WEST VIRGINIA’S JOBS AND EDUCATION REPORT

**2013**

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Overview

* The most recent economic recession has contributed significantly to high unemployment rates in the United States.
* In 2012, the seasonally adjusted unemployment rate was 8.1 percent in the U.S (DOL, 2013).
* Economists and policymakers are worried about the weak U.S. labor market and high unemployment rate.
* As of November 2012, the unemployment rate in the state of West Virginia (WV) was slightly lower than the national average, 7.3% (DOL, 2013).
* The main purpose of this study is to document future labor market needs by estimating labor shortage/surplus per occupations with expected growth in the state of West Virginia.

Data/Method

* The U.S. Department of Labor, Bureau of Labor Statistics (BLS) publishes employment projections which include labor market changes for the nation for 10 consecutive years (DOL, 2012; Lockard and Wolf, 2012). The most recent projections target the period from 2010 to 2020.
* Employment projections in WV are published by Workforce, WV (WFWV, 2012) in ten year periods.
* The Department of Labor’s Occupational Outlook Handbook (2012-2013) provides valuable information about training and education requirements for each occupation type (DOL, 2012).
* WV Higher Education Policy Commission (HEPC) provides data of degrees conferred for WV Higher Education Institutions between 2007 and 2012 (WVHEPC, 2012).
* A labor shortage/surplus was calculated using the following formula:

$$5 year graduation average by degree or related degree group \left(number\right)-$$

$$Annual Projected Growth by occupation or related occupation group (number)$$

Occupations with the Largest Job Growth in the U.S.

|  |  |  |
| --- | --- | --- |
| **Occupation** | **Annual Increase** | **Median Annual Wage** |
| Registered Nurses | 71,190 | 64,690 |
| Retail Salespersons | 70,680 | 20,670 |
| Home Health Aides | 70,630 | 20,560 |
| Personal Care Aides | 60,700 | 19,640 |
| Office Clerks, General | 48,950 | 26,610 |
| Combined Food Preparation and Serving Workers, Including Fast Food | 39,800 | 17,950 |
| Customer Service Representatives | 33,840 | 30,460 |
| Heavy and Tractor-Trailer Truck Drivers | 33,010 | 37,770 |
| Laborers and Freight, Stock, and Material Movers, Hand | 31,910 | 23,460 |
| Postsecondary Teachers | 30,570 | 45,690 |
| Nursing Aides, Orderlies, and Attendants | 30,200 | 24,010 |
| Childcare Workers | 26,200 | 19,300 |
| Bookkeeping, Accounting, and Auditing Clerks | 25,900 | 34,030 |
| Cashiers | 25,020 | 18,500 |
| Elementary School Teachers, Except Special Education | 24,880 | 51,660 |
| Receptionists and Information Clerks | 24,850 | 25,240 |
| Janitors and Cleaners, Except Maids and Housekeeping Cleaners | 24,640 | 22,210 |
| Landscaping and Grounds keeping Workers | 24,080 | 23,400 |
| Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products | 22,340 | 52,440 |
| Construction Laborers | 21,240 | 29,280 |
| Medical Secretaries | 21,020 | 30,530 |
| First-Line Supervisors of Office and Administrative Support Workers | 20,340 | 47,460 |
| Carpenters | 19,600 | 39,530 |
| Waiters and Waitresses | 19,590 | 18,330 |
| Security Guards | 19,500 | 23,920 |
| Teacher Assistants | 19,110 | 23,220 |
| Accountants and Auditors | 19,070 | 61,690 |
| Licensed Practical and Licensed Vocational Nurses | 16,850 | 40,380 |
| Physicians and Surgeons | 16,830 | 111,570 |
| Medical Assistants | 16,290 | 28,860 |

Source: Employment Projections Program, U.S. Department of Labor, U.S. Bureau of Labor Statistics, 2012.

Occupations with the Largest Job Growth in the U.S. (Cont’d)

* Based on BLS’s 2010-2020 projections, 2 million additional jobs will be available annually.
* Registered nurses are expected to have the highest annual demand growth (71,190) between 2010 and 2020 which is 22% more than BLS’s previous projections.
* This study, unlike the previous report, includes occupations that require not only four-year college degrees but also two-year and graduate degrees.
* One interesting finding is that number of projected retail salesperson jobs is expected to almost double (70,680) compared to previous projections (37,470).
* It is estimated that 19,470 additional and replacement accounting jobs will be available annually until 2020.
* Education is one of the sectors (especially post-secondary, elementary school teachers) that will experience a high labor demand.
* There will be additional job opportunities for various labor intensive jobs such as food service workers, drivers, movers, janitors etc.

 Occupations with the Largest Job Growth in WV

|  |  |
| --- | --- |
| **Occupation** |  **Annual Increase**  |
| Cashiers | 967 |
| Combined Food Preparation and Serving Workers, Including Fast Food | 832 |
| Retail Salespersons | 806 |
| Registered Nurses | 795 |
| Office Clerks, General | 780 |
| Waiters and Waitresses | 682 |
| Laborers and Freight, Stock, and Material Movers, Hand | 462 |
| Home Health Aides | 425 |
| Personal Care Aides | 424 |
| Customer Service Representatives | 399 |
| Heavy and Tractor-Trailer Truck Drivers | 262 |
| Licensed Practical and Licensed Vocational Nurses | 256 |
| Janitors and Cleaners, Except Maids and Housekeeping Cleaners | 238 |
| Stock Clerks and Order Fillers | 232 |
| First-Line Supervisors of Office and Administrative Support Workers | 228 |
| Nursing Aides, Orderlies, and Attendants | 227 |
| First-Line Supervisors of Retail Sales Workers | 220 |
| Childcare Workers | 211 |
| Operating Engineers and Other Construction Equipment Operators | 206 |
| General and Operations Managers | 204 |
| Maintenance and Repair Workers, General | 186 |
| Elementary School Teachers, Except Special Education | 181 |
| Receptionists and Information Clerks | 162 |
| Maids and Housekeeping Cleaners | 160 |
| Tellers | 159 |
| Cooks, Restaurant | 155 |
| Food Preparation Workers | 153 |
| Security Guards | 148 |
| Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop | 147 |
| Accountants and Auditors | 143 |
| Electricians | 143 |
| First-Line Supervisors of Food Preparation and Serving Workers | 139 |
| Bookkeeping, Accounting, and Auditing Clerks | 136 |
| Landscaping and Groundskeeping Workers | 135 |
| Secretaries and Administrative Assistants, Except Legal, Medical, and Executive | 134 |
| Automotive Service Technicians and Mechanics | 131 |
| Carpenters | 126 |
| Counter Attendants, Cafeteria, Food Concession, and Coffee Shop | 122 |
| Dishwashers | 120 |

Source: WV Employment Projections, WV Workforce, 2012.

Occupations with the Largest Job Growth in WV (Methods)

* One of the goals of this study is to analyze whether labor demand in WV would be met by current supply of college graduates.
* For a better and more accurate analysis, Department of Labor’s Occupational Outlook Handbook (2012-2013) was used to determine the occupations that require at least two-year college degree.
* Even though the occupations such as cashiers, retail salespersons etc. are among the fastest growing occupations, including them in our analysis is not feasible due to education requirements.
* Occupations that only need associate degrees are included to provide a thorough analysis of higher education in WV.
* After eliminating the occupations that don’t require at least a two year degree, a matrix was created to show which occupation/occupations required completion of specific degrees. Since more than one occupation may be linked to multiple degrees, such grouping was necessary.
* The next table shows the matrix created for this particular study.

Occupation-Degree Matrix

|  |  |  |
| --- | --- | --- |
|  **OCCUPATIONS**  |  **DEGREES NEEDED** |  |
| **Registered Nurses and Licensed Nurses** | *Nursing*  |  |  |  |
| **General and Operations Manager; Management Analysts; Sales Managers** | *Business Administration* | *Management* |  |  |
| **Elementary School Teachers; Kindergarten Teachers** | *Elementary Education* |  |  |  |
| **Accountants and Auditors; Tax Examiners, Collectors and Revenue Agents; Cost Estimators** | *Accounting* |  |  |  |
| **Middle School Teachers; Secondary School Teachers** | *Secondary Education* |  |  |  |
| **Child, Family and Social Workers; Medical, Mental and Public Health Social Workers; Social and Community Service Managers and Specialists** | *Social Work* |  |  |  |
| **Special Education Teachers** | *Special Education* |  |  |  |
| **Education Administrators** | *Education Leadership* |  |  |  |
| **Human Resources Specialists and Managers; Training and Development Specialists; Employment, Recruitment and Placement Specialist; Compensation, Benefits and Job Analysis Specialists** | *Human Resource Management* |  |  |  |
| **Medical and Health Care Services; Health Educators** | *Health Care Administration* |  |  |  |
| **Public Relations Specialists/Managers** | *Public Relations* | *Public Administration* |  |  |
| **Network Systems and Data Communications Analysts; Network and Computer System Administrators; Computer Systems Analysts; Computer Specialists; Computer and Information Systems Managers; Database Administrators; Computer Programmer** | *Computer Science*  | *Information Science* | *CIS/MIS* |  |
| **Educational Counselors; School Psychologists** | *Education* | *Psychology* |  |  |
| **Civil Engineers** | *Civil Engineering* |  |  |  |
| **Financial Managers; Financial Analysts; Securities. Commodities, and Financial Services Sales Agents; Personal Financial Advisors; Insurance Underwriters; Budget Analysts; Economists** | *Finance* | *Economics* |  |  |
| **Graphic Designers** | *Graphic Design* |  |  |  |
| **Computer and Software Engineers; Software Developers** | *Computer Engineering* |  |  |  |
| **Industrial Engineers; Industrial Production Managers** | *Industrial Engineering* |  |  |  |
| **Occupational Health and Safety Specialists** | *Occupational Health and Safety* |  |  |  |
| **Marketing Research Analysts; Advertising and Promotions Managers; Marketing Managers** | *Marketing* |  |  |  |
| **Chemists** | *Chemistry* |  |  |  |
| **Mechanical Engineers** | *Mechanical Engineering* |  |  |  |
| **Pharmacists** | *Pharmacy* |  |  |  |
| **Radiologic Technician** | *Radiologic Technology* |  |  |  |
| **Lawyers; Judges** | *JD* |  |  |  |
| **Emergency Medical Technicians** | *Paramedic Science* | *Emergency Medical Services* |  |  |
| **Medical Secretaries; Medical Record Technicians; Medical Transcriptionists** | *Medical Transcription* | *Medical Assisting* |  |  |
| **Paralegals and Legal Assistants; Legal Secretaries** | *Legal Assistant* | *Paralegal Studies* |  |  |
| **Preschool Teachers** | *Early Childhood* |  |  |  |
| **Physical Therapist** | *Master of Physical Therapy* |  |  |  |
| **Respiratory Therapists** | *Respiratory Care* |  |  |  |
| **Dental Assistants** | *Dental Laboratory Technician* |  |  |  |
| **Family and General Practitioners; Surgeons; Pediatricians** | *MD* |  |  |  |
| **Speech Language Pathologists** | *Masters in Speech Language Pathology* |  |  |  |
| **Dental Hygienists** | *Dental Hygiene* |  |  |  |
| **Medical Laboratory Technicians and Technologists; Surgical Technologists; Medical Sonographers** | *Medical Laboratory Technology* | *Surgical Technology* |  |  |
| **Physician Assistants** | *MPA* |  |  |  |
| **Occupational Therapists** | *Masters in Occupational Therapy* |  |  |  |
| **Mental Health Counselors; Rehabilitation Counselors; Substance Abuse Counselors; Marriage and Family Therapists** | *Masters in Counseling* |  |  |  |
| **Nutritionists; dietitians** | *Foods and Nutrition*  | *Dietetics* |  |  |
| **Dentists** | *DDS or DMD* |  |  |  |
| **Librarians** | *MLS* |  |  |  |
| **Veterinarians** | *DVM or VMD* |  |  |  |
| **Electrical Engineers** | *Electrical Engineering* |  |  |  |

Occupations with the Largest Job Growth in WV (filtered)

|  |  |
| --- | --- |
| **Occupation** |  **Annual Increase**  |
| Registered Nurses | 795 |
| Licensed Practical and Licensed Vocational Nurses | 256 |
| General and Operations Managers | 204 |
| Elementary School Teachers, Except Special Education | 181 |
| Accountants and Auditors | 143 |
| Secondary School Teachers, Except Special and Career/Technical Education | 117 |
| Middle School Teachers, Except Special and Career/Technical Education | 109 |
| Computer Support Specialists | 89 |
| Pharmacists | 81 |
| Radiologic Technologists and Technicians | 80 |
| Child, Family, and School Social Workers | 79 |
| Medical and Health Services Managers | 78 |
| Lawyers | 78 |
| Special Education Teachers, Preschool, Kindergarten, and Elementary School | 75 |
| Public Relations Specialists | 66 |
| Emergency Medical Technicians and Paramedics | 66 |
| Medical Secretaries | 64 |
| Paralegals and Legal Assistants | 62 |
| Preschool Teachers, Except Special Education | 61 |
| Education Administrators, Elementary and Secondary School | 56 |
| Mental Health and Substance Abuse Social Workers | 50 |
| Healthcare Social Workers | 49 |
| Medical Records and Health Information Technicians | 45 |
| Clinical, Counseling, and School Psychologists | 43 |
| Physical Therapists | 42 |
| Respiratory Therapists | 41 |
| Dental Assistants | 41 |
| Financial Managers | 39 |
| Social and Community Service Managers | 38 |
| Human Resources, Training, and Labor Relations Specialists, All Other | 36 |
| Network and Computer Systems Administrators | 36 |
| Special Education Teachers, Secondary School | 36 |
| Computer Programmers | 35 |
| Graphic Designers | 35 |
| Education Administrators, Postsecondary | 34 |

WV Higher Education Graduate Numbers

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  **DEGREES** |  | ***Public Universities*** | ***Private Universities*** | ***Community Colleges*** | ***Total*** |
| *Nursing (4-year)* |  |  464  |  355  |  -  |  *819*  |
| *Nursing (2-year)* |  |  224  |  62  | 281 |  *567*  |
| *Business Administration* | *Management* |  429  |  139  |  -  |  *568*  |
| *Elementary Education* |  |  398  |  62  |  -  |  *460*  |
| *Accounting* |  |  300  |  54  |  -  |  *353*  |
| *Secondary Education* |  |  349  |  21  |  -  |  *370*  |
| *Social Work/Social Science/Behavioral Science* |  |  167  |  21  |  -  |  *188*  |
| *Special Education* |  |  212  |  -  |  -  |  *212*  |
| *Education Leadership* |  |  28  |  6  |  -  |  *34*  |
| *Human Resource Management* |  |  89  |  7  |  -  |  *96*  |
| *Health Care Administration* |  |  55  |  5  |  -  |  *59*  |
| *Public Relations* | *Public Administration* |  37  |  5  |  -  |  *42*  |
| *Computer Science*  | *Information Science/CIS/MIS* |  176  |  23  |  -  |  *199*  |
| *Education Counseling/Phycology* | *Psychology* |  458  |  80  |  -  |  *539*  |
| *Civil Engineering* |  |  80  |  -  |  -  |  *80*  |
| *Finance* | *Economics* |  233  |  20  |  -  |  *253*  |
| *Graphic Design* |  |  111  |  -  |  -  |  *111*  |
| *Computer Engineering* |  |  40  |  -  |  -  |  *40*  |
| *Industrial Engineering* |  |  67  |  -  |  -  |  *67*  |
| *Occupational Health and Safety* |  |  45  |  -  |  -  |  *45*  |
| *Marketing* |  |  233  |  24  |  -  |  *257*  |
| *Chemistry* |  |  96  |  27  |  -  |  *122*  |
| *Mechanical Engineering* |  |  122  |  -  |  -  |  *122*  |
| *Pharmacy* |   |  84  |  71  |  -  |  *155*  |
| *Radiologic Technology (2-year)* |   |  17  |  20  | 32 |  *68*  |
| *Law (JD)* |   |  132  |  -  |  -  |  *132*  |
| *Paramedic Science (2-year)* | *Emergency Medical Services (2-year)* |  -  |  2  | 21 |  *23*  |
| *Medical Transcription(2-year)* | *Medical Assisting (2-year)* |  -  |  13  | 44 |  *57*  |
| *Legal Assistant (2-year)* | *Paralegal Studies (2-year)* |  10  |  4  | 39 |  *52*  |
| *Early Childhood (2-year)* |  |  -  |  6  | 24 |  *29*  |
| *Physical Therapy (Master's)* |  |  28  |  35  |  -  |  *63*  |
| *Respiratory Care (2-year)* |  |  10  |  9  | 96 |  *116*  |
| *Dental Laboratory Technician(2-year)* |  |  -  |  -  | 2 |  *2*  |
| *Doctor of Medicine (MD)* |  |  162  |  -  |  -  |  *162*  |
| *Speech Language Pathology (Master's)* |  |  24  |  -  |  -  |  *24*  |
| *Dental Hygiene* |  |  49  |  -  |  -  |  *49*  |
| *Medical Laboratory Technology(2-year)* | *Surgical Technology (2-year)* |  44  |  -  | 40 |  *84*  |
| *Physician Assistant Studies (Master's)* |   |  -  |  86  |  -  |  *86*  |
| *Masters Occupational Therapy(Master's)* |   |  39  |  -  |  -  |  *39*  |
| *Counseling(Master's)* |   |  82  |  -  |  -  |  *82*  |
| *Foods and Nutrition*  |   |  102  |  -  |  -  |  *102*  |
| *Dentistry(Doctorate)* |   |  48  |  -  |  -  |  *48*  |
| *Library Sciences (Master's)* |   |  -  |  -  |  -  |  *-*  |
| *Veterinary (Doctorate)* |   |  -  |  -  |  -  |  *-*  |
| *Electrical Engineering* |   |  54  |  -  |  -  |  *54*  |

WV Higher Education Graduate Numbers (Cont’d)

* One of the limitations of this study is the lack of employment data of WV graduates. Percentage of graduates who are employed out of state and in state is not known.
* In order to compensate this limitation, two data sets published by WV HEPC were used: 2011 college going rate and 2012 fall headcount enrollment.
* In the Fall of 2011, out of 10,423 high school graduates who attended a higher education institution, 1,384 attended out of state institutions. For a typical college degree, total number of students who attend out of state institutions would be around 5,536.
* As of Fall 2012; 30,216 students who enrolled in WV higher education institutions were out of state students. This constitutes 30% of entire student population (100,898).
* Based on the calculations above, 30% of graduates would leave the state while 5,536/100,898=5.5% return to WV after graduation. It is logical to assume that 24.5% of graduates would be employed out of state.
* According to WV HEPC’ graduation data, number of degrees conferred by private and public universities are documented from 2007-2008 to 2011-2012 academic year.

WV Higher Education Graduate Numbers (Cont’d)

* Average of last five-year data was used in the analysis.
* The data represents the number of two-year, four-year and graduate degrees conferred from public, private universities and community colleges.
* When undergraduate data wasn’t available, master’s degree data was used instead. For example, data for WVU graduates with a degree in Elementary and Secondary Education was not available. However, data for master's graduates was available by WV HEPC.
* Bachelor programs in Business Administration, Education, and Regents Bachelor of Arts have various specializations. The data for each specialization were distributed evenly based on number of specializations.
* Because private colleges have significantly lower enrollment per major, concentrations were not distributed for the specified majors above.

WV Higher Education Graduate Numbers (Cont’d)

* Only West Virginia University (WVU) has masters in Educational Leadership. West Liberty University (WLU) has a concentration at the master’s level in leadership.
* Only Marshall University and WVU have master’s degrees in special education.
* The WVU Institute of Technology offers the only bachelor's program in human resources, while Shepherd University has a concentration under BA in Business Administration. Marshall and WVU offer Human Resource related master’s degrees.
* Marshall University has master’s degree in Health Service Administration; Fairmont University and WVU Institute of Technology offer undergraduate degrees.
* West Liberty University is the only public university that offers Master’s in Physician Assistant Studies.

WV Higher Education Graduate Numbers (Cont’d)

* West Virginia University is the only institution offering a Master’s in Occupational Therapy.
* Doctorate in Veterinary and Master’s in Library Sciences are not being offered by any higher education institution in WV.
* WVU offers a master’s program in Public Administration while WVU Institute of Technology has undergraduate degree available.
* Only WVU offers masters of Science in Management Safety.

CASE-1: LABOR SURPLUS/SHORTAGE PROJECTIONS BY OCCUPATION IN WV (ONLY PUBLIC UNIVERSITIES)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **DEGREES** | **\*Adjusted Supply Projection (only Public Universities)**  | **Demand Projection** | **Labor Surplus 1 (number)** | **Labor Surplus 1 (%)** |
| Nursing (4-year) |  350  | 1051 |  (701) | -200.14% |
| Nursing (2-year) |  169  |   |   |   |
| Nursing (Total) |  519  | 1051 |  (532) | -102.39% |
| Business Administration |  324  | 260 |  64  | 19.81% |
| Elementary Education |  301  | 214 |  87  | 28.79% |
| Accounting |  226  | 174 |  52  | 23.11% |
| Secondary Education |  264  | 226 |  38  | 14.25% |
| Social Work/Social Science/Behavioral Science |  126  | 178 |  (52) | -41.17% |
| Special Education |  160  | 111 |  49  | 30.72% |
| Education Leadership |  21  | 95 |  (74) | -349.39% |
| Education Leadership(includes master's in education graduates) |  325  | 96 |  229  | 70.50% |
| Human Resource Management |  67  | 90 |  (23) | -34.28% |
| Health Care Administration |  41  | 109 |  (68) | -164.42% |
| Public Relations |  28  | 79 |  (51) | -179.77% |
| Computer Science  |  133  | 217 |  (84) | -63.14% |
| Education Counseling/Phycology |  346  | 76 |  270  | 78.03% |
| Civil Engineering |  61  | 34 |  27  | 43.99% |
| Finance |  176  | 79 |  97  | 55.17% |
| Graphic Design | 84  | 35 |  49  | 58.10% |
| Computer Engineering |  30  | 64 |  (34) | -111.92% |
| Industrial Engineering |  50  | 30 |  20  | 40.34% |
| Occupational Health and Safety |  34  | 17 |  17  | 49.74% |
| Marketing |  176  | 45 |  131  | 74.46% |
| Chemistry |  72  | 14 |  58  | 80.64% |
| Mechanical Engineering |  92  | 18 |  74  | 80.49% |
| Pharmacy |  63  | 81 |  (18) | -28.23% |
| Radiologic Technology (2-year) |  13  | 80 |  (67) | -538.31% |
| Law (JD) |  100  | 93 |  7  | 6.68% |
| Paramedic Science (2-year) |  -  | 66 |  (66) | NA |
| Medical Transcription(2-year) |  -  | 123 |  (123) | NA |
| Legal Assistant (2-year) |  8  | 87 |  (79) | -1052.32% |
| Early Childhood (2-year) |  -  | 61 |  (61) | NA |
| Physical Therapy (Master's) |  21  | 42 |  (21) | -98.68% |
| Respiratory Care (2-year) |  8  | 41 |  (33) | -429.80% |
| Dental Laboratory Technician(2-year) |  -  | 41 |  (41) | NA |
| Doctor of Medicine (MD) |  123  | 47 |  76  | 61.65% |
| Speech Language Pathology (Master's) |  18  | 32 |  (14) | -78.08% |
| Dental Hygiene |  37  | 32 |  5  | 13.85% |
| Medical Laboratory Technology(2-year) |  33  | 89 |  (56) | -169.13% |
| Physician Assistant Studies (Master's) |  14  | 29 |  (15) | -113.39% |
| Masters Occupational Therapy(Master's) |  30  | 27 |  3  | 8.77% |
| Counseling(Master's) |  62  | 63 |  (1) | -1.27% |
| Foods and Nutrition  |  77  | 21 |  56  | 72.84% |
| Dentistry(Doctorate) |  36  | 20 |  16  | 44.43% |
| Library Sciences (Master's) |  -  | 16 |  (16) | NA |
| Veterinary (Doctorate) |  -  | 15 |  (15) | NA |
| Electrical Engineering |  41  | 7 |  34  | 82.83% |

CASE-2: LABOR SURPLUS/SHORTAGE PROJECTIONS BY OCCUPATION IN WV (ALL UNIVERSITIES)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **DEGREES** | **\*Adjusted Supply Projection (All Universities)**  | **Demand Projection** | **Labor Surplus 2 (number)** | **Labor Surplus 2 (%)** |
| Nursing (4-year) |  618  | 1051 |  (433) | -70.01% |
| Nursing (2-year) |  428  |   |   |   |
| Nursing (Total) |  1,046  | 1051 |  (5) | -0.45% |
| Business Administration |  429  | 260 |  169  | 39.42% |
| Elementary Education |  348  | 214 |  134  | 38.43% |
| Accounting |  267  | 174 |  93  | 34.79% |
| Secondary Education |  279  | 226 |  53  | 19.13% |
| Social Work/Social Science/Behavioral Science |  142  | 178 |  (36) | -25.54% |
| Special Education |  160  | 111 |  49  | 30.72% |
| Education Leadership |  21  | 95 |  (74) | -349.39% |
| Education Leadership(includes master's in education graduates) |  330  | 96 |  234  | 70.90% |
| Human Resource Management |  73  | 90 |  (17) | -23.95% |
| Health Care Administration |  45  | 109 |  (64) | -143.87% |
| Public Relations |  32  | 79 |  (47) | -146.78% |
| Computer Science  |  150  | 217 |  (67) | -44.37% |
| Education Counseling/Phycology |  407  | 76 |  331  | 81.31% |
| Civil Engineering |  61  | 34 |  27  | 43.99% |
| Finance |  191  | 79 |  112  | 58.66% |
| Graphic Design |  84  | 35 |  49  | 58.10% |
| Computer Engineering |  30  | 64 | (34)  | -111.92% |
| Industrial Engineering |  50  | 30 |  20  | 40.34% |
| Occupational Health and Safety |  34  | 17 |  17  | 49.74% |
| Marketing |  194  | 45 |  149  | 76.82% |
| Chemistry |  92  | 14 |  78  | 84.86% |
| Mechanical Engineering |  92  | 18 |  74  | 80.49% |
| Pharmacy |  117  | 81 |  36  | 30.63% |
| Radiologic Technology (2-year) |  52  | 80 |  (28) | -54.91% |
| Law (JD) |  100  | 93 |  7  | 6.68% |
| Paramedic Science (2-year) |  17  | 66 |  (49) | -277.88% |
| Medical Transcription(2-year) |  43  | 123 |  (80) | -185.81% |
| Legal Assistant (2-year) |  39  | 87 |  (48) | -120.47% |
| Early Childhood (2-year) |  22  | 61 |  (39) | -176.54% |
| Physical Therapy (Master's) |  48  | 42 |  6  | 11.70% |
| Respiratory Care (2-year) |  87  | 41 |  46  | 53.04% |
| Dental Laboratory Technician(2-year) |  1  | 41 |  (40) | -3520.31% |
| Doctor of Medicine (MD) |  123  | 47 |  76  | 61.65% |
| Speech Language Pathology (Master's) |  18  | 32 |  (14) | -78.08% |
| Dental Hygiene |  37  | 32 |  5  | 13.85% |
| Medical Laboratory Technology(2-year) |  64  | 89 |  (25) | -40.00% |
| Physician Assistant Studies (Master's) |  79  | 29 |  50  | 63.14% |
| Masters Occupational Therapy(Master's) |  30  | 27 |  3  | 8.77% |
| Counseling(Master's) |  62  | 63 |  (1) | -1.27% |
| Foods and Nutrition  |  77  | 21 |  56  | 72.84% |
| Dentistry(Doctorate) |  36  | 20 |  16  | 44.43% |
| Library Sciences (Master's) |  -  | 16 |  (16) | NA |
| Veterinary (Doctorate) |  -  | 15 |  (15) | NA |
| Electrical Engineering |  41  | 7 |  34  | 82.83% |

Labor Market Projection Results

* If labor surplus is negative, there is a shortage of labor for the degree specified.
* According to Case-1, labor supply consists of public university graduates. In Case-2, private university graduates and community college graduates are added to supply projections.
* Supply projections are adjusted based on the assumption that 24.5% of net graduates would leave the state after graduation.
* In Case-1, estimated labor surplus for registered nurses is about -200% of annual graduates. If graduates with associate degrees in nursing are added to total supply, this number goes down to -102%. It is clear that public universities will need to double their enrollment to meet the state’s demand for nurses based on Case-1.
* Even if four-year degrees offered by private universities are taken into account as in Case-2, there will still be a shortage of 433 nursing graduates annually.
* Addition of community college graduates is projected to eliminate the shortage in WV.

Labor Market Projection Results (Cont’d)

* In Case-1 and Case-2, supply of education administrators is estimated to be less than demand which would create a shortage of 74 graduates. Even though graduates of masters programs are not included, these figures show the need for undergraduate programs that specialize in educational leadership/administration or related fields.
* When master’s in education graduates are added to supply projections of education administrators, a surplus of 234 graduates are created.
* One interesting finding is that graduates with a degree in social work will be in high demand. While Case-1 predicts a total of 52 shortages, adding the graduates from private universities lowers the shortage to only 36 students. Annual graduation rate should increase by about 25 percent to meet the annual demand in WV.
* Graduates of human resources or human resources management programs from public universities are estimated to be less than the annual demand creating a shortage of 34%. Adding the private university graduates to our calculation lowers the shortage to 24%. Even though some business colleges offer concentrations, more degrees specialized in human resources management should be offered by universities in WV.
* Shortage for Health Care Administrators and Public Relations Managers/Specialists are estimated to be 68 and 23 in Case-1; 64 and 17 in Case-2 respectively. The current institutions offering these degrees should increase the number of their annual graduates by about 150% to meet the annual demand.

Labor Market Projection Results (Cont’d)

* Graduates with a degree in Computer/Information Sciences etc. will be in high demand. Even if all universities are taken into account, annual shortage is estimated to be 44% of total graduates.
* There are only 2 public universities that offer an undergraduate degree in Computer Engineering. This creates a shortage of 34 graduates, more than double the number of annual graduates.
* Some of the medical related associate degrees that are mainly offered by community colleges will be in great demand such as Radiologic Technology, Paramedic Sciences, Medical Transcription, Medical Laboratory Technician, Dental Technician.
* Inclusion of community college graduates with a degree in early childhood and legal assistance lower the shortages from 61 and 79 to 39 to 48 respectively. More two-year degrees should be offered in these fields.
* Because only one institution offers a Master’s in Speech Language Pathology, a shortage of 78% will be present.
* Doctorate in Veterinary Medicine and Master’s in Library Sciences are not currently offered in WV. This creates a shortage of 16 and 15 graduates annually.

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