data</td>
<td></td>
<td>Provide completion by program f</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(match); only includes those making their placements</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Data Collection Category</th>
<th>Data Source</th>
<th>Description/Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ratio of 2013 Employed to 2013 Job Postings</td>
<td>CWRI and Burning Glass Labor / Insight</td>
<td>Analysis of employment and job opportunity.</td>
</tr>
<tr>
<td>Ratio of All Completions to Projected Annual Openings</td>
<td>Institution / College and CWRI</td>
<td>Analysis of completions and job projected opening</td>
</tr>
<tr>
<td>Projected Annual Openings Minus Completions</td>
<td>Institution / College and CWRI</td>
<td>Comparison of job postings and completions</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OTHER RELEVANT DATA</th>
<th>Data Collection Category</th>
<th>Data Source</th>
<th>Description/Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area living wage</td>
<td>MIT living wage calculator: <a href="http://livingwage.mit.edu">http://livingwage.mit.edu</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other relevant industry or employment trends</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Integrate local and institutional knowledge into the analysis!
GE confirms it’s heading to Boston

The company began looking to leave Fairfield, Conn., last year after state legislators threatened to raise corporate taxes.

Part 3: Identifying In-Demand Skills and Credentials
PART 3: LEARNING OBJECTIVES

> Understand the rationale behind skills mapping

> Identify the basic concepts related to sustainability skills and how they can be examined

> Use Labor/Insight to and other LMI resources to identify in-demand skills and credentials
Example: Sustainability Skills

> Customize your search to your college’s needs, for example take advantage of BG’s:

– Green Skill Cluster

– Specialty Sector: Green Occupations (based on the O*Net list of ‘greening’ occupations)

– Keyword search: Search for a specific sustainability skill (e.g., conservation, weatherization)
RT LMI can highlight the top local occupations for a particular skill

Source: Burning Glass Labor/Insight Jobs
Region: Boston MSA
Filter: Sub-BA (inferred) and Green Skill Cluster
Postings: 4,029
RT LMI can highlight the top occupations within a sector (or occupational cluster), based upon specific skills.

Source: Burning Glass Labor/Insight Jobs
Region: Boston MSA
Filter: Sub-BA (inferred), Green Skill Cluster, BGTOCC: Manufacturing and Production
Total Postings: 380 postings
RT LMI can identify high-demand soft skills by occupation

Source: Burning Glass Labor/Insight Jobs
Region: Boston MSA
Filter: Machinists
Total Postings: 467 (95 unspecified)
RT LMI can highlight in-demand credentials

- Certified Accounts Payable Associate: 140
- Forklift Operator Certification: 128
- Biotechnology: 53
- American Society for Quality (ASQ) Certification: 47
- Wastewater Treatment Plant Operator: 43
- Professional Engineer: 41
- Occupational Safety and Health Administration Certification: 39

Source: Burning Glass Labor/Insight Jobs
Region: Boston MSA
Filter: Manufacturing and Production family (BGTOCC)
Total Postings: 12,277 (11,145 unspecified)
Minimum Education Requirements

- 95.78% High school or vocational training (159 postings)
- 3.01% Associate's degree (5 postings)
- 1.20% Bachelor's degree (2 postings)

Advertised Education

- 43.02% Bachelor's degree
- 22.56% Associate's degree
- 19.77% Graduate or professional degree
- 30.33% High school or vocational training

Source: Burning Glass Labor/Insight Jobs
Region: Boston MSA
Filter: Mechanical Engineering Technician (70-3027)
Total Postings: 160 (74 unspecified)
COMPARE FINDINGS WITH OTHER LMI SOURCES

Source: http://www.careeronestop.org/credentials/toolkit/find-certifications.aspx?keyword=51-4041.00&ajax=occ&direct=0
APPLYING LMI

**STRATEGIC PLANNING / DEMAND PROGRAMMING**
- **AUDIENCE:** Boards of trustees, senior institutional leadership (education, economic and workforce development)
- **SOURCE:** Long term projections, state and regional economic analyses, industry and trade studies, real-time LMI, employer input
- **PRACTICE:** Allow better understanding of current hiring conditions in your state or region

**BUSINESS OUTREACH / RETENTION**
- **AUDIENCE:** Boards, senior institutional leaders, deans, department chairs, instructors
- **SOURCE:** Long term occupational projections, job vacancy studies, real-time LMI, regional economic analysis, employer input
- **PRACTICE:** Inform outreach efforts by identifying growth industries and companies

**CURRICULA MODIFICATION**
- **AUDIENCE:** Instructors, department chairs, deans
- **SOURCE:** Real-time LMI, traditional LMI (O*NET), employer input, postsecondary program review
- **PRACTICE:** Confirm or refute the insights of experts or anecdotal evidence. Conduct dynamic skills audit.

**STUDENT CAREER GUIDANCE**
- **AUDIENCE:** Counselors, workforce development staff, department chairs, deans, lenders, students
- **SOURCE:** Occupational employment statistics and projections, real time LMI, employer input, postsecondary program review
- **PRACTICE:** Help identify specific job opportunities, show areas of demand for transitioning workers, description of common job activities and career planning
<table>
<thead>
<tr>
<th>Attribute</th>
<th>Ability</th>
<th>Curriculum/Where Taught</th>
<th>Faculty Comments</th>
<th>Gap?</th>
<th>Employer Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethical, legal, professional behavior</td>
<td>A+ Certification Prep</td>
<td></td>
<td></td>
<td></td>
<td>Large Gap</td>
</tr>
<tr>
<td>Oral comprehension &amp; expression</td>
<td>COM 221 Tech Comm</td>
<td></td>
<td></td>
<td></td>
<td>Partial Gap</td>
</tr>
<tr>
<td>Written comprehension &amp; expression</td>
<td>COM 221 Tech Comm</td>
<td></td>
<td></td>
<td></td>
<td>Ability Met</td>
</tr>
<tr>
<td>Customer service</td>
<td>A+ Certification Prep</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active listening</td>
<td>All COE Courses</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Critical thinking</td>
<td>All COE Courses</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time Management</td>
<td>All COE Courses</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active learning</td>
<td>All COE Courses</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instructing/Training</td>
<td>All COE Courses</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stress Tolerance</td>
<td>All COE Courses</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Backup/Archival</td>
<td>A+ &amp; Net+ Cert Prep</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Config Management</td>
<td>COE135 Network Admin</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Database/Query</td>
<td>Not in curriculum</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desktop Communications</td>
<td>A+ Certification Prep</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OS Admin Tools and Software</td>
<td>COE135 Network Admin</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Network &amp; Device Security</td>
<td>Security+ Cert Prep</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VPN and Virtualization</td>
<td>A+ &amp; Security+ Cert Prep</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tools</td>
<td>A+ Certification Prep</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Network analyzers</td>
<td>Net+ Certification Prep</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Screwdrivers</td>
<td>All COE Courses</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multimeter</td>
<td>A+ Certification Prep</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic electrical knowledge</td>
<td>COE 219 Digital Basics for Comp Techs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technology</td>
<td>Email</td>
<td>All COE Courses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Phone</td>
<td>All COE Courses</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Part 4: USING LMI TO ENHANCE EMPLOYER ENGAGEMENT
PART 4: LEARNING OBJECTIVES

> Understand the rationale for community colleges to engage with employers

> Differentiate the various types of employer engagement and understand how such engagements can build over time

  – Categorize your own relationships with employers and their potential to broaden/deepen

> Use labor market data and other resources to identify local employers for engagement
WHAT IS EMPLOYER ENGAGEMENT?

Employer engagement is a mutually beneficial partnership between employers and education/workforce system.

Some examples include:

- Recruiting on campus
- Advising students
- Providing curricular/ program feedback and expertise
- Offering work-based learning opportunities
- Developing sectoral partnerships

Source: CTW
## Employer Engagement Has Wide-Ranging Benefits

<table>
<thead>
<tr>
<th>Students</th>
<th>Colleges</th>
<th>Employers</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Better understanding of potential career pathways and the skills,</td>
<td>• Access to additional resources</td>
<td>• Improved talent pipeline</td>
</tr>
<tr>
<td>credentials, and certifications necessary to pursue a particular</td>
<td>• Additional knowledge related to the local business landscape (and understanding of what employers actually</td>
<td>• Higher employee retention, increased productivity</td>
</tr>
<tr>
<td>occupation</td>
<td>need)</td>
<td>• Improved reputation within the community</td>
</tr>
<tr>
<td>• Work-based learning opportunities</td>
<td>• Improved credibility and relationships within the community</td>
<td></td>
</tr>
<tr>
<td>• Additional networking, advising, and other informal opportunities to</td>
<td></td>
<td></td>
</tr>
<tr>
<td>interact with employers</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Source: Jobs for the Future*
# TYPES OF EMPLOYER ENGAGEMENT

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advising</td>
<td>Provide insight into curricula, hiring needs</td>
</tr>
<tr>
<td>Capacity Building</td>
<td>Provide speakers, internships, in-kind donations</td>
</tr>
<tr>
<td>Co-Designing</td>
<td>Develop curricula and pathways for students</td>
</tr>
<tr>
<td>Convening</td>
<td>Develop sectoral partnerships between employers and colleges</td>
</tr>
<tr>
<td>Leading</td>
<td>Develop multi-employer, multi-college partnerships</td>
</tr>
</tbody>
</table>

THE PROCESS FOR EMPLOYER ENGAGEMENT

Pre-engagement

Systematizing

Monitoring & Evaluation

Retention

Establishing the partnership

Systematizing

Pre-engagement
Take stock of any existing relationships your school has with employers; these could include those who contribute via:

- Work-based learning partnerships
- Participation in curricular review committees
- Recruiting or offering career expertise to students
> Use LMI and other resources to research local industries, occupations, relevant
> Identify “target” employers that are hiring for a particular occupation
> Understand the skills and industry-recognized certifications employers seek for new hires in this occupation.
> Develop a set of guiding questions (adapted to reflect the occupation and industry of interest)
> Conduct informational interviews with employers (or advisory councils) to gather additional data on job requirements, preferred qualifications, etc.
> Summarize findings from interviews and labor market research
> Develop an action plan
Queries that can provide useful data for employer engagement efforts:

- Top employers
- Top detailed industries
- In-demand skills and certifications
- And more—take the time to explore!
HOW LMI CAN HELP INFORM YOUR EMPLOYER ENGAGEMENT EFFORTS

Employer

- Improved talent pipeline of skilled workers
- Better employee retention and increased labor productivity
- Improved reputation in the community

Education/Workforce System

- Identify Hiring Employers
- Identify relevant training and skills for in-demand positions
- Validate growth trends with employers
- Help structure conversation with employers
- Develop cost-effective training solutions for companies

Students

- Better knowledge of potential career pathways and the necessary certifications and credentials to pursue these pathways

PROCESS TO IDENTIFY EMPLOYERS FOR ENGAGEMENT

**Industry outlook**
- Examine highest ranked industries by employment size, wage, growth, or competitive effect

**Occupation profiles**
- Examine top occupations, job titles, wages, and skills/credentials needed for entry or progression

**Employer targets**
- Identify employers to target for engagement
RESOURCES AND ADDITIONAL READING


> Making use of labor market information: [http://www.ccsf.edu/dam/Organizational_Assets/Department/Career_And_Technical_Education/Making%20Use%20of%20Labor%20Market%20Info.pdf](http://www.ccsf.edu/dam/Organizational_Assets/Department/Career_And_Technical_Education/Making%20Use%20of%20Labor%20Market%20Info.pdf)


> Labor Market Information WIN-WIN Network Community of Practice: [https://winwin.workforce3one.org/page/home](https://winwin.workforce3one.org/page/home)

> LMI Training Institute: [http://www.lmiontheweb.org/?page=8](http://www.lmiontheweb.org/?page=8)

> State LMI Locator: careeronestop.org/red/StateLaborMarketInformation.aspx

> State LMI Contact List: [www.bls.gov/bls/ofolist.htm](http://www.bls.gov/bls/ofolist.htm)
