**National Science Foundation**
**Small Business Innovative Research Program**
**Salary Survey Guidance**
**November 2014**

The National Science Foundation (NSF) encourages awardees applying for Small Business Innovation Research (SBIR) awards to justify their proposed employee salaries by using the Bureau of Labor Statistics (BLS) Wage Data.

NSF strives to make sure that funds allocated for the SBIR program are used efficiently. Typically, NSF will review proposed salaries to ensure that they are in line with market standards. Awardees that propose salaries significantly greater than what could be expected in the market may be subject to increased scrutiny from NSF. In addition, salaries that are significantly lower than what the market would pay may be concerning, as the awardee could have difficulty attracting and retaining top talent.
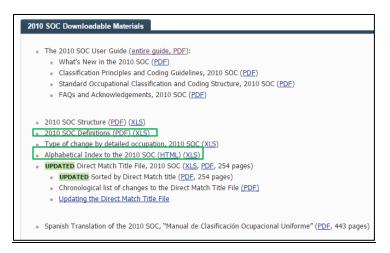
The BLS maintains extensive databases of wage data broken down by state, region, and other characteristics. It is considered to be the standard for wage and salary data, and is used widely by the private sector and Federal government. The BLS data is available here: http://www.bls.gov/bls/blswage.htm.

This guide is intended to enable SBIR awardees to verify that their salaries are in line with market standards. Although BLS has several datasets available as of November, 2014, this guide uses the most up to date data. There is also older and therefore less relevant data and tools available on the BLS site. Specifically, this guide will show awardees how to:

1. Search for appropriate BLS job descriptions to ensure that salary comparisons are made using the most appropriate job titles
2. Use the BLS data to validate proposed salaries
3. Check proposed salaries against other sources.

1. **Search for BLS job codes and descriptions.**

   a. Before looking up salary data, awardees should locate their proposed job descriptions in the BLS Standard Occupational Classification (SOC) System. These classifications will help awardees confirm that they use the most appropriate job description when searching for BLS salary data.

   b. The SOC data is located here: http://www.bls.gov/soc/#materials. The first circled link under "2010 SOC Definitions" will bring up the complete BLS job description list, sorted by job code. The data can also be accessed alphabetically by job title in the second circled link. For our example, we will use the first link.

2010 SOC Downloadable Materials

- The 2010 SOC User Guide (entire guide, PDF):
  - What's New in the 2010 SOC (PDF)
  - Classification Principles and Coding Guidelines, 2010 SOC (PDF)
  - Standard Occupational Classification and Coding Structure, 2010 SOC (PDF)
  - FAQs and Acknowledgements, 2010 SOC (PDF)

- 2010 SOC Structure (PDF) (XLS)
- 2010 SOC Definitions (PDF) (XLS)
- Type of change by detailed occupation, 2010 SOC (XLS)
- Alphabetical Index to the 2010 SOC (HTML) (XLS)
- **UPDATED** Direct Match Title File, 2010 SOC (XLS, PDF, 254 pages)
  - **UPDATED** Sorted by Direct Match title (PDF, 254 pages)
  - Chronological list of changes to the Direct Match Title File (PDF)
  - Updating the Direct Match Title File

- Spanish Translation of the 2010 SOC, "Manual de Clasificación Ocupacional Uniforme" (PDF, 443 pages)

c. For example, if an awardee thinks that his job title should be "Web Developer," he can look up the BLS definition by clicking "PDF" in the first circled link to ensure that it accurately describes his day to day responsibilities:

**15-1134 Web Developers**
Design, create, and modify Web sites. Analyze user needs to implement Web site content, graphics, performance, and capacity. May integrate Web sites with other computer applications. May convert written, graphic, audio, and video components to compatible Web formats by using software designed to facilitate the creation of Web and multimedia content. Excludes "Multimedia Artists and Animators" (27-1014).

*Illustrative examples: Internet Developer, Intranet Developer, Web Designer*

d. After clearly identifying proposed job descriptions, the awardee can look up wage and information within the BLS data.

## 2. <u>Use BLS data to validate salaries.</u>

a. The BLS home page can be accessed by clicking here:
http://www.bls.gov/bls/blswage.htm

## Overview of BLS Wage Data by Area and Occupation

BLS wage data are available by occupation for the Nation, regions, states, and many metropolitan areas.

**National Wage Data**

- For pay-setting purposes. Data include information on the level of difficulty and complexity of work.
- For over 800 occupations. Data are classified using the Standard Occupational Classification (SOC) System.
- For about 400 industries. Occupational wage data for sector, 3-, 4- and 5-digit North American Industry Classification System (NAICS) industries.
- Data by occupation and gender (PDF). Data for men and for women in 200 occupations.

**Wage Data by Region**

- For Census divisions. (New England, Middle Atlantic, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain, and Pacific.)

**Wage Data by State**

- By State. 50 states plus District of Columbia, Guam, Puerto Rico, and Virgin Islands.

**Wage Data by Metropolitan Area**

- For pay-setting purposes. Data include information on the level of difficulty and complexity of work.
- For 375 metropolitan statistical areas (MSAs), 34 metropolitan divisions, and over 170 nonmetropolitan areas. (MSAs consist of one or more counties (or towns and cities in New England) and contain a core area with a substantial population which has a high degree of economic and social integration with the surrounding areas; also, a MSA must have at least one urbanized area of 50,000 or more inhabitants. Certain MSAs have subdivisions called metropolitan divisions.)
- For major metropolitan areas. Detailed occupational wage information for approximately 80 metropolitan areas.

b. The most useful links, with the most current data, are circled in green. "Wage Data by Metropolitan Area" should be the first one used by awardees, as it includes data on nearly every major area of the country. "Wage Data by State" should be used only if an awardee's employment location is not within a metropolitan area.

*Note:* Data available in the other links, such as "Wage Data by Region for Census Divisions," is generally either outdated (from 2009-10) or too broad (taken at the national level) to be accurate.

## Accessing the Metropolitan Area Data

This example will walk through the process of looking up salary information, using a Web Developer in Los Angeles, CA for illustrative purposes.

*Note:* The processes used to look up State Data and Metropolitan Area Data are the same.

a. By clicking the link "For 375 metropolitan statistical areas (MSAs)…" (http://www.bls.gov/oes/current/oessrcma.htm) you will be re-directed to the following page:

b. Click on "Los Angeles" located under "California:"



c. Then select "Computer and Mathematical Occupations" (SOC category 15-0000). We know this to be the correct category for the "Web Developers" job description because the first two digits of its SOC job number (15-1134) are the same as for the "Computer and Mathematical Occupations" job category:

May 2013 Metropolitan and Nonmetropolitan Area Occupational Employment and Wage Estimates

Los Angeles-Long Beach-Santa Ana, CA

For metropolitan and nonmetropolitan area definitions used by the OES survey, see the Metropolitan and nonmetropolitan area definition page.

These estimates are calculated with data collected from employers in all industry sectors in Los Angeles-Long Beach-Santa Ana, CA, a metropolitan statistical area in California.

Additional information, including the hourly and annual 10th, 25th, 75th, and 90th percentile wages and the employment percent relative standard error, is available in the downloadable XLS file.

Links to OES estimates for other areas and States

Major Occupational Groups in Los Angeles-Long Beach-Santa Ana, CA (**Note**--clicking a link will scroll the page to the occupational group):

- 00-0000  All Occupations
- 11-0000  Management Occupations
- 13-0000  Business and Financial Operations Occupations
- 15-0000  Computer and Mathematical Occupations
- 17-0000  Architecture and Engineering Occupations
- 19-0000  Life, Physical, and Social Science Occupations
- 21-0000  Community and Social Service Occupations
- 23-0000  Legal Occupations
- 25-0000  Education, Training, and Library Occupations
- 27-0000  Arts, Design, Entertainment, Sports, and Media Occupations

d.  From there, locate and click on "Web Developers:"

| Occupation code | Occupation title (click on the occupation title to view its profile) | Level | Employment | Employment RSE | Employment per 1,000 jobs | Location quotient | Median hourly wage | Mean hourly wage | Annual mean wage | Mean wage RSE |
|---|---|---|---|---|---|---|---|---|---|---|
| 15-1132 | Software Developers, Applications | detail | 24,890 | 6.0% | 4.585 | 0.94 | $47.51 | $48.33 | $100,530 | 1.4% |
| 15-1133 | Software Developers, Systems Software | detail | 20,240 | 11.3% | 3.729 | 1.32 | $54.63 | $55.37 | $115,160 | 1.4% |
| 15-1134 | Web Developers | detail | 6,180 | 6.8% | 1.139 | 1.34 | $31.56 | $32.27 | $67,120 | 2.0% |
| 15-1141 | Database Administrators | detail | 3,560 | 4.5% | 0.655 | 0.76 | $42.03 | $42.42 | $88,240 | 1.5% |

e.  The resulting page yields median and percentile wage data for both annual salaries and hourly wages:

## Occupational Employment and Wages, May 2013

### 15-1134 Web Developers

Design, create, and modify Web sites. Analyze user needs to implement Web site content, graphics, performance, and capacity. May integrate Web sites with other computer applications. May convert written, graphic, audio, and video components to compatible Web formats by using software designed to facilitate the creation of Web and multimedia content. Excludes "Multimedia Artists and Animators" (27-1014).

National estimates for this occupation
Industry profile for this occupation
Geographic profile for this occupation

**National estimates for this occupation: Top**

Employment estimate and mean wage estimates for this occupation:

| Employment (1) | Employment RSE (3) | Mean hourly wage | Mean annual wage (2) | Wage RSE (3) |
|---|---|---|---|---|
| 112,820 | 1.4 % | $32.47 | $67,540 | 0.7 % |

Percentile wage estimates for this occupation:

| Percentile | 10% | 25% | 50% (Median) | 75% | 90% |
|---|---|---|---|---|---|
| Hourly Wage | $16.02 | $21.42 | $30.37 | $41.00 | $53.05 |
| Annual Wage (2) | $33,320 | $44,550 | $63,160 | $85,270 | $110,350 |

**Industry profile for this occupation: Top**

Industries with the highest published employment and wages for this occupation are provided. For a list of all industries with employment in this occupation, see the Create Customized Tables function.

Industries with the highest levels of employment in this occupation:

| Industry | Employment (1) | Percent of industry employment | Hourly mean wage | Annual mean wage (2) |
|---|---|---|---|---|
| Computer Systems Design and Related Services | 26,350 | 1.56 | $33.50 | $69,680 |
| Other Information Services | 6,580 | 3.50 | $33.52 | $69,720 |

These estimates can be used by awardees to determine and justify the salary for an occupation in a given area. If the proposed annualized salary exceeds these estimates, additional justification may be requested by NSF when they review the SBIR proposal.

To validate their proposed salaries, awardees should try to find the characteristics (such as education level, prior professional experience, or years in the profession) of the salary range that they intend to pay. For example, if an awardee thinks that an employee is deserving of the 90th percentile salary for his occupation, the awardee should verify that the employee possesses the education and experience commensurate with that salary profile.

## 3. Check proposed salaries against other sources.

Awardees may find a variety of other sources helpful to validate salaries, depending on on their career field. Occupation societies and associations in particular often publish salary surveys that describe the characteristics of different salary levels. Below is just a sample of sources that awardees may find helpful validating their salaries:

*Note:* Awardees should be able to validate proposed salaries using BLS information. This section provides additional options for supplemental information; NSF does not expect or require that awardees purchase third party salary reports.

- Sources that may be useful to employees in any industry:
  - PayScale.com ([www.payscale.com](www.payscale.com)): Allows users to input their education, years of experience, and geographic location to find the job characteristics and salary percentiles for the occupation of their choice. Although there is a great deal of free data on the website, there are also more thorough reports available for purchase.
  - Monster's Salary Center ([http://monster.salary.com/SalaryWizard/LayoutScripts/Swzl_NewSearch.aspx](http://monster.salary.com/SalaryWizard/LayoutScripts/Swzl_NewSearch.aspx)): Allows users to access limited free reports and more extensive paid reports on a variety of occupations.
  - Salary.com ([www.salary.com](www.salary.com)): Displays income distributions for a variety of jobs for free, and also offers more extensive paid reports.
- Sources that may be useful for employees in certain industries:
  - The Engineering Income and Salary Survey, published by the American Society of Civil Engineers ([https://www.asme.org/getmedia/788e990f-99f5-4062-801c-d2ef0586b52d/32673_Engineering_Income_Salary_Survey.aspx](https://www.asme.org/getmedia/788e990f-99f5-4062-801c-d2ef0586b52d/32673_Engineering_Income_Salary_Survey.aspx)): This survey provides extensive percentile salary data for a variety of different engineering fields based on characteristics such as number of years of work experience and education level. Below is just one of the tables that the survey includes:

**EXHIBIT 6: INCOME ($) BY LENGTH OF EXPERIENCE**

| | All Respondents | | | | | | | Full-Time Salaried Only | |
|---|---|---|---|---|---|---|---|---|---|
| | # of Responses | Mean | 10th Pctl | 25th Pctl | Median | 75th Pctl | 90th Pctl | # of Responses | Median |
| Under 1 year | 366 | 56,785 | 41,000 | 48,000 | 55,000 | 63,850 | 74,000 | 366 | 55,000 |
| 1–2 years | 762 | 60,688 | 45,000 | 51,000 | 58,678 | 67,500 | 78,000 | 761 | 58,695 |
| 3–4 years | 1,161 | 67,325 | 50,835 | 56,515 | 64,750 | 74,000 | 87,000 | 1,159 | 64,750 |
| 5–9 years | 2,319 | 78,457 | 57,500 | 65,000 | 75,000 | 87,000 | 102,000 | 2,306 | 75,000 |
| 10–14 years | 1,706 | 95,783 | 67,100 | 78,575 | 91,610 | 108,000 | 129,000 | 1,669 | 91,520 |
| 15–19 years | 1,323 | 111,621 | 75,000 | 88,688 | 106,000 | 127,000 | 155,000 | 1,297 | 106,000 |
| 20–24 years | 1,302 | 123,267 | 80,000 | 95,600 | 116,345 | 140,000 | 176,800 | 1,274 | 116,270 |
| 25 or more years | 3,781 | 136,942 | 87,243 | 104,500 | 127,700 | 158,000 | 200,000 | 3,613 | 127,800 |

  - American Institute of Chemical Engineers members have access to a Salary Survey ([http://www.aiche.org/resources/publications/cep/2013/june/2013-aiche-salary-survey](http://www.aiche.org/resources/publications/cep/2013/june/2013-aiche-salary-survey)).
  - The American Planning Association's Salary Survey Summary ([https://www.planning.org/salary/summary.htm](https://www.planning.org/salary/summary.htm)): This survey describes the characteristics of salaries earned by urban and regional planners.
  - The Project Management Institute's Salary Survey ([http://stlpmi.org/downloads/pmi_salarysurvey_7thed.pdf](http://stlpmi.org/downloads/pmi_salarysurvey_7thed.pdf)): This survey provides very detailed information on project manager salaries based on skills, experience, and location.