

# Workforce Estimating Conference February 13<sup>th</sup>, 2012

## ACTION MINUTES

The Workforce Estimating Conference met on February 13, 2012. The agenda included presentations from the Florida Department of Economic Opportunity on the methodology used in developing a list of STEM (science technology, engineering, and mathematics) occupations and the demand for master's and higher degrees, as well as a review of a proposed list of targeted occupations for occupations requiring a master's degree and higher.

Handouts from the meeting are posted at:

<http://edr.state.fl.us/Content/conferences/workforce/index.cfm>.

The proposed list of targeted occupations was based on master's degree and higher occupation criteria. The Conference requested DEO staff to review the list to determine if any of the occupations listed might be currently oversupplied with unemployed workers who possess the skills to work in one of these occupations. After the review was completed, none of the occupations appeared to be oversupplied within the timeframe used by the Conference.

Both the list and the criteria were approved by the conference. The final list, "2012-13 High Demand Occupations Requiring a Master's and Higher Degree", included 24 occupations. Approximately 16 out of 24 occupations or 67% of the occupations were identified as STEM occupations. The approved criteria are shown below.

### Master's Degree and Above Occupation List Selection Criteria:

|                                   |   |
|-----------------------------------|---|
| 1. Training Level:                | Master's Degree and Above   |
| 2. Annual Openings & Growth Rate: | 50 annual openings with average growth rate of 1.62% OR<br>150 annual openings with any positive growth |
| 3. Mean Wage & Entry Wage:        | Mean wage \$60,000/year; Entry wage \$42,000/year   |

Criteria used to define STEM occupations (Science, Technology, Engineering and Math) were approved by the January 9<sup>th</sup> 2012 conference meeting; however, the process used to develop the criteria was reviewed in greater detail. A detailed list of STEM occupations was submitted to the Conference for use in developing the various Statewide Occupations lists that include this designation.

The conference concluded with a presentation by Amy Baker, Coordinator, Office of Economic and Demographic Research, on demographic implications for the labor market through 2030.

# 2012-13 High Demand Occupations Requiring a Master's or Higher Degree

**Sorted by Occupational Title**

Workforce Estimating Conference Selection Criteria:

- 1 FLDOE Training Code 6 (Master's or Higher Degree)
- 2 50 annual openings and average growth rate of 1.62 percent or higher or 150 annual openings with any positive growth
- 3 Mean Wage of \$28.85/hour (\$60,000/year) and Entry Wage of \$20.19/hour (\$42,000/year)

| SOC Code† | Occupational Title†                             | Annual  | Annual | 2011 Hourly Wage |       | FLDOE | STEM |
|-----------|---|---------|--------|------------------|-------|-------|------|
|           |   | Percent |        | Openings         | Mean  |       |      |
|           |   | Growth  |        |                  |       | Code  |      |
| 291061    | Anesthesiologists                               | 2.71    | 84     | 112.56           | NA    | 6     | Yes  |
| 171011    | Architects, Except Landscape and Naval          | 2.91    | 259    | 38.55            | 22.69 | 6     | Yes  |
| 251121    | Art, Drama, and Music Teachers, Postsecondary   | 1.75    | 134    | 42.70            | 24.08 | 6     | No   |
| 251042    | Biological Science Teachers, Postsecondary      | 1.80    | 87     | 47.49            | 27.18 | 6     | Yes  |
| 291011    | Chiropractors                                   | 1.98    | 133    | 42.47            | 22.44 | 6     | Yes  |
| 193031    | Clinical, Counseling, and School Psychologists  | 1.11    | 195    | 34.18            | 24.47 | 6     | No   |
| 291021    | Dentists, General                               | 1.84    | 299    | 71.63            | 34.79 | 6     | Yes  |
| 251081    | Education Teachers, Postsecondary               | 1.88    | 86     | 46.41            | 28.48 | 6     | No   |
| 251032    | Engineering Teachers, Postsecondary             | 2.04    | 92     | 65.31            | 35.83 | 6     | Yes  |
| 291062    | Family and General Practitioners                | 1.63    | 181    | 79.76            | 36.39 | 6     | Yes  |
| 251071    | Health Specialties Teachers, Postsecondary      | 1.92    | 381    | 66.82            | 27.69 | 6     | Yes  |
| 291063    | Internists, General                             | 2.41    | 55     | 111.30           | NA    | 6     | Yes  |
| 231011    | Lawyers   | 1.28    | 1,665  | 57.75            | 25.04 | 6     | No   |
| 191042    | Medical Scientists, Except Epidemiologists      | 4.93    | 188    | 45.51            | 21.59 | 6     | Yes  |
| 251072    | Nursing Instructors and Teachers, Postsecondary | 1.68    | 77     | 45.68            | 30.62 | 6     | Yes  |
| 291122    | Occupational Therapists                         | 2.66    | 281    | 37.93            | 26.56 | 6     | No   |
| 291041    | Optometrists                                    | 2.52    | 88     | 58.90            | 27.74 | 6     | Yes  |
| 291065    | Pediatricians, General                          | 2.44    | 58     | 83.01            | 47.50 | 6     | Yes  |
| 291051    | Pharmacists                                     | 2.00    | 715    | 53.31            | 44.69 | 6     | Yes  |
| 291123    | Physical Therapists                             | 3.00    | 517    | 39.83            | 28.58 | 6     | No   |
| 251066    | Psychology Teachers, Postsecondary              | 1.81    | 72     | 49.80            | 29.16 | 6     | No   |
| 291127    | Speech-Language Pathologists                    | 1.85    | 219    | 34.64            | 23.23 | 6     | No   |
| 291067    | Surgeons  | 2.34    | 60     | 113.30           | NA    | 6     | Yes  |
| 291131    | Veterinarians                                   | 4.07    | 188    | 53.29            | 28.93 | 6     | Yes  |

†SOC Code and Occupational Title refer to Standard Occupational Classification codes and titles.

# 2012-13 High Demand Occupations Requiring a Bachelor's Degree

Sorted by Occupational Title

Workforce Estimating Conference Selection Criteria:

- 1 FLDOE Training Code 5 (Bachelor's Degree)
- 2 50 annual openings and average growth rate of 1.62 percent or higher or 150 annual openings with any positive growth
- 3 Mean Wage of \$24.04/hour (\$50,000/year) and Entry Wage of \$16.83/hour (\$35,000/year)

| SOC Code†     | Occupational Title†   | Annual         |                 | 2011 Hourly Wage |       | FLDOE Training Code | STEM Occupation? |
|---------------|---|----------------|-----------------|------------------|-------|---------------------|------------------|
|               |   | Percent Growth | Annual Openings | Mean             | Entry |                     |                  |
| 132011        | Accountants and Auditors                                    | 2.42           | 3,296           | 31.06            | 18.93 | 5                   | Yes              |
| <b>271011</b> | <b>Art Directors**</b>                                      | 1.97           | 89              | 34.49            | 22.87 | 5                   | No               |
| 132031        | Budget Analysts   | 1.82           | 107             | 30.41            | 20.78 | 5                   | No               |
| <b>111011</b> | <b>Chief Executives**</b>                                   | 0.64           | 736             | 89.58            | 47.76 | 5                   | No               |
| 172051        | Civil Engineers   | 3.36           | 697             | 39.54            | 25.24 | 5                   | Yes              |
| <b>113021</b> | <b>Computer and Information Systems Managers**</b>          | 1.78           | 248             | 59.46            | 39.77 | 5                   | Yes              |
| 251021        | Computer Science Teachers, Postsecondary                    | 1.71           | 75              | 51.02            | 23.13 | 5                   | Yes              |
| <b>151032</b> | <b>Computer Software Engineers, Systems Software</b>        | 2.54           | 385             | 42.63            | 28.69 | 5                   | Yes              |
| <b>273041</b> | <b>Editors</b>  | 1.17           | 189             | 33.26            | 17.97 | 5                   | No               |
| <b>119032</b> | <b>Education Administrators, Elementary and Secondary**</b> | 1.35           | 192             | 54.70            | 41.17 | 5                   | No               |
| <b>172071</b> | <b>Electrical Engineers</b>                                 | 1.06           | 225             | 39.08            | 25.32 | 5                   | Yes              |
| 252021        | Elementary School Teachers, Except Special Education        | 2.11           | 3,057           | 30.78            | 22.05 | 5                   | No               |
| <b>119041</b> | <b>Engineering Managers**</b>                               | 1.78           | 156             | 57.24            | 39.86 | 5                   | Yes              |
| 172081        | Environmental Engineers                                     | 2.14           | 124             | 32.87            | 19.52 | 5                   | Yes              |
| 192041        | Environmental Scientists & Specialists, Including Health    | 1.20           | 261             | 27.03            | 17.36 | 5                   | Yes              |
| 132051        | Financial Analysts  | 2.42           | 305             | 32.99            | 21.32 | 5                   | Yes              |
| 113031        | Financial Managers**  | 1.36           | 561             | 56.41            | 32.28 | 5                   | Yes              |
| 172112        | Industrial Engineers  | 2.49           | 467             | 33.27            | 20.64 | 5                   | Yes              |
| 252012        | Kindergarten Teachers, Except Special Education             | 2.03           | 451             | 30.41            | 21.64 | 5                   | No               |
| <b>171012</b> | <b>Landscape Architects</b>                                 | 3.36           | 83              | 33.23            | 20.66 | 5                   | No               |
| 131081        | Logisticians  | 2.31           | 149             | 31.85            | 20.63 | 5                   | Yes              |
| 131111        | Management Analysts**                                       | 1.67           | 1,649           | 36.22            | 19.13 | 5                   | No               |
| <b>112021</b> | <b>Marketing Managers</b>                                   | 2.12           | 237             | 51.93            | 26.79 | 5                   | No               |
| <b>172141</b> | <b>Mechanical Engineers</b>                                 | 1.65           | 236             | 37.07            | 24.06 | 5                   | Yes              |
| 119111        | Medical and Health Services Managers**                      | 1.99           | 344             | 48.74            | 31.04 | 5                   | No               |
| 252022        | Middle School Teachers, Exc. Special & Voc. Education       | 2.07           | 1,294           | 31.37            | 23.34 | 5                   | No               |
| 291071        | Physician Assistants  | 4.11           | 237             | 43.03            | 31.55 | 5                   | Yes              |
| <b>112031</b> | <b>Public Relations Managers**</b>                          | 1.81           | 60              | 51.97            | 31.03 | 5                   | No               |
| <b>273031</b> | <b>Public Relations Specialists</b>                         | 2.82           | 822             | 28.00            | 16.97 | 5                   | No               |
| 291111        | Registered Nurses*  | 2.36           | 6,294           | 30.83            | 22.99 | 4/5                 | Yes              |
| 112022        | Sales Managers  | 2.50           | 692             | 61.64            | 29.81 | 5                   | No               |
| 252031        | Secondary School Teachers, Exc. Special and Voc. Ed.        | 1.40           | 1,672           | 32.53            | 23.92 | 5                   | No               |
| <b>413031</b> | <b>Securities and Financial Services Sales Agents</b>       | 0.84           | 739             | 42.91            | 18.84 | 5                   | No               |
| <b>252042</b> | <b>Special Education Teachers, Middle School</b>            | 2.35           | 203             | 32.42            | 24.14 | 5                   | No               |
| 252041        | Special Education Teachers, Preschool - Elementary          | 2.38           | 495             | 32.71            | 24.04 | 5                   | No               |
| <b>252043</b> | <b>Special Education Teachers, Secondary School</b>         | 1.81           | 193             | 32.77            | 23.54 | 5                   | No               |
| <b>171022</b> | <b>Surveyors</b>  | 2.55           | 117             | 28.72            | 17.44 | 5                   | Yes              |
| <b>273042</b> | <b>Technical Writers</b>                                    | 1.92           | 57              | 27.23            | 18.16 | 5                   | No               |
| 193051        | Urban and Regional Planners                                 | 2.45           | 104             | 31.07            | 22.10 | 5                   | No               |
| <b>252032</b> | <b>Vocational Education Teachers, Secondary School**</b>    | 1.25           | 195             | 35.40            | 23.54 | 5                   | No               |

Occupations in **bold** are found in industries that have experienced job declines in the economic downturn that began in 2007. These occupations may currently have an oversupply of trained workers, but are projected to have strong demand over the long term.

†SOC Code and Occupational Title refer to Standard Occupational Classification codes and titles.

\* Entrance into the occupation can be obtained with either an associate's degree or a bachelor's degree. Due to the strong labor market demand for registered nurses, this occupation is being recommended for targeting by both the workforce system ( 2 years or less programs) and by the four year degree institutions as well.

\*\* Entrance into the occupation is typically obtained with a bachelor's degree accompanied by relevant work experience.

Source: Florida Department of Economic Opportunity, Labor Market Statistics Center, January 2012.

# Occupations Added to 2012-13 High Demand Occupations Requiring a Bachelor's Degree

Workforce Estimating Conference Selection Criteria:

- 1 FLDOE Training Code 5 (Bachelor's Degree)
- 2 50 annual openings and average growth rate of 1.62 percent or higher or 150 annual openings with any positive growth
- 3 Mean Wage of \$24.04/hour (\$50,000/year) and Entry Wage of \$16.83/hour (\$35,000/year)

| SOC Code†   | Occupational Title†                 | Annual  | Annual | 2011 Hourly Wage |       | FLDOE | STEM        | Reason |
|---|-------------------------------------|---------|--------|------------------|-------|-------|-------------|--------|
|   |                                     | Percent |        | Openings         | Mean  | Entry |             |        |
|   |                                     | Growth  |        | Mean             | Entry | Code  | Occupation? | Added* |
| Occupations in <b>bold</b> are found in industries that have experienced job declines in the economic downturn that began in 2007. These occupations may currently have an oversupply of trained workers, but are projected to have strong demand over the long term. |                                     |         |        |                  |       |       |             |        |
| 132031  | Budget Analysts                     | 1.82    | 107    | 30.41            | 20.78 | 5     | No          | G      |
| <b>273041</b>   | <b>Editors</b>                      | 1.17    | 189    | 33.26            | 17.97 | 5     | No          | EW     |
| <b>273031</b>   | <b>Public Relations Specialists</b> | 2.82    | 822    | 28.00            | 16.97 | 5     | No          | EW     |

†SOC Code and Occupational Title refer to Standard Occupational Classification codes and titles.

\*EW = Entry Wage, G = Annual Percent Growth.

# 2012-13 Final Florida Statewide Demand Occupations List

Sorted by Occupational Title

Workforce Estimating Conference Selection Criteria:

- 1 FLDOE Training Codes 3 (PSAV Certificate) and 4 (Community College Credit/Degree)
- 2 150 annual openings and average growth rate of 1.62% or 360 annual openings with any positive growth
- 3 Mean Wage of \$13.07/hour and Entry Wage of \$10.62/hour
- 4 High Skill/High Wage (HSHW) Occupations: Mean Wage of \$20.48/hour and Entry Wage of \$13.07/hour

| SOC Code†   | HSHW†† | Occupational Title‡  | Annual         | Annual   | 2011 Hourly Wage |       | FLDOE         | In EFI             | New to List? |
|---|--------|--|----------------|----------|------------------|-------|---------------|--------------------|--------------|
|   |        |  | Percent Growth | Openings | Mean             | Entry | Training Code | Targeted Industry? |              |
| Occupations with titles in <b>bold type</b> and followed by an <b>asterisk (*)</b> are found in declining industries and are not projected to return to their historical peak during the forecast period. They may have an oversupply of trained workers. |        |  |                |          |                  |       |               |                    |              |
| 113011  | HSHW   | Administrative Services Managers                                   | 1.71           | 325      | 47.99            | 29.25 | 4             | Yes                |              |
| 413011  |        | <b>Advertising Sales Agents*</b>                                   | 2.25           | 377      | 22.81            | 12.83 | 3             | Yes                |              |
| 173011  | HSHW   | Architectural and Civil Drafters                                   | 2.42           | 346      | 22.66            | 15.44 | 3             | Yes                | Yes          |
| 274011  |        | Audio and Video Equipment Technicians                              | 2.38           | 206      | 19.12            | 12.20 | 4             | Yes                |              |
| 493023  |        | <b>Automotive Service Technicians and Mechanics*</b>               | 1.54           | 1,482    | 18.34            | 11.54 | 3             | Yes                |              |
| 433031  |        | <b>Bookkeeping, Accounting, and Auditing Clerks*</b>               | 1.67           | 3,261    | 16.18            | 11.44 | 4             | Yes                |              |
| 472021  |        | <b>Brickmasons and Blockmasons*</b>                                | 3.28           | 263      | 18.40            | 13.44 | 3             | No                 |              |
| 131199  | HSHW   | Business Operations Specialists, All Other                         | 1.69           | 2,921    | 30.20            | 17.04 | 4             | Yes                |              |
| 535021  |        | Captains, Mates, and Pilots of Water Vessels                       | 2.33           | 230      | 27.36            | 10.94 | 3             | No                 |              |
| 292031  |        | Cardiovascular Technologists and Technicians                       | 2.25           | 186      | 20.51            | 11.93 | 3             | Yes                |              |
| 472031  |        | <b>Carpenters*</b>   | 2.87           | 1,864    | 17.38            | 11.41 | 3             | Yes                |              |
| 472051  |        | <b>Cement Masons and Concrete Finishers*</b>                       | 3.76           | 464      | 15.49            | 11.16 | 3             | No                 |              |
| 173022  | HSHW   | Civil Engineering Technicians                                      | 2.21           | 168      | 24.34            | 16.45 | 4             | Yes                | Yes          |
| 131031  | HSHW   | <b>Claims Adjusters, Examiners, and Investigators*</b>             | 1.35           | 620      | 27.12            | 17.53 | 3             | Yes                |              |
| 532012  | HSHW   | Commercial Pilots  | 1.91           | 182      | 44.77            | 20.44 | 3             | Yes                |              |
| 131072  | HSHW   | <b>Compensation, Benefits, and Job Analysis Specialists*</b>       | 2.71           | 219      | 25.73            | 17.25 | 4             | Yes                |              |
| 131041  | HSHW   | Compliance Officers, Exc. Safety, Agri, Constr & Transp.           | 2.76           | 742      | 27.12            | 16.72 | 3             | Yes                |              |
| 151031  | HSHW   | Computer Software Engineers, Applications                          | 3.09           | 737      | 40.80            | 25.54 | 4             | Yes                |              |
| 151041  |        | Computer Support Specialists                                       | 1.61           | 1,494    | 19.91            | 13.84 | 3             | Yes                |              |
| 151051  | HSHW   | <b>Computer Systems Analysts*</b>                                  | 2.12           | 945      | 34.90            | 23.24 | 4             | Yes                |              |
| 474011  | HSHW   | Construction and Building Inspectors                               | 2.43           | 283      | 25.96            | 18.13 | 3             | Yes                |              |
| 119021  | HSHW   | <b>Construction Managers*</b>                                      | 2.66           | 943      | 48.01            | 28.20 | 4             | Yes                |              |
| 333012  |        | <b>Correctional Officers and Jailers*</b>                          | 0.08           | 781      | 19.34            | 15.33 | 3             | No                 |              |
| 131051  | HSHW   | <b>Cost Estimators*</b>  | 4.47           | 684      | 27.88            | 17.75 | 4             | Yes                |              |
| 151061  | HSHW   | <b>Database Administrators*</b>                                    | 1.96           | 185      | 34.38            | 22.70 | 4             | Yes                |              |
| 319091  |        | Dental Assistants  | 3.72           | 844      | 16.17            | 12.11 | 3             | Yes                |              |
| 292021  | HSHW   | Dental Hygienists  | 3.86           | 525      | 28.55            | 20.50 | 4             | Yes                |              |
| 292032  | HSHW   | Diagnostic Medical Sonographers                                    | 1.82           | 154      | 27.88            | 21.77 | 3             | Yes                |              |
| 472081  |        | <b>Drywall and Ceiling Tile Installers*</b>                        | 3.97           | 271      | 15.79            | 12.06 | 3             | No                 |              |
| 492094  | HSHW   | Electrical and Electronics Repairers, Coml. and Ind. Equipment     | 1.70           | 174      | 22.42            | 14.19 | 3             | Yes                | Yes          |
| 472111  |        | <b>Electricians*</b>   | 2.23           | 1,370    | 19.65            | 14.34 | 3             | Yes                |              |
| 292041  |        | Emergency Medical Technicians and Paramedics                       | 1.64           | 326      | 15.50            | 10.98 | 4             | Yes                | Yes          |
| 131071  | HSHW   | Employment, Recruitment, and Placement Specialists                 | 3.46           | 944      | 22.60            | 15.02 | 4             | Yes                |              |
| 436011  |        | <b>Executive Secretaries and Administrative Assistants*</b>        | 1.81           | 2,900    | 20.04            | 14.34 | 3             | Yes                |              |
| 332011  | HSHW   | Fire Fighters  | 2.25           | 1,166    | 24.36            | 14.83 | 3             | No                 |              |
| 471011  | HSHW   | <b>First-Line Superv. of Construction and Extraction Workers*</b>  | 3.07           | 2,071    | 28.42            | 18.62 | 4             | Yes                |              |
| 351012  |        | First-Line Superv. of Food Preparation & Serving Workers           | 1.14           | 900      | 16.48            | 11.16 | 3             | Yes                |              |
| 371012  | HSHW   | First-Line Superv. of Landscaping and Groundskeeping               | 2.18           | 454      | 21.01            | 14.46 | 3             | No                 |              |
| 491011  | HSHW   | <b>First-Line Superv. of Mechanics, Installers, and Repairers*</b> | 1.45           | 851      | 28.85            | 19.02 | 3             | Yes                |              |
| 431011  | HSHW   | First-Line Superv. of Office and Admin. Support Workers            | 1.85           | 3,181    | 23.14            | 14.95 | 4             | Yes                |              |
| 511011  | HSHW   | <b>First-Line Superv. of Production and Operating Workers*</b>     | 0.59           | 363      | 26.93            | 17.59 | 3             | Yes                |              |
| 411012  | HSHW   | <b>First-Line Supervisors of Non-Retail Sales Workers*</b>         | 1.29           | 988      | 44.80            | 24.69 | 4             | Yes                |              |
| 391021  |        | <b>First-Line Supervisors of Personal Service Workers*</b>         | 1.72           | 623      | 19.34            | 12.10 | 3             | Yes                |              |
| 411011  |        | First-Line Supervisors of Retail Sales Workers                     | 1.22           | 3,277    | 20.86            | 12.98 | 3             | Yes                |              |
| 119051  | HSHW   | Food Service Managers  | 1.08           | 528      | 27.13            | 18.63 | 4             | Yes                |              |

# 2012-13 Final Florida Statewide Demand Occupations List

Sorted by Occupational Title

Workforce Estimating Conference Selection Criteria:

- 1 FLDOE Training Codes 3 (PSAV Certificate) and 4 (Community College Credit/Degree)
- 2 150 annual openings and average growth rate of 1.62% or 360 annual openings with any positive growth
- 3 Mean Wage of \$13.07/hour and Entry Wage of \$10.62/hour
- 4 High Skill/High Wage (HSHW) Occupations: Mean Wage of \$20.48/hour and Entry Wage of \$13.07/hour

| SOC Code†   | HSHW†† | Occupational Title‡   | Annual         | Annual   | 2011 Hourly Wage |       | FLDOE         | In EFI             | New to List? |
|---|--------|---|----------------|----------|------------------|-------|---------------|--------------------|--------------|
|   |        |   | Percent Growth | Openings | Mean             | Entry | Training Code | Targeted Industry? |              |
| Occupations with titles in <b>bold type</b> and followed by an <b>asterisk (*)</b> are found in declining industries and are not projected to return to their historical peak during the forecast period. They may have an oversupply of trained workers. |        |   |                |          |                  |       |               |                    |              |
| 111021  | HSHW   | <b>General and Operations Managers*</b>                           | 0.72           | 1,956    | 49.96            | 24.91 | 4             | Yes                |              |
| 472121  |        | <b>Glaziers*</b>  | 3.23           | 204      | 17.24            | 11.48 | 3             | Yes                |              |
| 271024  | HSHW   | Graphic Designers   | 1.84           | 746      | 20.89            | 13.73 | 4             | Yes                |              |
| 292099  |        | Health Technologists and Technicians, All Other                   | 1.82           | 184      | 18.98            | 12.87 | 3             | Yes                |              |
| 499021  |        | Heating, A.C., and Refrigeration Mechanics and Installers         | 3.95           | 1,227    | 19.20            | 13.19 | 3             | Yes                |              |
| 499041  | HSHW   | Industrial Machinery Mechanics                                    | 2.44           | 404      | 21.97            | 15.27 | 3             | Yes                |              |
| 413021  | HSHW   | Insurance Sales Agents  | 1.41           | 1,828    | 29.98            | 14.96 | 3             | Yes                |              |
| 271025  | HSHW   | <b>Interior Designers*</b>  | 2.86           | 219      | 23.85            | 13.30 | 4             | Yes                |              |
| 436012  |        | <b>Legal Secretaries*</b>   | 1.54           | 458      | 19.68            | 13.68 | 3             | Yes                |              |
| 292061  |        | Licensed Practical and Licensed Vocational Nurses                 | 2.33           | 2,481    | 19.68            | 16.16 | 3             | Yes                |              |
| 434131  |        | <b>Loan Interviewers and Clerks*</b>                              | 1.25           | 527      | 16.99            | 12.52 | 3             | Yes                |              |
| 132072  | HSHW   | <b>Loan Officers*</b>   | 1.39           | 610      | 28.22            | 16.52 | 4             | Yes                |              |
| 499042  |        | Maintenance and Repair Workers, General                           | 1.74           | 2,486    | 15.74            | 10.72 | 3             | Yes                |              |
| 292012  |        | Medical and Clinical Laboratory Technicians                       | 2.07           | 292      | 17.39            | 11.21 | 4             | Yes                |              |
| 319092  |        | Medical Assistants  | 3.16           | 1,524    | 14.12            | 11.05 | 3             | Yes                |              |
| 499062  |        | Medical Equipment Repairers                                       | 3.77           | 198      | 18.50            | 11.72 | 3             | Yes                |              |
| 292071  |        | Medical Records and Health Information Technicians                | 2.13           | 439      | 16.57            | 10.81 | 4             | Yes                | Yes          |
| 436013  |        | <b>Medical Secretaries*</b>                                       | 2.37           | 711      | 13.90            | 10.98 | 3             | Yes                |              |
| 319094  |        | Medical Transcriptionists   | 1.73           | 150      | 14.89            | 11.25 | 3             | Yes                | Yes          |
| 131121  | HSHW   | Meeting and Convention Planners                                   | 2.90           | 187      | 22.13            | 14.03 | 4             | Yes                |              |
| 493042  | HSHW   | <b>Mobile Heavy Equipment Mechanics, Except Engines*</b>          | 2.36           | 168      | 20.54            | 14.51 | 3             | No                 |              |
| 151071  | HSHW   | Network and Computer Systems Administrators                       | 2.16           | 546      | 34.32            | 22.45 | 4             | Yes                |              |
| 151081  | HSHW   | Network Systems and Data Communications Analysts                  | 5.07           | 1,409    | 34.54            | 21.46 | 3             | Yes                |              |
| 472073  |        | <b>Operating Engineers/Construction Equipment Operators*</b>      | 2.18           | 588      | 17.48            | 12.88 | 3             | Yes                |              |
| 292081  |        | Opticians, Dispensing   | 1.63           | 159      | 17.79            | 11.79 | 4             | Yes                | Yes          |
| 232011  | HSHW   | Paralegals and Legal Assistants                                   | 2.70           | 812      | 22.59            | 15.16 | 3             | Yes                |              |
| 312021  | HSHW   | Physical Therapist Assistants                                     | 3.09           | 167      | 26.93            | 20.22 | 4             | Yes                |              |
| 472151  |        | <b>Pipelayers*</b>  | 2.10           | 155      | 16.24            | 12.24 | 3             | No                 |              |
| 472152  |        | <b>Plumbers, Pipefitters, and Steamfitters*</b>                   | 2.34           | 966      | 19.17            | 13.17 | 3             | Yes                |              |
| 333051  | HSHW   | <b>Police and Sheriff's Patrol Officers*</b>                      | 1.13           | 1,256    | 27.20            | 18.71 | 3             | No                 |              |
| 435031  |        | Police, Fire, and Ambulance Dispatchers                           | 2.27           | 262      | 18.66            | 13.15 | 3             | Yes                |              |
| 339021  | HSHW   | Private Detectives and Investigators                              | 2.83           | 193      | 23.43            | 15.44 | 4             | Yes                |              |
| 119141  | HSHW   | Property, Real Estate & Community Association Managers            | 1.33           | 596      | 29.61            | 16.54 | 4             | Yes                |              |
| 131023  | HSHW   | Purchasing Agents, Except Farm Products & Trade                   | 2.20           | 630      | 26.87            | 17.52 | 4             | Yes                |              |
| 292034  | HSHW   | Radiologic Technologists and Technicians                          | 1.66           | 427      | 25.27            | 19.19 | 3             | Yes                |              |
| 419021  | HSHW   | Real Estate Brokers   | 2.00           | 521      | 30.61            | 13.81 | 3             | Yes                |              |
| 419022  |        | <b>Real Estate Sales Agents*</b>                                  | 2.47           | 1,627    | 19.81            | 10.80 | 3             | Yes                |              |
| 291111  | HSHW   | Registered Nurses   | 2.36           | 6,294    | 30.83            | 22.99 | 4             | Yes                |              |
| 291126  | HSHW   | Respiratory Therapists  | 2.20           | 257      | 24.97            | 20.62 | 4             | Yes                |              |
| 472181  |        | <b>Roofers*</b>   | 2.84           | 447      | 15.58            | 11.68 | 3             | No                 |              |
| 535011  |        | <b>Sailors and Marine Oilers*</b>                                 | 1.81           | 182      | 16.83            | 11.12 | 3             | No                 |              |
| 414011  | HSHW   | Sales Representatives, Wholesale & Mfg, Tech. & Sci. Products     | 1.78           | 1,246    | 41.77            | 22.70 | 3             | Yes                |              |
| 414012  | HSHW   | <b>Sales Representatives, Wholesale and Manufacturing, Other*</b> | 1.82           | 3,260    | 28.34            | 14.52 | 3             | Yes                |              |
| 492098  |        | Security and Fire Alarm Systems Installers                        | 3.74           | 404      | 17.83            | 13.32 | 3             | No                 |              |
| 472211  |        | <b>Sheet Metal Workers*</b>                                       | 2.49           | 259      | 17.89            | 12.60 | 3             | Yes                |              |

# 2012-13 Final Florida Statewide Demand Occupations List

**Sorted by Occupational Title**

Workforce Estimating Conference Selection Criteria:

- 1 FLDOE Training Codes 3 (PSAV Certificate) and 4 (Community College Credit/Degree)
- 2 150 annual openings and average growth rate of 1.62% or 360 annual openings with any positive growth
- 3 Mean Wage of \$13.07/hour and Entry Wage of \$10.62/hour
- 4 High Skill/High Wage (HSHW) Occupations: Mean Wage of \$20.48/hour and Entry Wage of \$13.07/hour

| SOC Code†   | HSHW†† | Occupational Title†                              | Annual  | Annual | 2011 Hourly Wage |       | FLDOE | In EFI | New |
|---|--------|--|---------|--------|------------------|-------|-------|--------|-----|
|   |        |  | Percent |        | Openings         | Mean  |       |        |     |
| Occupations with titles in <b>bold type</b> and followed by an <b>asterisk (*)</b> are found in declining industries and are not projected to return to their historical peak during the forecast period. They may have an oversupply of trained workers. |        |  |         |        |                  |       |       |        |     |
| 211093  |        | Social and Human Service Assistants              | 1.28    | 360    | 14.37            | 11.02 | 3     | Yes    | Yes |
| 292055  |        | Surgical Technologists                           | 2.56    | 304    | 18.12            | 14.55 | 3     | Yes    |     |
| 173031  |        | <b>Surveying and Mapping Technicians*</b>        | 3.31    | 359    | 18.40            | 12.32 | 3     | Yes    |     |
| 533032  |        | Truck Drivers, Heavy and Tractor-Trailer         | 2.19    | 2,763  | 17.65            | 12.29 | 3     | Yes    |     |
| 292056  |        | Veterinary Technologists and Technicians         | 4.08    | 397    | 14.50            | 10.88 | 4     | Yes    | Yes |
| 518031  | HSHW   | Water and Liquid Waste Treatment Plant Operators | 2.31    | 243    | 21.74            | 14.96 | 3     | Yes    |     |
| 514121  |        | <b>Welders, Cutters, Solderers, and Brazers*</b> | 1.49    | 470    | 17.55            | 12.40 | 3     | Yes    |     |

†SOC Code and Occupational Title refer to Standard Occupational Classification codes and titles.

††HSHW = High Skill/High Wage.

EFI - Enterprise Florida, Inc.

# Occupations Added To The 2012-13 Final Florida Statewide Demand Occupations List

Workforce Estimating Conference Selection Criteria:

- 1 FLDOE Training Codes 3 (PSAV Certificate) and 4 (Community College Credit/Degree)
- 2 150 annual openings and average growth rate of 1.62% or 360 annual openings with any positive growth
- 3 Mean Wage of \$13.07/hour and Entry Wage of \$10.62/hour
- 4 High Skill/High Wage (HSHW) Occupations:  
Mean Wage of \$20.48/hour and Entry Wage of \$13.07/hour

| SOC Code† | HSHW†† | Occupational Title†  | Annual<br>Percent<br>Growth | Annual<br>Openings | 2011 Hourly Wage |              | FLDOE<br>Training<br>Code | Reason<br>Added* |
|-----------|--------|--|-----------------------------|--------------------|------------------|--------------|---------------------------|------------------|
|           |        |  |                             |                    | Mean             | Entry        |                           |                  |
| 173011    | HSHW   | Architectural and Civil Drafters                               | <b>2.42</b>                 | 346                | 22.66            | 15.44        | 3                         | G                |
| 173022    | HSHW   | Civil Engineering Technicians                                  | <b>2.21</b>                 | 168                | 24.34            | 16.45        | 4                         | G                |
| 492094    | HSHW   | Electrical and Electronics Repairers, Coml. and Ind. Equipment | <b>1.70</b>                 | 174                | 22.42            | 14.19        | 3                         | G                |
| 292041    |        | Emergency Medical Technicians and Paramedics                   | <b>1.64</b>                 | 326                | 15.50            | 10.98        | 4                         | G                |
| 292071    |        | Medical Records and Health Information Technicians             | 2.13                        | 439                | 16.57            | <b>10.81</b> | 4                         | EW               |
| 319094    |        | Medical Transcriptionists                                      | 1.73                        | <b>150</b>         | 14.89            | 11.25        | 3                         | O                |
| 292081    |        | Opticians, Dispensing  | <b>1.63</b>                 | 159                | 17.79            | 11.79        | 4                         | G                |
| 211093    |        | Social and Human Service Assistants                            | 1.28                        | 360                | 14.37            | <b>11.02</b> | 3                         | EW               |
| 292056    |        | Veterinary Technologists and Technicians                       | 4.08                        | 397                | 14.50            | <b>10.88</b> | 4                         | EW               |

†SOC Code and Occupational Title refer to Standard Occupational Classification codes and titles.

††HSHW = High Skill/High Wage.

\*EW = Entry Wage, G = Annual Percent Growth, O = Annual Openings.



# Occupations Dropped From The 2011-12 Final Florida Statewide Demand Occupations List

Workforce Estimating Conference Selection Criteria:

- 1 FLDOE Training Codes 3 (PSAV Certificate) and 4 (Community College Credit/Degree)
- 2 150 annual openings and average growth rate of 1.62% or 360 annual openings with any positive growth
- 3 Mean Wage of \$13.07/hour and Entry Wage of \$10.62/hour
- 4 High Skill/High Wage (HSHW) Occupations: Mean Wage of \$20.48/hour and Entry Wage of \$13.07/hour

| SOC Code† | HSHW†† | Occupational Title†                            | Annual<br>Percent<br>Growth | Annual<br>Openings | 2011 Hourly Wage |              | FLDOE<br>Training<br>Code | Reason<br>Dropped* |
|-----------|--------|--|-----------------------------|--------------------|------------------|--------------|---------------------------|--------------------|
|           |        |  |                             |                    | Mean             | Entry        |                           |                    |
| 434161    |        | Human Resources Assistants, Exc. Payroll       | <b>0.23</b>                 | <b>349</b>         | 16.62            | 12.50        | 3                         | G, O               |
| 472141    |        | <b>Painters, Construction and Maintenance*</b> | 2.28                        | 889                | 14.83            | <b>9.80</b>  | 3                         | EW                 |
| 253021    |        | <b>Self-Enrichment Education Teachers*</b>     | 2.04                        | 414                | 18.34            | <b>10.57</b> | 3                         | EW                 |

†SOC Code and Occupational Title refer to Standard Occupational Classification codes and titles.

††HSHW = High Skill/High Wage.

\*EW = Entry Wage, G = Annual Percent Growth, O = Annual Openings.

# Science, Technology, Engineering, and Mathematics (STEM) Occupations

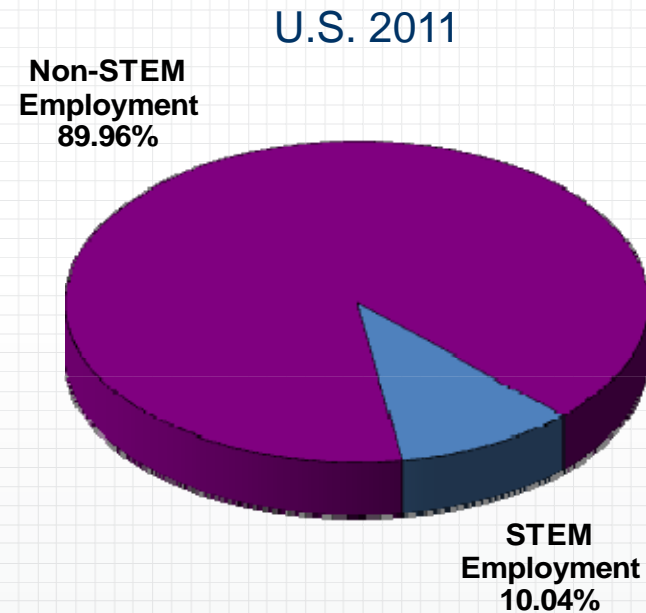
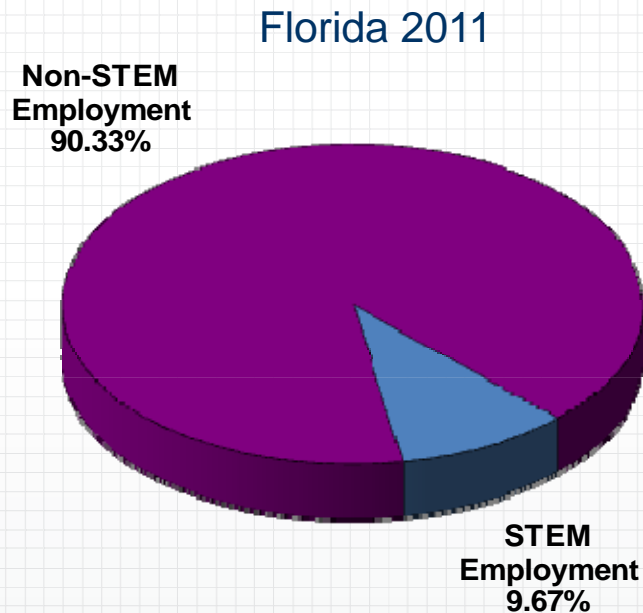
## Workforce Estimating Conference

Labor Market Statistics Center  
February 13, 2012



# Science, Technology, Engineering, and Mathematics\* 2011 Employment: Florida vs. the Nation

- Florida's STEM vs. non-STEM employment breakdown closely follows that of the United States



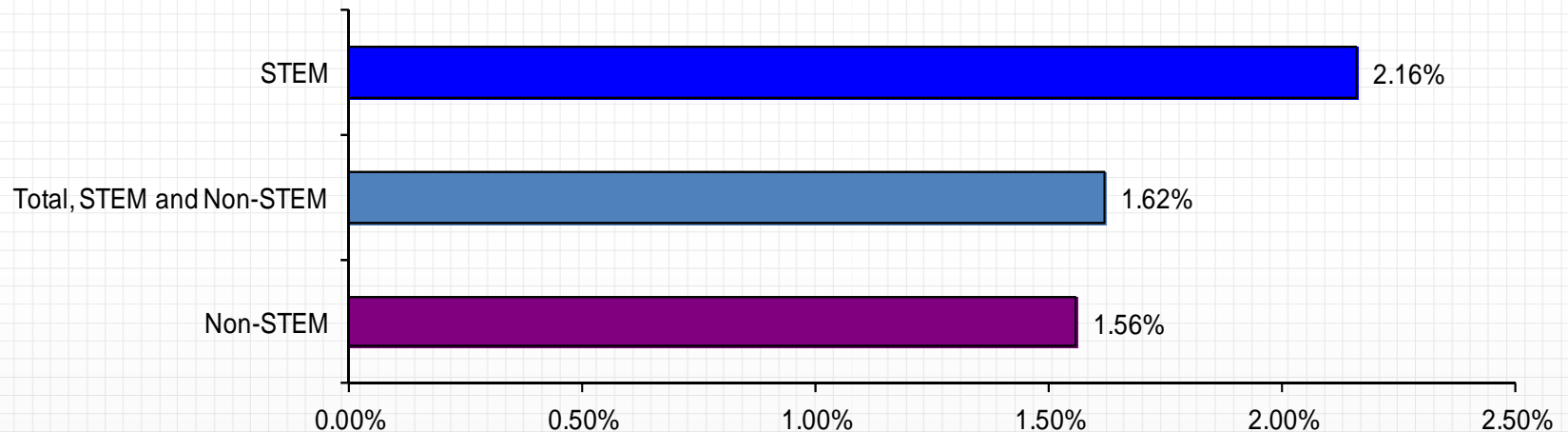
\*As defined by Florida Department of Economic Opportunity, Labor Market Statistics Center

Source: Florida Department of Economic Opportunity, Labor Market Statistics Center, and U.S. Department of Labor, Bureau of Labor Statistics.

# Science, Technology, Engineering, and Mathematics\* Florida Job Growth Rates 2011-2019

- STEM jobs are projected to grow faster than non-STEM jobs in Florida

## Annual Percent Growth



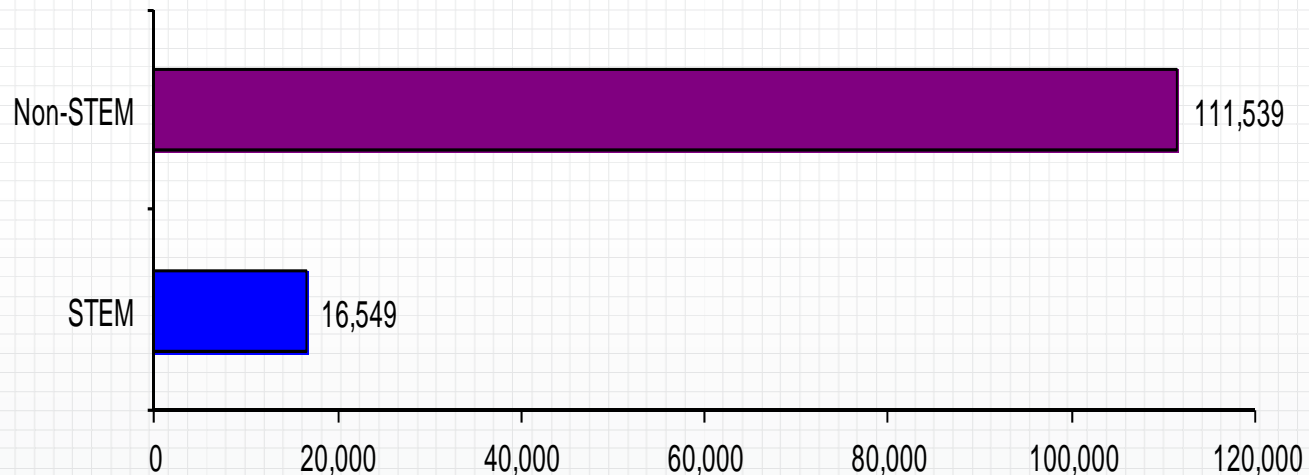
\*As defined by Florida Department of Economic Opportunity, Labor Market Statistics Center

Source: Florida Department of Economic Opportunity, Labor Market Statistics Center, Forecast to 2019, released October 2011.

# Science, Technology, Engineering, and Mathematics\* Florida Job Growth 2011-2019

- There will be almost 8 times as many new non-STEM jobs as new STEM jobs in Florida

## Annual Job Growth



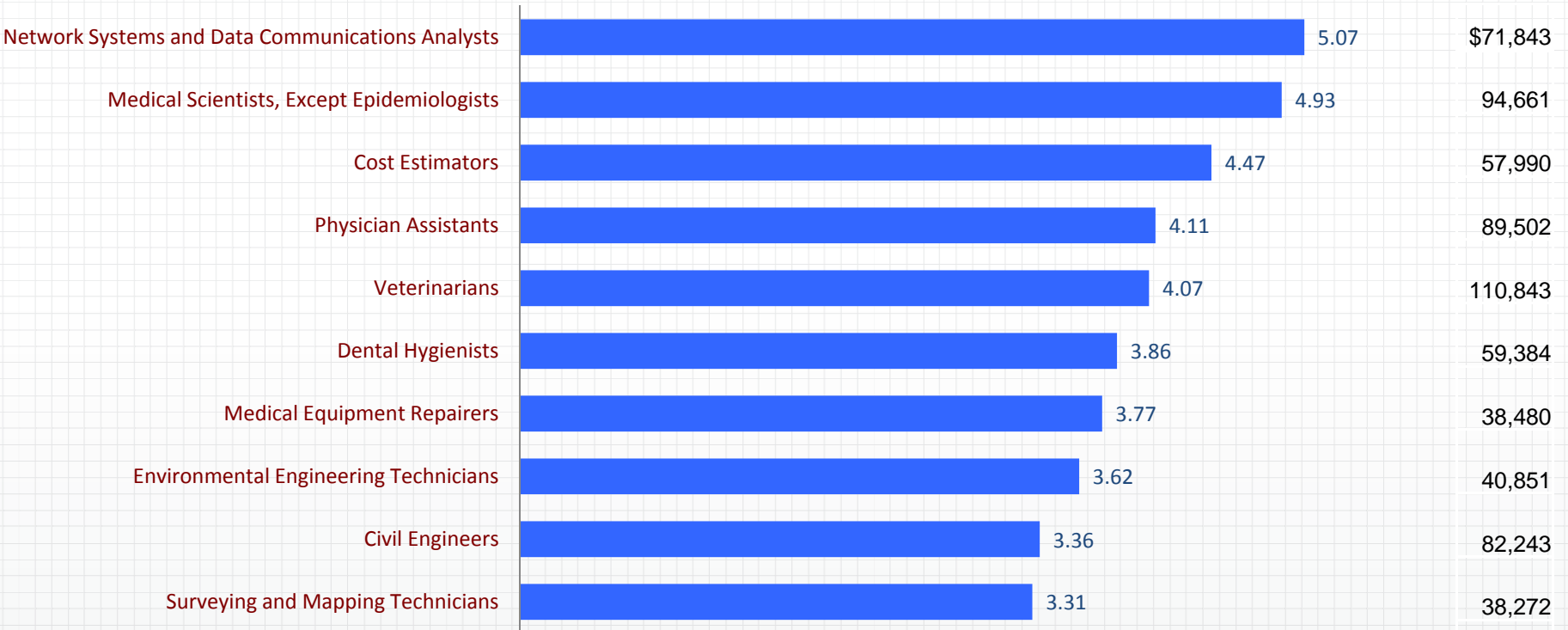
\*As defined by Florida Department of Economic Opportunity, Labor Market Statistics Center

Source: Florida Department of Economic Opportunity, Labor Market Statistics Center, Forecast to 2019, released October 2011.

# Science, Technology, Engineering, and Mathematics\* Fastest-Growing Occupations\*\* in Florida 2011-2019

## Annual Percent Growth

Average  
Annual  
Wage



**\*As defined by Florida Department of Economic Opportunity, Labor Market Statistics Center**

\*\* This table includes occupations with a minimum of 1,000 jobs in 2011

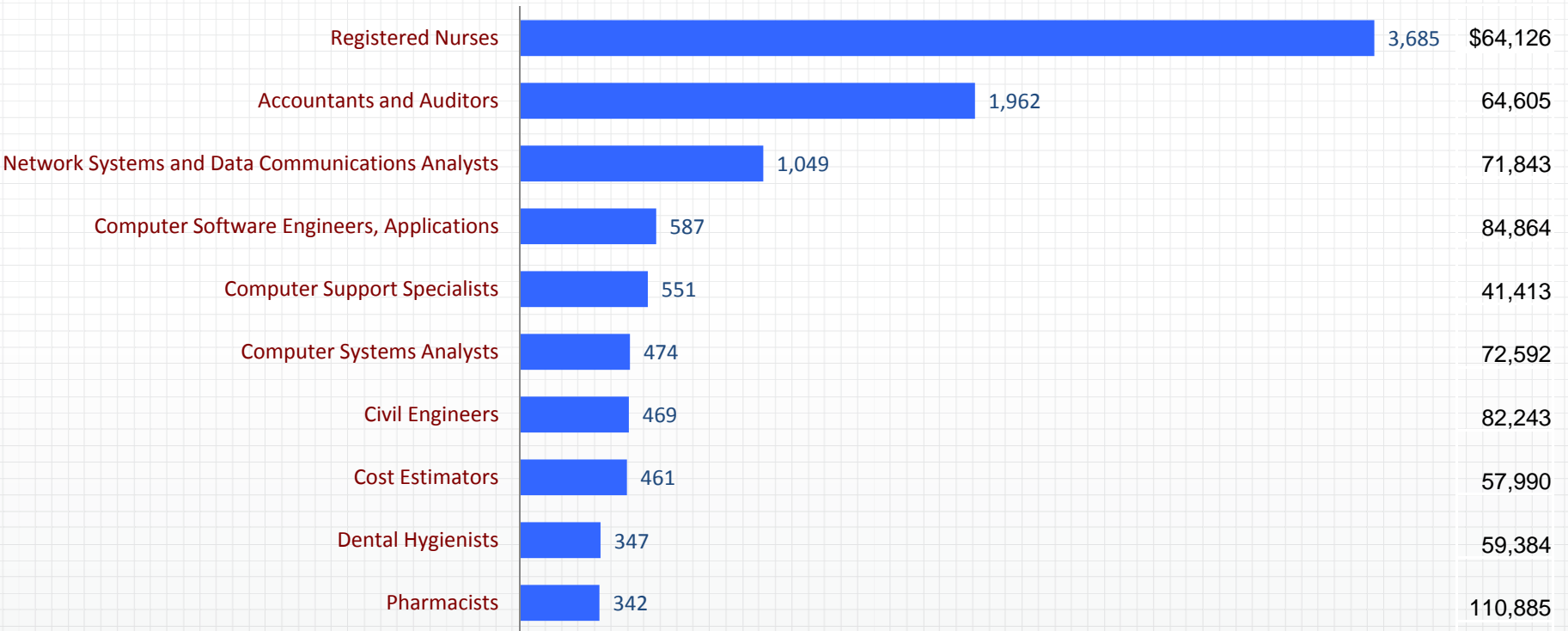
Source: Florida Department of Economic Opportunity, Labor Market Statistics Center, Forecast to 2019, released October 2011.



# Science, Technology, Engineering, and Mathematics\* Occupations Gaining the Most New Jobs in Florida 2011-2019

## Annual Job Growth

Average  
Annual  
Wage



**\*As defined by Florida Department of Economic Opportunity, Labor Market Statistics Center**

Source: Florida Department of Economic Opportunity, Labor Market Statistics Center, Forecast to 2019, released October 2011.



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[www.floridajobs.org/labor-market-information](http://www.floridajobs.org/labor-market-information)

[fred.labormarketinfo.com](http://fred.labormarketinfo.com)

[www.floridawages.com](http://www.floridawages.com)

[www.whatpeopleareasking.com](http://www.whatpeopleareasking.com)





## **Defining Science, Technology, Engineering, and Mathematics (STEM) Occupations in Florida**

The Occupational Information Network (O\*NET) is a comprehensive system developed by the U.S. Department of Labor that provides information for 965 occupations within the U.S. economy. This information is maintained in a comprehensive database, developed to replace the Dictionary of Occupational Titles (DOT) (U.S. Department of Labor, 1991). In order to keep the database current, the National Center for O\*NET Development is involved in a continual data collection process aimed at identifying and maintaining current information on the characteristics of workers and jobs. Importance and level information regarding the abilities and skills associated with these occupations is collected from occupational analysts.

The Department of Economic Opportunity, Labor Market Statistics Center (LMS) used the O\*NET list of STEM occupations as a starting point for the analysis and definition of STEM in Florida. It was quickly evident that this list was too encompassing of occupations that would not meet a Florida definition of STEM. The O\*NET list of STEM occupations included occupations for which there was no educational requirement beyond high school. Other occupations lacked a clear link to the knowledge, skills, and abilities that are foundational to STEM. Of equal concern was that the O\*NET definition, like all other national STEM taxonomies, did not include health care occupations.

LMS, working with the STEMflorida Task Force, began looking at value criteria that could be applied to the list of STEM occupations from O\*NET and produce a Florida-specific occupational definition for STEM. The first decision was to include health care occupations because of their prevalence in and importance to Florida's economy.

Next, LMS selected STEM-related knowledge areas from O\*NET in order to establish a value threshold for STEM occupations. The STEM-related knowledge areas are biology, chemistry, computers and electronics, engineering and technology, mathematics, medicine or dentistry, and physics. Each knowledge area was measured against each occupation in order to measure the importance of the knowledge area to the occupation and the level of skill required in each knowledge area to successfully perform the occupation.

These thresholds were established acknowledging the consensus of the STEMflorida Task Force that a Florida-specific STEM occupation should be as inclusive as possible. This is to enable career ladders that include entry points. At the same time, we were aware of the consensus of the Task Force that there should be some value-added educational component to a STEM occupation. For this reason, occupations that require less than some level of post secondary education and/or training were excluded.

LMS also looked at the Florida Department of Education, Career and Adult Education program to ensure that occupations listed in the department's Science, Technology, Engineering & Math (STEM) Curriculum Framework were included in the LMS list of STEM occupations if they also met established criteria.

The resulting workbook lists 135 STEM occupations for Florida. Occupations are defined using both the 2000 and 2010 Standard Occupational Code (SOC) and the more detailed O\*NET code. The 2011 annual wage and the education code are included for each occupation.

The list of STEM occupations is intended to be a starting point. As partner groups offer feedback and as technology itself changes, the list of Florida STEM occupations will be adjusted to accommodate these changes.

## Defining Science, Technology, Engineering, and Mathematics (STEM) Occupations Based on O\*NET Subject Knowledge Values (Importance and Level)

| Subject Knowledge                                    | O*NET Value Criteria |       |
|--|----------------------|-------|
|  | Importance           | Level |
| Biology  | 70                   | 65    |
| Chemistry  | 70                   | 65    |
| Computers and Electronics Engineering and Technology | 70                   | 65    |
| Mathematics  | 70                   | 65    |
| Medicine or Dentistry                                | 70                   | 65    |
| Physics  | 70                   | 65    |

| Occupation Count | 2000 SOC Code | 2000 SOC Title                                   | O*NET Subject Knowledge Needed | O*NET Subject Knowledge Values (0-100) |          | Composite Knowledge Score | O*NET Code | 2010 SOC Code | 2010 SOC Title                               | 2011 Average Wage | Education Code |
|------------------|---------------|--|--------------------------------|--|----------|---------------------------|------------|---------------|--|-------------------|----------------|
|                  |               |  |                                | Importance**                           | Level*** |                           |            |               |  |                   |                |
| 1                | 11-3021       | Computer and Information Systems Managers        | Computers and Electronics      | 88                                     | 81       | 169                       | 11-3021.00 | 11-3021       | Computer and Information Systems Managers    | \$ 59.46          | 5              |
| 2                | 11-3031       | Financial Managers                               | Mathematics                    | 74                                     | 70       | 144                       | 11-3031.02 | 11-3031       | Financial Managers, Branch or Department     | \$ 56.41          | 5              |
| 3                | 11-3051       | Industrial Production Managers                   | Engineering and Technology     | 70                                     | 69       | 139                       | 11-3051.02 | 11-3051       | Geothermal Production Managers               | \$ 51.22          | 4              |
| 4                | 11-9041       | Engineering Managers                             | Engineering and Technology     | 95                                     | 91       | 186                       | 11-9041.00 | 11-9041       | Architectural and Engineering Managers       | \$ 57.24          | 5              |
| 5                | 11-9121       | Natural Science Managers*                        | Chemistry                      | 66                                     | 65       | 131                       | 11-9121.00 | 11-9121       | Natural Science Managers                     | \$ 57.12          | 5              |
| 6                | 13-1051       | Cost Estimators                                  | Mathematics                    | 86                                     | 79       | 165                       | 13-1051.00 | 13-1051       | Cost Estimators                              | \$ 27.88          | 4              |
| 7                | 13-1081       | Logisticians                                     | Engineering and Technology     | 75                                     | 76       | 151                       | 13-1081.01 | 13-1081       | Logistics Engineers                          | \$ 31.85          | 5              |
| 8                | 13-2011       | Accountants and Auditors                         | Mathematics                    | 77                                     | 70       | 147                       | 13-2011.01 | 13-2011       | Accountants                                  | \$ 31.06          | 5              |
| 9                | 13-2051       | Financial Analysts                               | Mathematics                    | 76                                     | 75       | 151                       | 13-2051.00 | 13-2051       | Financial Analysts                           | \$ 32.99          | 5              |
| 10               | 15-1011       | Computer and Information Scientists, Research    | Computers and Electronics      | 90                                     | 94       | 184                       | 15-1111.00 | 15-1111       | Computer and Information Research Scientists | \$ 42.70          | 6              |
| 11               | 15-1021       | Computer Programmers                             | Computers and Electronics      | 96                                     | 96       | 192                       | 15-1131.00 | 15-1131       | Computer Programmers                         | \$ 32.23          | 3              |
| 12               | 15-1031       | Computer Software Engineers, Applications        | Computers and Electronics      | 94                                     | 95       | 189                       | 15-1132.00 | 15-1132       | Software Developers, Applications            | \$ 40.80          | 4              |
| 13               | 15-1032       | Computer Software Engineers, Systems Software    | Computers and Electronics      | 95                                     | 91       | 186                       | 15-1133.00 | 15-1133       | Software Developers, Systems Software        | \$ 42.63          | 5              |
| 14               | 15-1041       | Computer Support Specialists                     | Computers and Electronics      | 95                                     | 85       | 180                       | 15-1151.00 | 15-1151       | Computer User Support Specialists            | \$ 19.91          | 3              |
| 15               | 15-1051       | Computer Systems Analysts                        | Computers and Electronics      | 90                                     | 83       | 173                       | 15-1121.00 | 15-1121       | Computer Systems Analysts                    | \$ 34.90          | 4              |
| 16               | 15-1061       | Database Administrators                          | Computers and Electronics      | 83                                     | 86       | 169                       | 15-1141.00 | 15-1141       | Database Administrators                      | \$ 34.38          | 4              |
| 17               | 15-1071       | Network and Computer Systems Administrators      | Computers and Electronics      | 87                                     | 81       | 168                       | 15-1142.00 | 15-1142       | Network and Computer Systems Administrators  | \$ 34.32          | 4              |
| 18               | 15-1081       | Network Systems and Data Communications Analysts | Computers and Electronics      | 96                                     | 91       | 187                       | 15-1122.00 | 15-1122       | Information Security Analysts                | \$ 34.54          | 3              |
| 19               | 15-1099       | Computer Specialists, All Other                  | Computers and Electronics      | 93                                     | 90       | 183                       | 15-1199.02 | 15-1199       | Computer Systems Engineers/Architects        | \$ 31.23          | 3              |
| 20               | 15-2011       | Actuaries  | Mathematics                    | 99                                     | 97       | 196                       | 15-2011.00 | 15-2011       | Actuaries                                    | \$ 45.51          | 5              |
| 21               | 15-2021       | Mathematicians                                   | Mathematics                    | 100                                    | 97       | 197                       | 15-2021.00 | 15-2021       | Mathematicians                               | \$ 39.25          | 6              |
| 22               | 15-2031       | Operations Research Analysts                     | Mathematics                    | 95                                     | 93       | 188                       | 15-2031.00 | 15-2031       | Operations Research Analysts                 | \$ 27.56          | 6              |
| 23               | 15-2041       | Statisticians                                    | Mathematics                    | 95                                     | 90       | 185                       | 15-2041.01 | 15-2041       | Biostatisticians                             | \$ 26.11          | 5              |
| 24               | 15-2091       | Mathematical Technicians                         | Mathematics                    | 100                                    | 81       | 181                       | 15-2091.00 | 15-2091       | Mathematical Technicians                     | \$ 16.27          | 4              |
| 25               | 17-1011       | Architects, Except Landscape and Naval           | Engineering and Technology     | 87                                     | 85       | 172                       | 17-1011.00 | 17-1011       | Architects, Except Landscape and Naval       | \$ 38.55          | 6              |
| 26               | 17-1021       | Cartographers and Photogrammetrists              | Computers and Electronics      | 74                                     | 66       | 140                       | 17-1021.00 | 17-1021       | Cartographers and Photogrammetrists          | \$ 35.01          | 5              |

| Occupation Count | 2000 SOC Code | 2000 SOC Title   | O*NET Subject Knowledge Needed | O*NET Subject Knowledge Values (0-100) |          | Composite Knowledge Score | O*NET Code | 2010 SOC Code | 2010 SOC Title  | 2011 Average Wage | Education Code |
|------------------|---------------|--|--------------------------------|--|----------|---------------------------|------------|---------------|---|-------------------|----------------|
|                  |               |  |                                | Importance**                           | Level*** |                           |            |               |   |                   |                |
| 27               | 17-1022       | Surveyors  | Mathematics                    | 92                                     | 82       | 174                       | 17-1022.00 | 17-1022       | Surveyors   | \$ 28.72          | 5              |
| 28               | 17-2011       | Aerospace Engineers  | Engineering and Technology     | 92                                     | 85       | 177                       | 17-2011.00 | 17-2011       | Aerospace Engineers   | \$ 43.91          | 5              |
| 29               | 17-2021       | Agricultural Engineers   | Engineering and Technology     | 95                                     | 92       | 187                       | 17-2021.00 | 17-2021       | Agricultural Engineers  | \$ 23.82          | 5              |
| 30               | 17-2031       | Biomedical Engineers   | Biology                        | 90                                     | 86       | 176                       | 17-2031.00 | 17-2031       | Biomedical Engineers  | \$ 37.81          | 5              |
| 31               | 17-2041       | Chemical Engineers   | Engineering and Technology     | 97                                     | 94       | 191                       | 17-2041.00 | 17-2041       | Chemical Engineers  | \$ 36.11          | 5              |
| 32               | 17-2051       | Civil Engineers  | Engineering and Technology     | 98                                     | 97       | 195                       | 17-2051.00 | 17-2051       | Civil Engineers   | \$ 39.54          | 5              |
| 33               | 17-2061       | Computer Hardware Engineers  | Computers and Electronics      | 93                                     | 91       | 184                       | 17-2061.00 | 17-2061       | Computer Hardware Engineers                                   | \$ 41.70          | 5              |
| 34               | 17-2071       | Electrical Engineers   | Engineering and Technology     | 94                                     | 88       | 182                       | 17-2071.00 | 17-2071       | Electrical Engineers  | \$ 39.08          | 5              |
| 35               | 17-2072       | Electronics Engineers, Except Computer                                     | Engineering and Technology     | 94                                     | 81       | 175                       | 17-2072.00 | 17-2072       | Electronics Engineers, Except Computer                        | \$ 40.26          | 5              |
| 36               | 17-2081       | Environmental Engineers  | Engineering and Technology     | 90                                     | 89       | 179                       | 17-2081.00 | 17-2081       | Environmental Engineers                                       | \$ 32.87          | 5              |
| 37               | 17-2111       | Health and Safety Engineers, Except Mining Safety Engineers and Inspectors | Engineering and Technology     | 89                                     | 85       | 174                       | 17-2111.02 | 17-2111       | Fire-Prevention and Protection Engineers                      | \$ 31.61          | 5              |
| 38               | 17-2112       | Industrial Engineers   | Engineering and Technology     | 86                                     | 73       | 159                       | 17-2112.00 | 17-2112       | Industrial Engineers  | \$ 33.27          | 5              |
| 39               | 17-2121       | Marine Engineers and Naval Architects                                      | Engineering and Technology     | 93                                     | 88       | 181                       | 17-2121.02 | 17-2121       | Marine Architects   | \$ 35.92          | 5              |
| 40               | 17-2131       | Materials Engineers  | Engineering and Technology     | 81                                     | 83       | 164                       | 17-2131.00 | 17-2131       | Materials Engineers   | \$ 38.80          | 5              |
| 41               | 17-2141       | Mechanical Engineers   | Engineering and Technology     | 93                                     | 84       | 177                       | 17-2141.00 | 17-2141       | Mechanical Engineers  | \$ 37.07          | 5              |
| 42               | 17-2151       | Mining and Geological Engineers, Including Mining Safety Engineers         | Engineering and Technology     | 90                                     | 83       | 173                       | 17-2151.00 | 17-2151       | Mining and Geological Engineers, Including Mining Safety Engi | \$ 34.14          | 5              |
| 43               | 17-2161       | Nuclear Engineers  | Engineering and Technology     | 97                                     | 95       | 192                       | 17-2161.00 | 17-2161       | Nuclear Engineers   | \$ 48.31          | 5              |
| 44               | 17-2171       | Petroleum Engineers  | Engineering and Technology     | 95                                     | 86       | 181                       | 17-2171.00 | 17-2171       | Petroleum Engineers   | \$ 41.51          | 5              |
| 45               | 17-2199       | Engineers, All Other   | Engineering and Technology     | 93                                     | 92       | 185                       | 17-2199.07 | 17-2199       | Photonics Engineers   | \$ 43.82          | 5              |
| 46               | 17-3011       | Architectural and Civil Drafters   | Mathematics                    | 78                                     | 68       | 146                       | 17-3011.02 | 17-3011       | Civil Drafters  | \$ 22.66          | 3              |
| 47               | 17-3013       | Mechanical Drafters  | Engineering and Technology     | 80                                     | 76       | 156                       | 17-3013.00 | 17-3013       | Mechanical Drafters   | \$ 24.35          | 3              |
| 48               | 17-3021       | Aerospace Engineering and Operations Technicians                           | Engineering and Technology     | 98                                     | 91       | 189                       | 17-3021.00 | 17-3021       | Aerospace Engineering and Operations Technicians              | \$ 22.95          | 4              |
| 49               | 17-3022       | Civil Engineering Technicians  | Engineering and Technology     | 72                                     | 73       | 145                       | 17-3022.00 | 17-3022       | Civil Engineering Technicians                                 | \$ 24.34          | 4              |
| 50               | 17-3023       | Electrical and Electronic Engineering Technicians                          | Computers and Electronics      | 82                                     | 70       | 152                       | 17-3023.03 | 17-3023       | Electrical Engineering Technicians                            | \$ 25.49          | 4              |
| 51               | 17-3024       | Electro-Mechanical Technicians   | Computers and Electronics      | 88                                     | 76       | 164                       | 17-3024.01 | 17-3024       | Robotics Technicians  | \$ 17.81          | 3              |
| 52               | 17-3025       | Environmental Engineering Technicians                                      | Engineering and Technology     | 78                                     | 68       | 146                       | 17-3025.00 | 17-3025       | Environmental Engineering Technicians                         | \$ 19.64          | 4              |
| 53               | 17-3026       | Industrial Engineering Technicians   | Computers and Electronics      | 85                                     | 65       | 150                       | 17-3026.00 | 17-3026       | Industrial Engineering Technicians                            | \$ 21.90          | 3              |
| 54               | 17-3027       | Mechanical Engineering Technicians   | Engineering and Technology     | 79                                     | 69       | 148                       | 17-3027.00 | 17-3027       | Mechanical Engineering Technicians                            | \$ 22.96          | 4              |
| 55               | 17-3029       | Engineering Technicians, Except Drafters, All Other                        | Computers and Electronics      | 94                                     | 84       | 178                       | 17-3029.04 | 17-3029       | Electronics Engineering Technologists                         | \$ 26.89          | 4              |
| 56               | 17-3031       | Surveying and Mapping Technicians  | Mathematics                    | 90                                     | 72       | 162                       | 17-3031.01 | 17-3031       | Surveying Technicians   | \$ 18.40          | 3              |
| 57               | 19-1011       | Animal Scientists  | Biology                        | 92                                     | 84       | 176                       | 19-1011.00 | 19-1011       | Animal Scientists   | \$ 20.93          | 5              |
| 58               | 19-1012       | Food Scientists and Technologists  | Chemistry                      | 87                                     | 81       | 168                       | 19-1012.00 | 19-1012       | Food Scientists and Technologists                             | \$ 29.03          | 5              |
| 59               | 19-1013       | Soil and Plant Scientists  | Biology                        | 82                                     | 79       | 161                       | 19-1013.00 | 19-1013       | Soil and Plant Scientists                                     | \$ 23.86          | 5              |
| 60               | 19-1021       | Biochemists and Biophysicists  | Biology                        | 83                                     | 88       | 171                       | 19-1021.00 | 19-1021       | Biochemists and Biophysicists                                 | \$ 35.27          | 6              |
| 61               | 19-1022       | Microbiologists  | Biology                        | 97                                     | 94       | 191                       | 19-1022.00 | 19-1022       | Microbiologists   | \$ 28.26          | 6              |
| 62               | 19-1023       | Zoologists and Wildlife Biologists   | Biology                        | 99                                     | 81       | 180                       | 19-1023.00 | 19-1023       | Zoologists and Wildlife Biologists                            | \$ 25.02          | 5              |
| 63               | 19-1029       | Biological Scientists, All Other   | Biology                        | 99                                     | 98       | 197                       | 19-1029.02 | 19-1029       | Molecular and Cellular Biologists                             | \$ 29.13          | 5              |
| 64               | 19-1031       | Conservation Scientists  | Biology                        | 81                                     | 69       | 150                       | 19-1031.03 | 19-1031       | Park Naturalists  | \$ 38.11          | 5              |
| 65               | 19-1041       | Epidemiologists  | Mathematics                    | 85                                     | 77       | 162                       | 19-1041.00 | 19-1041       | Epidemiologists   | \$ 32.57          | 6              |
| 66               | 19-1042       | Medical Scientists, Except Epidemiologists                                 | Biology                        | 85                                     | 84       | 169                       | 19-1042.00 | 19-1042       | Medical Scientists, Except Epidemiologists                    | \$ 45.51          | 6              |
| 67               | 19-2011       | Astronomers  | Physics                        | 100                                    | 97       | 197                       | 19-2011.00 | 19-2011       | Astronomers   | NA                | 6              |
| 68               | 19-2012       | Physicists   | Physics                        | 97                                     | 92       | 189                       | 19-2012.00 | 19-2012       | Physicists  | \$ 67.26          | 6              |
| 69               | 19-2021       | Atmospheric and Space Scientists   | Mathematics                    | 78                                     | 71       | 149                       | 19-2021.00 | 19-2021       | Atmospheric and Space Scientists                              | \$ 46.23          | 5              |
| 70               | 19-2031       | Chemists   | Chemistry                      | 96                                     | 84       | 180                       | 19-2031.00 | 19-2031       | Chemists  | \$ 30.52          | 5              |
| 71               | 19-2032       | Materials Scientists   | Chemistry                      | 96                                     | 91       | 187                       | 19-2032.00 | 19-2032       | Materials Scientists  | \$ 40.07          | 5              |

| Occupation Count | 2000 SOC Code | 2000 SOC Title   | O*NET Subject Knowledge Needed | O*NET Subject Knowledge Values (0-100) |          | Composite Knowledge Score | O*NET Code | 2010 SOC Code | 2010 SOC Title  | 2011 Average Wage | Education Code |
|------------------|---------------|--|--------------------------------|--|----------|---------------------------|------------|---------------|---|-------------------|----------------|
|                  |               |  |                                | Importance**                           | Level*** |                           |            |               |   |                   |                |
| 72               | 19-2041       | Environmental Scientists and Specialists, Including Health             | Mathematics                    | 73                                     | 71       | 144                       | 19-2041.00 | 19-2041       | Environmental Scientists and Specialists, Including Health  | \$ 27.03          | 5              |
| 73               | 19-2042       | Geoscientists, Except Hydrologists and Geographers                     | Engineering and Technology     | 84                                     | 74       | 158                       | 19-2042.00 | 19-2042       | Geoscientists, Except Hydrologists and Geographers          | \$ 34.78          | 5              |
| 74               | 19-2043       | Hydrologists   | Mathematics                    | 82                                     | 75       | 157                       | 19-2043.00 | 19-2043       | Hydrologists  | \$ 37.01          | 5              |
| 75               | 19-2099       | Physical Scientists, All Other   | Computers and Electronics      | 80                                     | 78       | 158                       | 19-2099.01 | 19-2099       | Remote Sensing Scientists and Technologists                 | \$ 35.03          | 5              |
| 76               | 19-3011       | Economists   | Mathematics                    | 90                                     | 89       | 179                       | 19-3011.00 | 19-3011       | Economists  | \$ 39.03          | 5              |
| 77               | 19-4021       | Biological Technicians   | Biology                        | 86                                     | 78       | 164                       | 19-4021.00 | 19-4021       | Biological Technicians                                      | \$ 17.77          | 4              |
| 78               | 19-4031       | Chemical Technicians   | Chemistry                      | 82                                     | 79       | 161                       | 19-4031.00 | 19-4031       | Chemical Technicians  | \$ 18.91          | 4              |
| 79               | 19-4041       | Geological and Petroleum Technicians                                   | Computers and Electronics      | 78                                     | 71       | 149                       | 19-4041.01 | 19-4041       | Geophysical Data Technicians                                | \$ 19.94          | 4              |
| 80               | 19-4051       | Nuclear Technicians*   | Physics                        | 72                                     | 59       | 131                       | 19-4051.01 | 19-4051       | Nuclear Equipment Operation Technicians                     | NA                | 4              |
| 81               | 25-1021       | Computer Science Teachers, Postsecondary                               | Computers and Electronics      | 87                                     | 88       | 175                       | 25-1021.00 | 25-1021       | Computer Science Teachers, Postsecondary                    | \$ 51.02          | 5              |
| 82               | 25-1022       | Mathematical Science Teachers, Postsecondary                           | Mathematics                    | 98                                     | 93       | 191                       | 25-1022.00 | 25-1022       | Mathematical Science Teachers, Postsecondary                | \$ 43.86          | 6              |
| 83               | 25-1031       | Architecture Teachers, Postsecondary                                   | Engineering and Technology     | 78                                     | 83       | 161                       | 25-1031.00 | 25-1031       | Architecture Teachers, Postsecondary                        | \$ 51.98          | 6              |
| 84               | 25-1032       | Engineering Teachers, Postsecondary                                    | Mathematics                    | 89                                     | 88       | 177                       | 25-1032.00 | 25-1032       | Engineering Teachers, Postsecondary                         | \$ 65.31          | 6              |
| 85               | 25-1041       | Agricultural Sciences Teachers, Postsecondary                          | Biology                        | 82                                     | 77       | 159                       | 25-1041.00 | 25-1041       | Agricultural Sciences Teachers, Postsecondary               | \$ 53.03          | 5              |
| 86               | 25-1042       | Biological Science Teachers, Postsecondary                             | Biology                        | 100                                    | 91       | 191                       | 25-1042.00 | 25-1042       | Biological Science Teachers, Postsecondary                  | \$ 47.49          | 6              |
| 87               | 25-1043       | Forestry and Conservation Science Teachers, Postsecondary              | Biology                        | 85                                     | 83       | 168                       | 25-1043.00 | 25-1043       | Forestry and Conservation Science Teachers, Postsecondary   | \$ 46.77          | 5              |
| 88               | 25-1051       | Atmospheric, Earth, Marine, and Space Sciences Teachers, Postsecondary | Mathematics                    | 75                                     | 79       | 154                       | 25-1051.00 | 25-1051       | Atmospheric, Earth, Marine, and Space Sciences Teachers, Pc | \$ 56.03          | 6              |
| 89               | 25-1052       | Chemistry Teachers, Postsecondary                                      | Chemistry                      | 97                                     | 95       | 192                       | 25-1052.00 | 25-1052       | Chemistry Teachers, Postsecondary                           | \$ 49.25          | 6              |
| 90               | 25-1053       | Environmental Science Teachers, Postsecondary                          | Computers and Electronics      | 70                                     | 71       | 141                       | 25-1053.00 | 25-1053       | Environmental Science Teachers, Postsecondary               | \$ 54.74          | 5              |
| 91               | 25-1054       | Physics Teachers, Postsecondary  | Physics                        | 100                                    | 100      | 200                       | 25-1054.00 | 25-1054       | Physics Teachers, Postsecondary                             | \$ 52.74          | 6              |
| 92               | 25-1063       | Economics Teachers, Postsecondary                                      | Mathematics                    | 81                                     | 78       | 159                       | 25-1063.00 | 25-1063       | Economics Teachers, Postsecondary                           | \$ 59.96          | 6              |
| 93               | 25-1071       | Health Specialties Teachers, Postsecondary                             | Medicine or Dentistry          | 86                                     | 75       | 161                       | 25-1071.00 | 25-1071       | Health Specialties Teachers, Postsecondary                  | \$ 66.82          | 6              |
| 94               | 25-1072       | Nursing Instructors and Teachers, Postsecondary                        | Biology                        | 78                                     | 70       | 148                       | 25-1072.00 | 25-1072       | Nursing Instructors and Teachers, Postsecondary             | \$ 45.68          | 6              |
| 95               | 27-1021       | Commercial and Industrial Designers                                    | Engineering and Technology     | 87                                     | 73       | 160                       | 27-1021.00 | 27-1021       | Commercial and Industrial Designers                         | \$ 27.80          | 4              |
| 96               | 27-4012       | Broadcast Technicians  | Computers and Electronics      | 82                                     | 70       | 152                       | 27-4012.00 | 27-4012       | Broadcast Technicians                                       | \$ 16.13          | 4              |
| 97               | 27-4014       | Sound Engineering Technicians  | Computers and Electronics      | 86                                     | 71       | 157                       | 27-4014.00 | 27-4014       | Sound Engineering Technicians                               | \$ 20.68          | 4              |
| 98               | 29-1011       | Chiropractors  | Medicine or Dentistry          | 96                                     | 78       | 174                       | 29-1011.00 | 29-1011       | Chiropractors   | \$ 42.47          | 6              |
| 99               | 29-1021       | Dentists, General  | Medicine or Dentistry          | 100                                    | 84       | 184                       | 29-1021.00 | 29-1021       | Dentists, General   | \$ 71.63          | 6              |
| 100              | 29-1022       | Oral and Maxillofacial Surgeons  | Medicine or Dentistry          | 100                                    | 91       | 191                       | 29-1022.00 | 29-1022       | Oral and Maxillofacial Surgeons                             | \$ 90.06          | 6              |
| 101              | 29-1023       | Orthodontists  | Medicine or Dentistry          | 99                                     | 89       | 188                       | 29-1023.00 | 29-1023       | Orthodontists   | \$102.19          | 6              |
| 102              | 29-1024       | Prosthodontists  | Medicine or Dentistry          | 96                                     | 86       | 182                       | 29-1024.00 | 29-1024       | Prosthodontists   | NA                | 6              |
| 103              | 29-1031       | Dietitians and Nutritionists   | Biology                        | 81                                     | 69       | 150                       | 29-1031.00 | 29-1031       | Dietitians and Nutritionists                                | \$ 27.14          | 5              |
| 104              | 29-1041       | Optometrists   | Medicine or Dentistry          | 86                                     | 71       | 157                       | 29-1041.00 | 29-1041       | Optometrists  | \$ 58.90          | 6              |
| 105              | 29-1051       | Pharmacists  | Chemistry                      | 85                                     | 75       | 160                       | 29-1051.00 | 29-1051       | Pharmacists   | \$ 53.31          | 6              |
| 106              | 29-1061       | Anesthesiologists  | Medicine or Dentistry          | 100                                    | 98       | 198                       | 29-1061.00 | 29-1061       | Anesthesiologists   | \$112.56          | 6              |
| 107              | 29-1062       | Family and General Practitioners                                       | Medicine or Dentistry          | 100                                    | 90       | 190                       | 29-1062.00 | 29-1062       | Family and General Practitioners                            | \$ 79.76          | 6              |
| 108              | 29-1063       | Internists, General  | Medicine or Dentistry          | 100                                    | 88       | 188                       | 29-1063.00 | 29-1063       | Internists, General   | \$111.30          | 6              |
| 109              | 29-1064       | Obstetricians and Gynecologists  | Medicine or Dentistry          | 100                                    | 94       | 194                       | 29-1064.00 | 29-1064       | Obstetricians and Gynecologists                             | \$107.63          | 6              |
| 110              | 29-1065       | Pediatricians, General   | Medicine or Dentistry          | 100                                    | 82       | 182                       | 29-1065.00 | 29-1065       | Pediatricians, General                                      | \$ 83.01          | 6              |
| 111              | 29-1066       | Psychiatrists  | Medicine or Dentistry          | 95                                     | 80       | 175                       | 29-1066.00 | 29-1066       | Psychiatrists   | \$ 86.47          | 6              |
| 112              | 29-1067       | Surgeons   | Medicine or Dentistry          | 95                                     | 97       | 192                       | 29-1067.00 | 29-1067       | Surgeons  | \$113.30          | 6              |
| 113              | 29-1069       | Physicians and Surgeons, All Other                                     | Medicine or Dentistry          | 100                                    | 96       | 196                       | 29-1069.07 | 29-1069       | Pathologists  | \$ 95.54          | 6              |
| 114              | 29-1071       | Physician Assistants   | Medicine or Dentistry          | 98                                     | 85       | 183                       | 29-1071.00 | 29-1071       | Physician Assistants  | \$ 43.03          | 5              |
| 115              | 29-1081       | Podiatrists  | Medicine or Dentistry          | 94                                     | 82       | 176                       | 29-1081.00 | 29-1081       | Podiatrists   | \$ 67.20          | 6              |
| 116              | 29-1111       | Registered Nurses  | Medicine or Dentistry          | 97                                     | 85       | 182                       | 29-1161.00 | 29-1161       | Nurse Midwives  | \$ 30.83          | 4              |

| Occupation Count | 2000 SOC Code | 2000 SOC Title  | O*NET Subject Knowledge Needed | O*NET Subject Knowledge Values (0-100) |          | Composite Knowledge Score | O*NET Code | 2010 SOC Code | 2010 SOC Title  | 2011 Average Wage | Education Code |
|------------------|---------------|---|--------------------------------|--|----------|---------------------------|------------|---------------|---|-------------------|----------------|
|                  |               |   |                                | Importance**                           | Level*** |                           |            |               |   |                   |                |
| 117              | 29-1126       | Respiratory Therapists  | Medicine or Dentistry          | 89                                     | 70       | 159                       | 29-1126.00 | 29-1126       | Respiratory Therapists  | \$ 24.97          | 4              |
| 118              | 29-1131       | Veterinarians   | Biology                        | 95                                     | 73       | 168                       | 29-1131.00 | 29-1131       | Veterinarians   | \$ 53.29          | 6              |
| 119              | 29-1199       | Health Diagnosing and Treating Practitioners, All Other                   | Medicine or Dentistry          | 100                                    | 85       | 185                       | 29-1199.04 | 29-1199       | Naturopathic Physicians   | \$ 31.82          | 6              |
| 120              | 29-2011       | Medical and Clinical Laboratory Technologists                             | Biology                        | 85                                     | 77       | 162                       | 29-2011.01 | 29-2011       | Cytogenetic Technologists                                       | \$ 26.92          | 4              |
| 121              | 29-2012       | Medical and Clinical Laboratory Technicians                               | Chemistry                      | 81                                     | 75       | 156                       | 29-2012.00 | 29-2012       | Medical and Clinical Laboratory Technicians                     | \$ 17.39          | 4              |
| 122              | 29-2021       | Dental Hygienists   | Medicine or Dentistry          | 91                                     | 67       | 158                       | 29-2021.00 | 29-2021       | Dental Hygienists   | \$ 28.55          | 4              |
| 123              | 29-2031       | Cardiovascular Technologists and Technicians                              | Medicine or Dentistry          | 84                                     | 71       | 155                       | 29-2031.00 | 29-2031       | Cardiovascular Technologists and Technicians                    | \$ 20.51          | 3              |
| 124              | 29-2054       | Respiratory Therapy Technicians   | Medicine or Dentistry          | 80                                     | 66       | 146                       | 29-2054.00 | 29-2054       | Respiratory Therapy Technicians                                 | \$ 22.90          | 3              |
| 125              | 29-2055       | Surgical Technologists  | Medicine or Dentistry          | 75                                     | 67       | 142                       | 29-2055.00 | 29-2055       | Surgical Technologists  | \$ 18.12          | 3              |
| 126              | 29-2091       | Orthotists and Prosthetists   | Engineering and Technology     | 73                                     | 75       | 148                       | 29-2091.00 | 29-2091       | Orthotists and Prosthetists                                     | \$ 32.28          | 5              |
| 127              | 29-9011       | Occupational Health and Safety Specialists                                | Chemistry                      | 71                                     | 68       | 139                       | 29-9011.00 | 29-9011       | Occupational Health and Safety Specialists                      | \$ 30.81          | 3              |
| 128              | 29-9099       | Healthcare Practitioners and Technical Workers, All Other                 | Biology                        | 94                                     | 77       | 171                       | 29-9092.00 | 29-9092       | Genetic Counselors  | \$ 22.93          | 3              |
| 129              | 41-9031       | Sales Engineers   | Engineering and Technology     | 84                                     | 75       | 159                       | 41-9031.00 | 41-9031       | Sales Engineers   | \$ 43.91          | 5              |
| 130              | 49-2011       | Computer, Automated Teller, and Office Machine Repairers                  | Computers and Electronics      | 97                                     | 83       | 180                       | 49-2011.00 | 49-2011       | Computer, Automated Teller, and Office Machine Repairers        | \$ 18.08          | 3              |
| 131              | 49-2094       | Electrical and Electronics Repairers, Commercial and Industrial Equipment | Computers and Electronics      | 83                                     | 73       | 156                       | 49-2094.00 | 49-2094       | Electrical and Electronics Repairers, Commercial and Industrial | \$ 22.42          | 3              |
| 132              | 49-9062       | Medical Equipment Repairers   | Computers and Electronics      | 75                                     | 65       | 140                       | 49-9062.00 | 49-9062       | Medical Equipment Repairers                                     | \$ 18.50          | 3              |
| 133              | 51-4012       | Numerical Tool and Process Control Programmers                            | Mathematics                    | 80                                     | 75       | 155                       | 51-4012.00 | 51-4012       | Computer Numerically Controlled Machine Tool Programmers,       | \$ 21.29          | 3              |
| 134              | 51-8011       | Nuclear Power Reactor Operators   | Physics                        | 71                                     | 66       | 137                       | 51-8011.00 | 51-8011       | Nuclear Power Reactor Operators                                 | \$ 39.95          | 3              |
| 135              | 53-6041       | Traffic Technicians   | Engineering and Technology     | 90                                     | 77       | 167                       | 53-6041.00 | 53-6041       | Traffic Technicians   | \$ 20.36          | 3              |

\* Did not meet the established O\*NET knowledge values criteria, but was identified by O\*NET as a STEM occupation

\*\* This rating indicates the degree of importance a particular subject knowledge has to the occupation. The possible standardized ratings range from "Not Important" (1) to "Extremely Important" (100).

\*\*\*This rating indicates the level of skill required in a particular subject knowledge to perform the occupation. The possible standardized ratings range from " limited skill" (1) to "very high skill" (100).

Education Codes/Requirements

- 1-Less than High School
- 2-High School Diploma
- 3-Postsecondary Adult Vocational Training
- 4-Associate's Degree
- 5-Bachelor's Degree
- 6-Master's Degree or Higher



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FLORIDA  
DEPARTMENT *of*  
ECONOMIC  
OPPORTUNITY

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# Labor Market Demand for Jobs requiring Master's Degree or Higher

## Workforce Estimating Conference

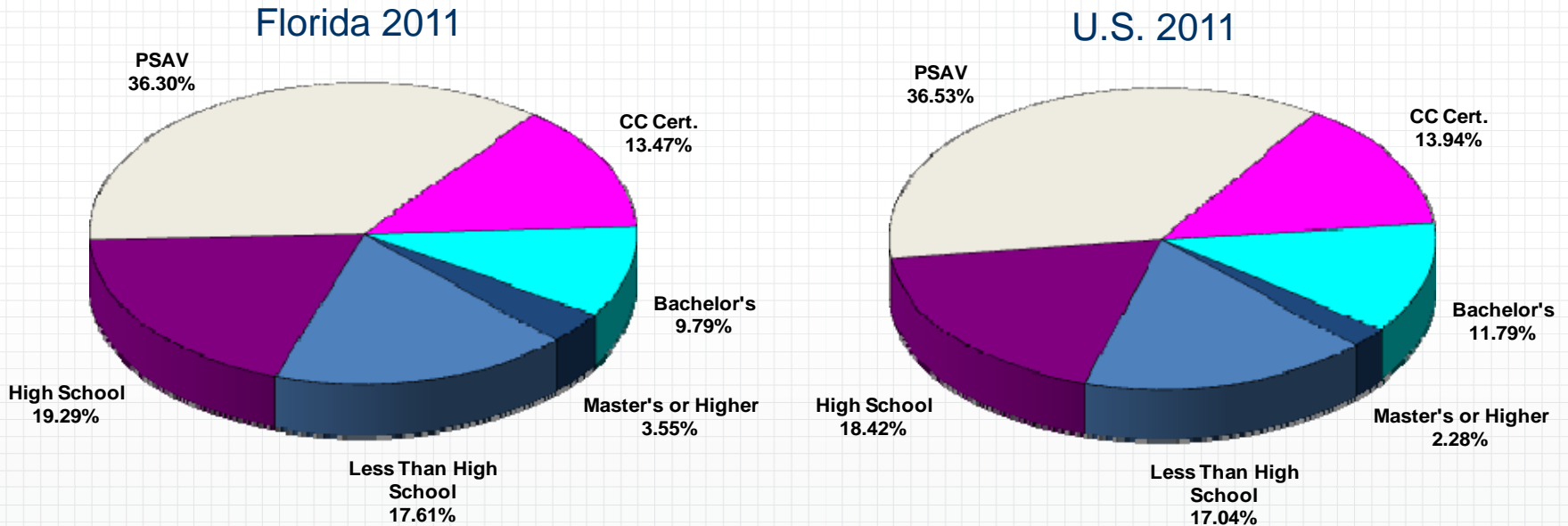
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Labor Market Statistics Center  
February 13, 2012



# 2011 Employment by Training Level Florida vs. the Nation

- The percentage share of jobs requiring a master's degree or higher is larger in Florida than for the nation



CC Cert. = Community College Certificate/Degree  
PSAV = Postsecondary Adult Vocational Certificate

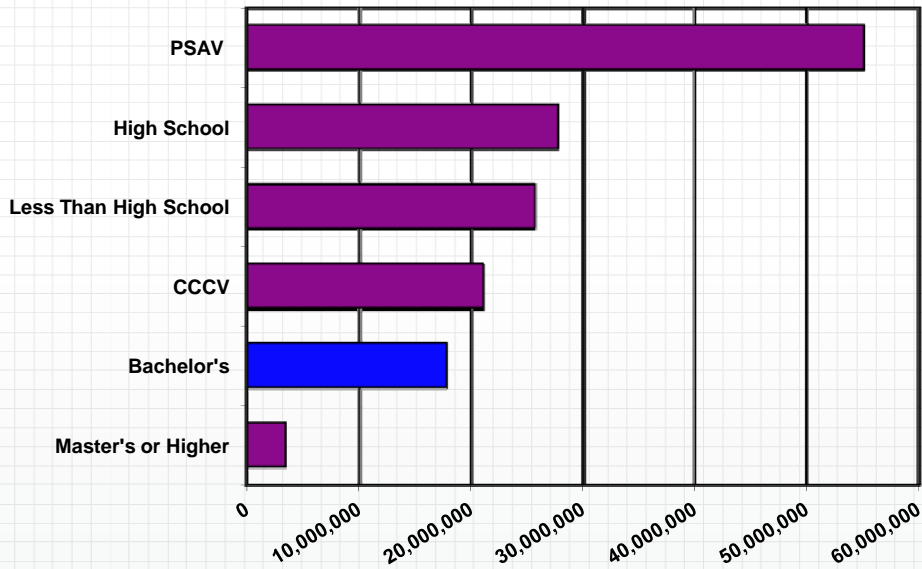
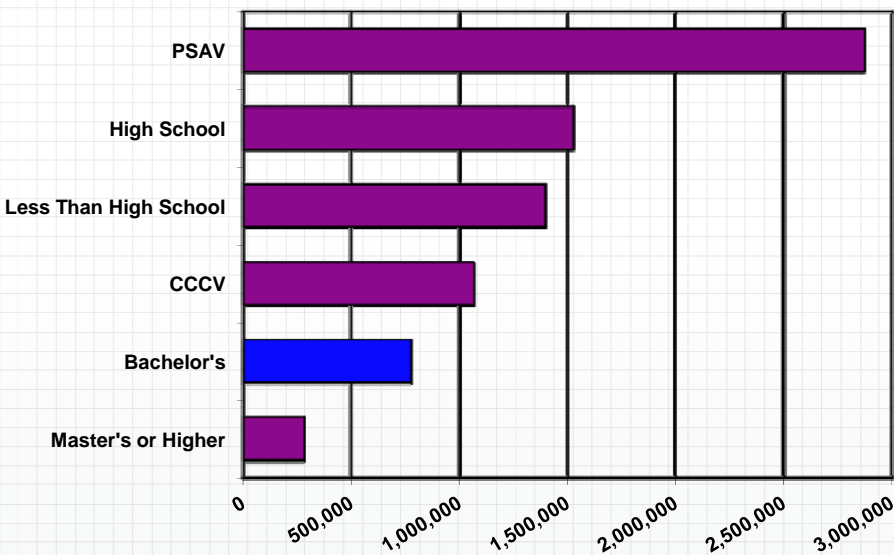
Source: Florida Department of Economic Opportunity, Labor Market Statistics Center, and U.S. Department of Labor, Bureau of Labor Statistics.

# 2011 Employment by Training Level

- Most Florida and U.S. jobs do not require a post-graduate degree

Florida

U.S.



CCCV = Community College Credit/Vocational  
 PSAV = Postsecondary Adult Vocational Certificate

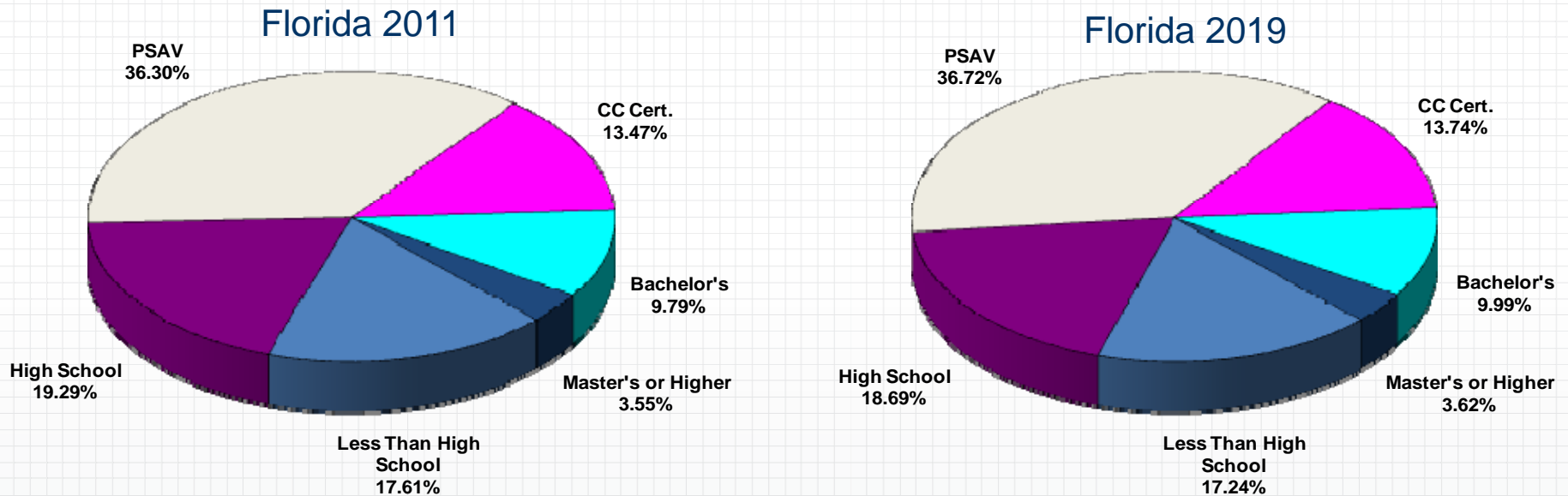
Source: Florida Department of Economic Opportunity, Labor Market Statistics Center, and U.S. Department of Labor, Bureau of Labor Statistics.





# Employment by Training Level 2011 vs. 2019

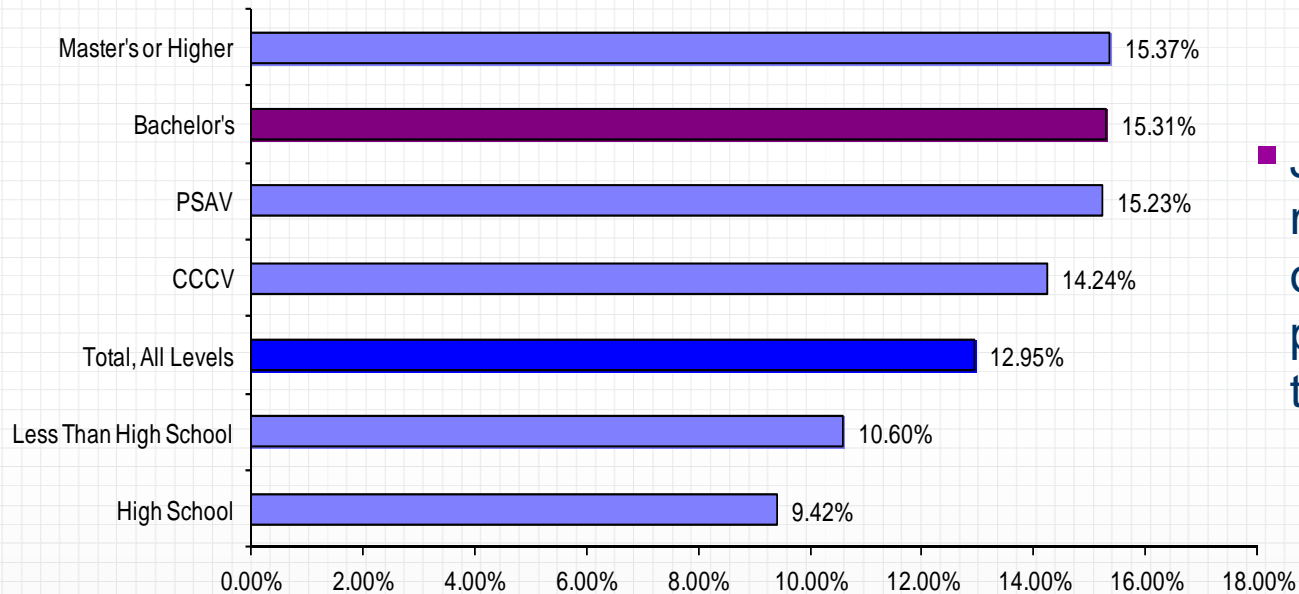
- The proportion of jobs requiring a master's degree or higher in Florida's workforce will not change significantly between 2011 and 2019



CC Cert. = Community College Certificate/Degree  
PSAV = Postsecondary Adult Vocational Certificate

Source: Florida Department of Economic Opportunity, Labor Market Statistics Center, Forecast to 2019, released October 2011.

# Florida Job Growth Rates by Training Level 2011-2019



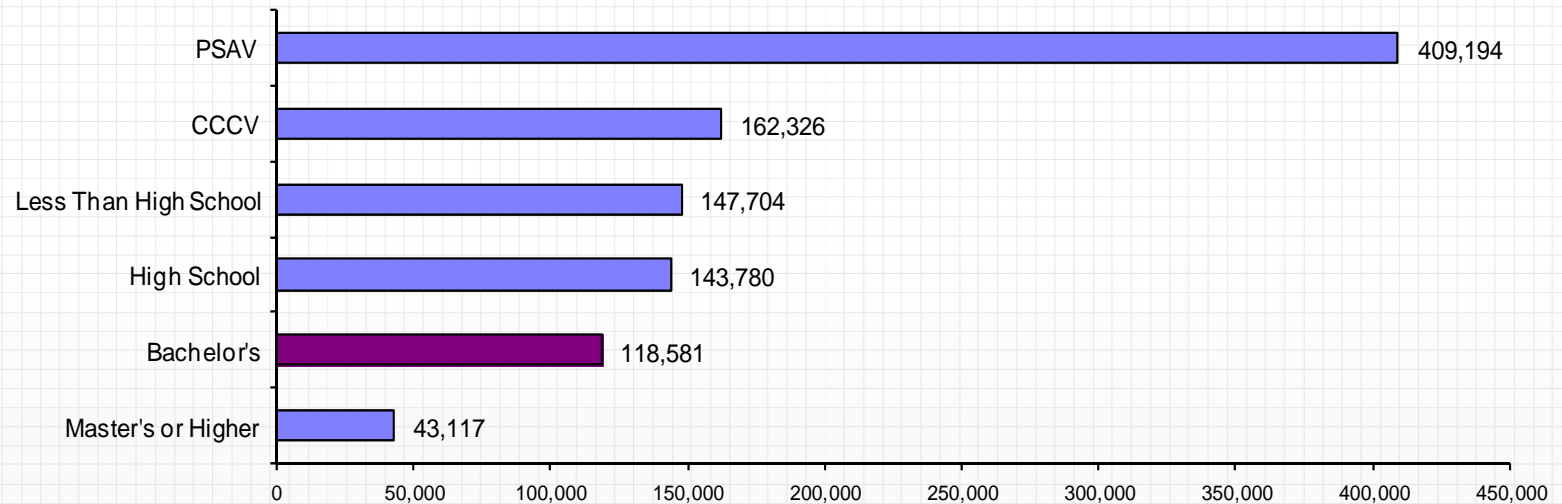
■ Jobs requiring a master's degree or higher are projected to grow the fastest.

CCCV = Community College Credit/Vocational  
PSAV = Postsecondary Adult Vocational Certificate

Source: Florida Department of Economic Opportunity, Labor Market Statistics Center, Forecast to 2019, released October 2011.

# Florida Job Growth by Training Level 2011-2019

- Jobs requiring a master's degree or higher will have the least amount of numerical growth when compared to other education levels



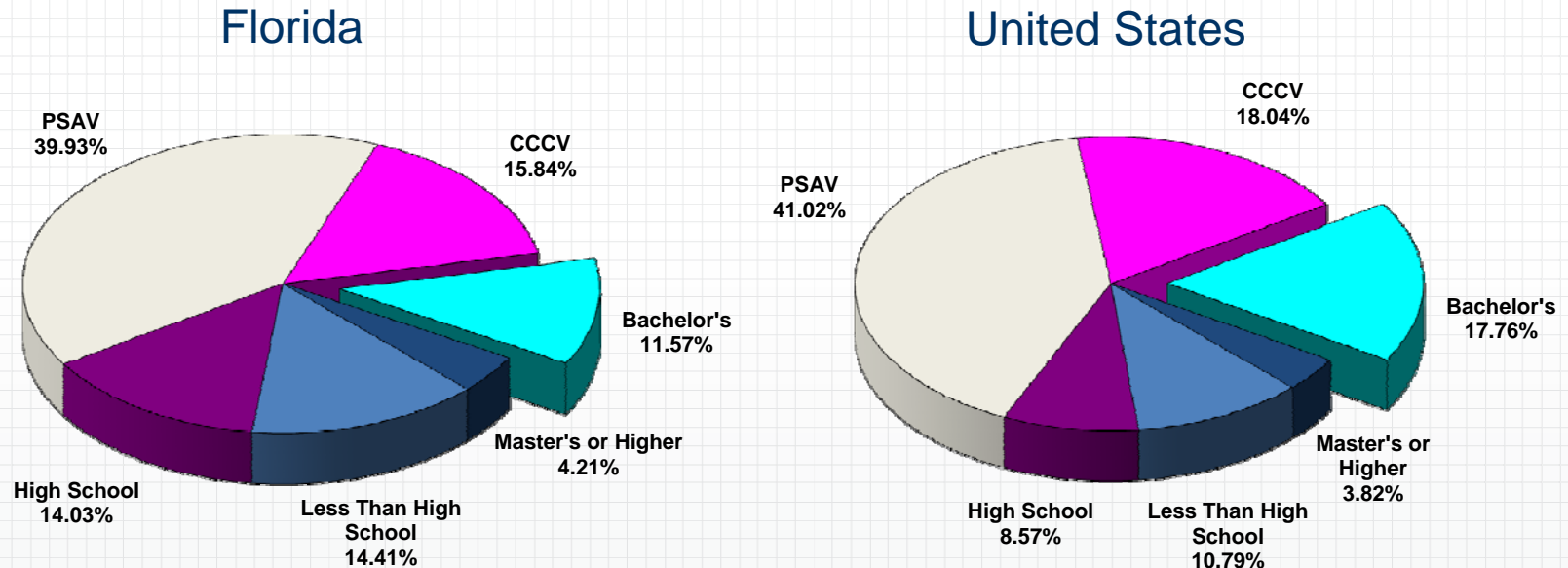
CCCV = Community College Credit/Vocational

PSAV = Postsecondary Adult Vocational Certificate

Source: Florida Department of Economic Opportunity, Labor Market Statistics Center, Forecast to 2019, released October 2011.

# Percent Share of New Jobs by Training Level 2011-2019

- The proportion of projected new jobs that require a master's degree or higher will be greater in Florida than for the nation



CCCV = Community College Credit/Vocational

PSAV = Postsecondary Adult Vocational Certificate

Source: Florida Department of Economic Opportunity, Labor Market Statistics Center, and U.S. Department of Labor, Bureau of Labor Statistics.

## Florida 2011 Wages by Training Level

| <b>Training Level</b>              | <b>Average Annual Wage</b> | <b>Entry Annual Wage</b> |
|------------------------------------|----------------------------|--------------------------|
| Master's or Higher                 | \$100,372                  | \$54,992                 |
| Bachelor's                         | \$68,378                   | \$41,506                 |
| CC Credit/Vocational               | \$60,053                   | \$38,088                 |
| <b>Total, All Education Levels</b> | <b>\$41,605</b>            | <b>\$27,472</b>          |
| PSAV Certificate                   | \$37,604                   | \$25,279                 |
| High School                        | \$28,280                   | \$19,851                 |
| Less Than High School              | \$23,628                   | \$18,990                 |

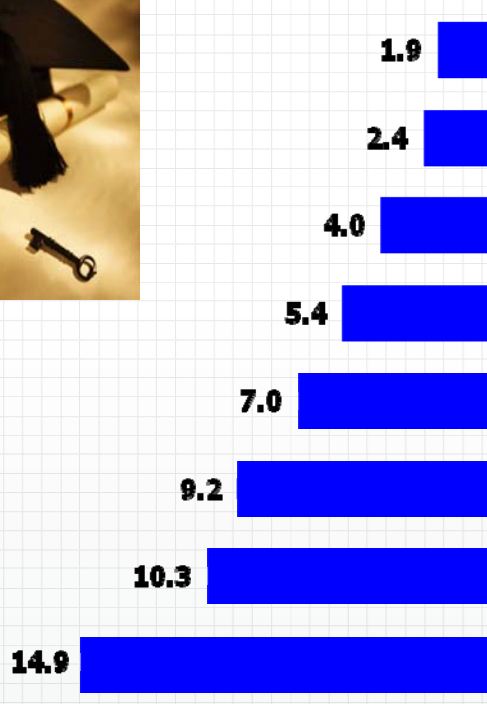
Source: Florida Department of Economic Opportunity, Labor Market Statistics Center, released October 2011.



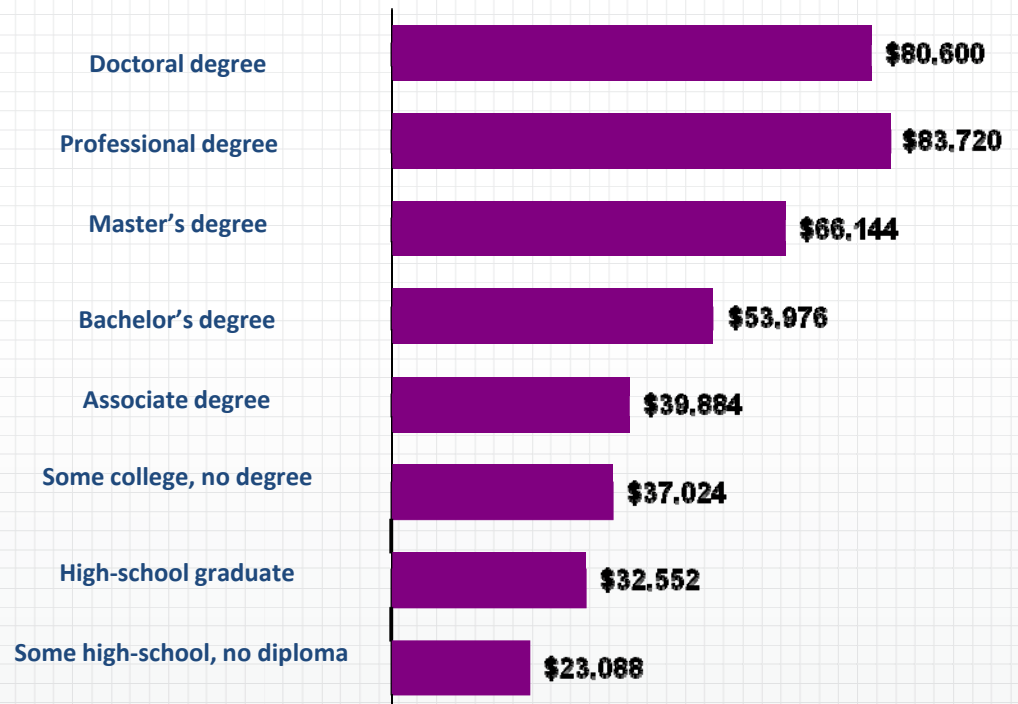
# Education and Training pay ...

## 2010 Annual Average

Unemployment Rate  
(Percent)



Median Earnings  
(Dollars)



Notes: Unemployment and earnings for workers 25 and older, by educational attainment; earnings for full-time wage and salary workers. 2010 Weekly Median Earnings (multiplied by 52 weeks).

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[www.floridajobs.org/labor-market-information](http://www.floridajobs.org/labor-market-information)

[fred.labormarketinfo.com](http://fred.labormarketinfo.com)

[www.floridawages.com](http://www.floridawages.com)

[www.whatpeopleareasking.com](http://www.whatpeopleareasking.com)



# Florida: Demographics

**Workforce Estimating Conference**  
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Presented by:



The Florida Legislature  
Office of Economic and  
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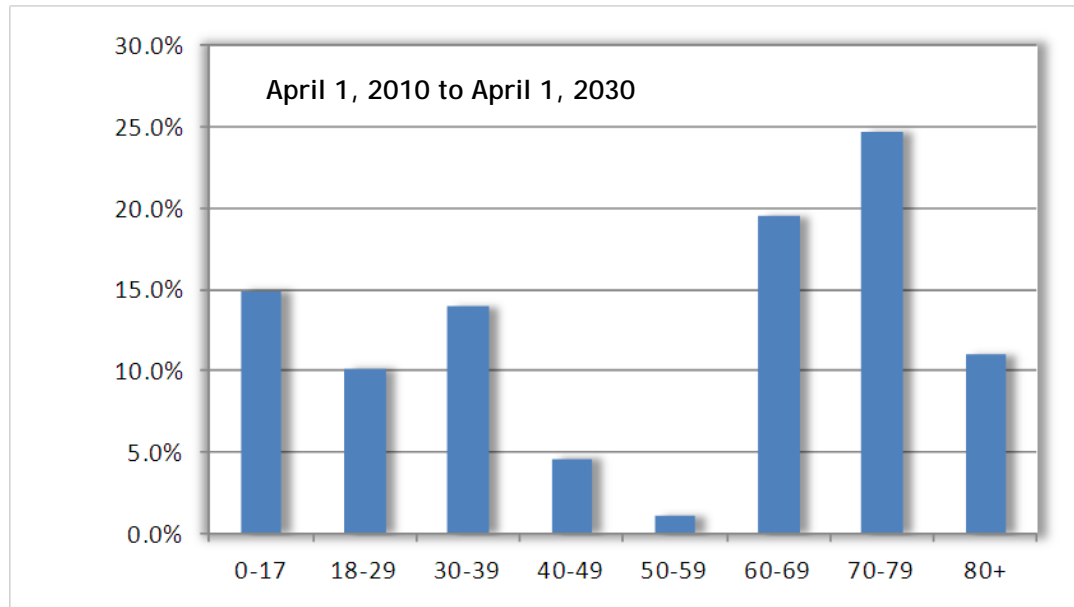
# Baby Boom Cohort

- Birth Cycle: 1946 – 1964
- 2010 Census count of 46-64 year olds:
  - US: 77.0 million
  - FL: 4.8 million
- Entry into the Workforce: 1967 – 1985
- Entry into Retirement: 2011 – 2029

2050



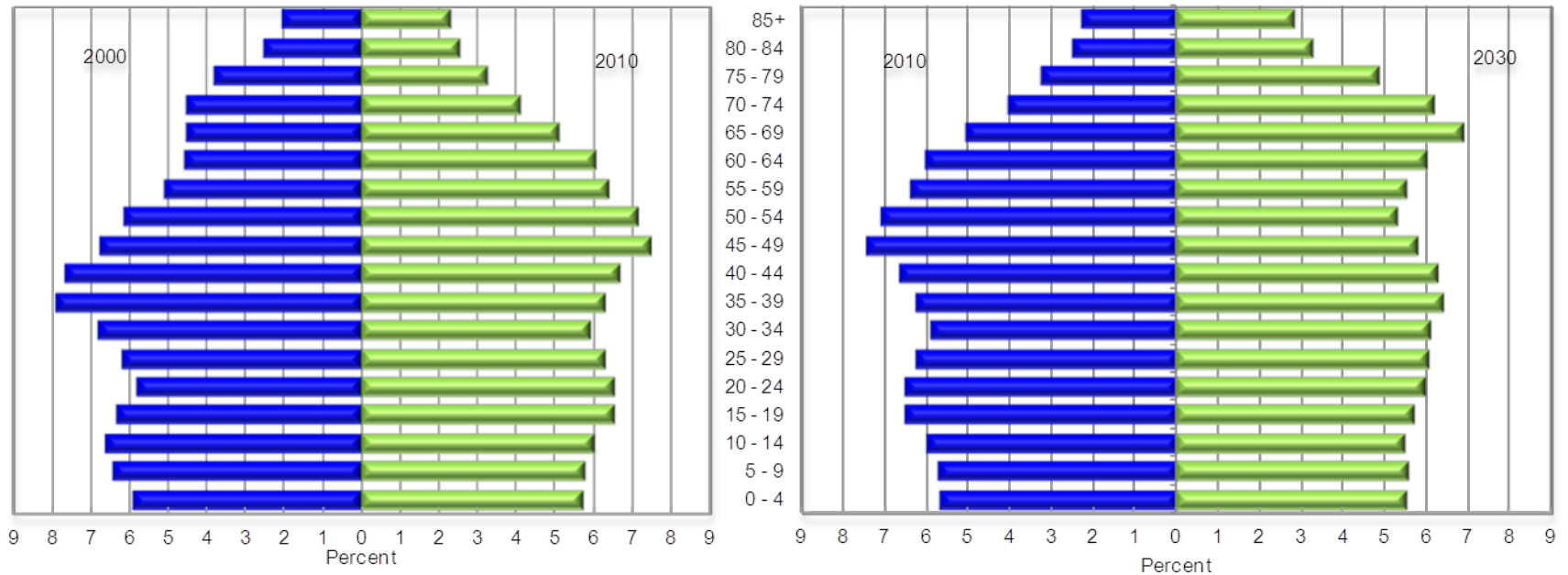
# Population Growth by Age Group



- Between 2010 and 2030, Florida's population is forecast to grow by almost 5.1 million
- Florida's older population (age 60 and older) will account for most of Florida's population growth, representing 55.2 percent of the gains
- Florida's younger population (age 0-17) will account for 15.0 percent of the gains



# Total Population by Age Group



- In 2000, Florida's working age population (ages 25-54) represented 41.5 percent of the total population. With the aging Baby Boom generation, this population now represents 39.7 percent of Florida's total population and is expected to represent 36.0 percent by 2030.
- Population aged 65 and over is forecast to represent 24.1 percent in 2030.



# Global Trends

- By 2025, the world will be:
  - Much Older (the US will largely look like FL today)
  - Far Less Caucasian
  - Far More Concentrated in Urban Areas
- The aging population is a function of:
  - The Baby Boom Cohort
  - Falling Fertility Rates
  - Rising Longevity (life expectancy)



# Long-Term Workforce Trends

- The ratio of taxpaying workers to retirees will fall as baby boomers age:
  - US today, 4:1
  - FL today, 3:1
  - FL in 2030, 2:1
- Pool of native workers will shrink: new retirees will not be fully replaced by younger workers.
- Worker shortages (especially among highly educated and skilled) will become the norm.



# More Ramifications

- Labor force contraction could depress economic output and boost inflation (GNP...1.5% growth in the future compared to 4.5% in history)
- Long-term economic slowdown and larger retirement population will further lead to a decline in consumer spending and changes in investment patterns as the senior population spends down its savings
- Lower standard of living, especially for those seniors living on fixed incomes for 20 or more years



# Florida Challenges

- **Aging State** – more intense in Florida than elsewhere because population share (over 26% in 2030)
- **Growing State** – all of the same problems as we've had in the past, only more so
  - Greater Need for Services
  - Allocation of Increasingly Scarce Natural Resources (especially water)
  - Provision of Needed Infrastructure (new and replaced)



# Implications for Services

- Overall, the state will face the need for more costly services (particularly health care) with less revenue growth.
- Labor-intensive jobs (firefighters, police, construction) will be harder to fill.
- Today's elderly prefer face-to-face interaction. In the future, people will become more technologically savvy and more comfortable working over the internet.
  - Less reliance on physical space
  - Fewer employees as the use of technology increases