

# West Virginia Higher Education Graduate Employment By Industry 2009

July 2010

Prepared for the  
West Virginia Higher Education Policy  
Commission

By

George W. Hammond, Associate Director  
Adam Hoffer, Graduate Research Assistant

Bureau of Business and Economic Research  
College of Business and Economics  
West Virginia University

© Copyright 2010 WVU Research  
Corporation

This research was conducted under contract  
with the West Virginia Higher Education  
Policy Commission. Opinions expressed  
herein are the responsibility of the authors.



## **Table Of Contents**

Executive Summary .....	1
Results By Industry And Summary Degree .....	2
Results By Experience, Gender, And Area of Concentration .....	7
Conclusion And Future Direction .....	21
Appendix I: Detailed Description Of Employment Data .....	22
Appendix II: List of Institutions, Degrees, And Areas Of Concentration .....	24

## List Of Tables

1. Work Participation And Annualized Wages Of West Virginia Public Higher Education Graduates From 1996-1997 to 2007-2008 Working In West Virginia In 2009 By Industry .....	2
2. Industry Composition And Annualized Wages Of Graduates From W.Va. Public Higher Education Institutions From 1996-1997 To 2007-2008 Employed In W.Va. In 2009 By Degree And Industry .....	4
3. Industry Skill Composition: W.Va. Public Higher Education Graduates Working In W.Va. In 2009 By Degree Earned .....	5
4. Average Annualized Wages Of Graduates From W.Va. Public Higher Education Institutions Working In W.Va. In 2009 By Degree Earned And Industry .....	6
5. Work Participation Of Graduates From W.Va. Public Higher Education Institutions Working In W.Va. In 2009 By Industry And Experience .....	8
6. Annualized Wages Of Graduates From W.Va. Public Higher Education Institutions Working In W.Va. In 2009 By Industry And Experience .....	9
7. Work Participation Of Graduates From W.Va. Public Higher Education Institutions Working In W.Va. In 2009 By Industry And Area Of Concentration .....	12
8. Annualized Wages Of Graduates From W.Va. Public Higher Education Institutions Working In W.Va. In 2009 By Industry And Area Of Concentration .....	14
9. Work Participation Of Graduates From W.Va. Public Higher Education Institutions Working In W.Va. In 2009 By Area Of Concentration And Industry .....	17
10. Annualized Wages Of Graduates From W.Va. Public Higher Education Institutions Working In W.Va. In 2009 By Area Of Concentration And Industry .....	19

## List Of Figures

1. Industry Composition Of W.Va. Graduates Working In W.Va. In 2009 By Gender .....10
2. Average Annualized Wages Of W.Va. Graduates Working In W.Va. In 2009  
By Gender .....11
3. Three Measures Of West Virginia Employment.....23



## Executive Summary

This report analyzes the West Virginia industry of employment (and wages) of graduates from state public higher education institutions during the past 12 years. We disaggregate this industry information by the summary degree, workplace experience, gender, and area of concentration of the graduates. The results show that West Virginia higher education graduates work in **all sectors** of the state economy, although the largest shares of graduates work in Health Care and Education. Thus, state graduates tend to work in industries that help build West Virginia's human capital.

The results also show that some industries are much more likely to employ higher education graduates than others and that some industries are much more likely to require particular degrees than others. The employment opportunities for higher education graduates in West Virginia in the future will be determined by the relative size of these industries and their growth. If job growth in the state is slow or is weighted toward industries which tend to hire fewer graduates, then it is likely that local employment opportunities for graduates will lag as well. Note that Health Care is likely to generate strong job gains in the future, which suggests job opportunities for state graduates. Highlights of the study include:

### *Industry And Summary Degree*

- Health Care and Education attracted the most graduates working in West Virginia in 2009. Indeed, 17,614 graduates worked in Health Care in the state (25.3 percent of the total) and 16,551 graduates worked in Education (23.7 percent).
- For graduates working in the state in 2009, annualized wages were highest in Mining (\$67,677) and lowest in Accommodation & Food Services (\$11,605).
- Master's and Doctoral graduates tended to concentrate in a few sectors (particularly Education), while Associate's, Bachelor's, and First Professional graduates tend to be more widely dispersed.
- Associate's, Bachelor's, and Master's graduates earned the highest wages in Mining and Utilities, while Doctoral graduates earned the highest wages in Manufacturing. First Professional graduates earned the highest wages in Health Care.

### *Experience, Gender, And Area Of Concentration*

- Accommodation & Food and Retail Trade (among others) work participation rates tended to decline rapidly with experience. In contrast, work participation rates tended to rise in Education; Manufacturing; Public Administration; and Health Care.
- Returns to experience were highest in Wholesale Trade and Transportation & Warehousing, where graduates with 12 years of experience earn \$37,000-\$39,000 more than graduates with one year of experience.
- Industry of work varied significantly by gender, with female graduates much more likely to work in Health Care and Education and male graduates much more likely to work in Utilities and Mining.
- West Virginia wages in 2009 for male graduates were higher than wages for female graduates in every industry.
- Some areas of concentration sent most graduates to related industries. For instance, graduates in Health Professions and Public Administration tended to work in Health Care. Similarly, graduates in Education tended to work in the Education sector.
- In contrast, graduates in other areas of concentration, for instance Business, Management, Marketing; Communications Technologies; and Engineering Technologies/Technicians; (among others) found work in a wide variety of industries

# Results By Industry And Summary Degree

## Industry

In this report, we analyze West Virginia public higher education graduate employment and wages in the state by industry. Employment is assigned to industries using the North American Industry Classification System (NAICS). We focus on two-digit NAICS industries for this report. NAICS groups establishments into industries according to similarity in the processes used to produce goods or services.

In 2009, graduates from West Virginia public higher education institutions during the past 12 years filled 69,742 jobs in 21 different industries in West Virginia. As shown in Table 1, the industries employing the most graduates in 2009 were Health Care & Social Assistance, with 17,614 graduates (25.3 percent of all graduates employed in West Virginia), Educational Services, with 16,551 graduates (23.7 percent), and Retail Trade, with 5,408 graduates (7.8 percent).

Note that the employment share in Education in West Virginia for graduates was much higher than the estimated industry employment share (9.6 percent). We found a similar pattern for Health Care; Professional, Scientific, & Technical Services; and Public Administration. Graduate employment shares fell short of the state industry employment share in Retail Trade; Accommodation & Food Services; Construction; Manufacturing; Mining; Transportation & Warehousing; Other Services (which includes barber shops, laundry services, etc); and Wholesale Trade.

**Table 1**  
**Work Participation And Annualized Wages Of West Virginia Public**  
**Higher Education Graduates From 1996-1997 to 2007-2008**  
**Working In West Virginia In 2009 By Industry**

NAICS Code	Industry	Number Of Graduates Employed	Percent of Graduates Working*	Average Annualized Wages	Industry Share: All Workers**
72	Accommodation and Food Services	2,888	4.1%	\$11,605	9.4%
56	Admin. and Waste Mgmt and Remed. Serv.	2,744	3.9%	\$24,042	4.6%
11	Agriculture, Forestry, Fishing and Hunting	105	0.2%	\$31,804	0.3%
71	Arts, Entertainment, and Recreation	804	1.2%	\$13,315	1.4%
23	Construction	1,151	1.7%	\$37,345	5.7%
61	Educational Services	16,551	23.7%	\$35,148	9.6%
52	Finance and Insurance	2,506	3.6%	\$36,535	3.0%
62	Health Care and Social Assistance	17,614	25.3%	\$44,451	18.0%
51	Information (telecommunications, etc.)	1,348	1.9%	\$34,486	1.7%
55	Management of Companies and Enterprises	293	0.4%	\$56,968	0.8%
31-33	Manufacturing	2,619	3.8%	\$51,573	7.6%
21	Mining	995	1.4%	\$67,677	4.3%
81	Other Services (personal services, etc.)	1,486	2.1%	\$22,196	3.2%
54	Professional, Scientific, and Technical Services	5,040	7.2%	\$44,235	3.6%
92	Public Administration	4,754	6.8%	\$34,267	5.2%
53	Real Estate and Rental and Leasing	601	0.9%	\$31,463	1.1%
44-45	Retail Trade	5,408	7.8%	\$24,249	13.0%
48-49	Transportation and Warehousing	583	0.8%	\$43,758	2.5%
99	Unclassifiable	59	0.1%	\$37,987	0.1%
22	Utilities	526	0.8%	\$63,147	1.3%
42	Wholesale Trade	1,667	2.4%	\$57,185	3.5%
--	<b>Total</b>	<b>69,742</b>	<b>100%</b>	<b>\$37,331</b>	--

\*Percent of Graduates Working is the percent of graduates working in West Virginia that are employed

in a given industry. \*\*Estimate of the share of West Virginia jobs held by state government, local government, and private workers.



The 69,742 graduates earned \$2.6 billion in annualized wages in West Virginia during 2009, an average wage of \$37,331, also illustrated in Table 1. Graduates employed in Mining averaged the highest wage, at \$67,677, followed by those employed in Utilities, earning \$63,147, and those employed in Wholesale Trade, earning \$57,185, while graduates employed in Accommodation & Food Services earned the lowest average wage \$11,605. Keep in mind that these wage comparisons (and in the remainder of the report) do not control for other socio-economic characteristics (besides industry of work) that might have an impact.

### ***Summary Degree***

Table 2 shows the industry composition and annualized average wages of graduates employed in West Virginia in 2009 by highest degree earned.<sup>1</sup> As expected, the degree earned by a graduate had a strong influence on a graduate's decision to work in the state, the industry in which they worked, and the wage they earned. Graduates with Associate's, Bachelor's, and First Professional degrees tended to be fairly widespread across industries, in contrast to Master's and Doctoral graduates, which tended to concentrate in a few sectors.

Graduates earning an Associate's degree were most likely to find a job in Health Care & Social Assistance, which employed 39.5 percent of all Associate's degree graduates working in West Virginia. Bachelor's degree recipients were also most likely to find employment in Health Care & Social Assistance, at 20.7 percent, and Educational Services, at 20.0 percent. Both Master's and Doctoral degree recipients were most likely to be employed in Educational Services, at 50.8 percent and 71.0 percent respectively. As expected, graduates earning a First Professional degree, primarily doctors and lawyers, were most likely to be employed in Health Care & Social Assistance, at 38.4 percent, and Professional, Scientific, & Technical Services, at 21.5 percent. In the North American Industry Classification System, lawyers are classified in the Professional, Scientific, & Technical Services sector.

Among Associate's degree recipients, wages were highest in Utilities and Mining, at \$64,956 and \$58,895, respectively. Similarly, wages for Bachelor's degree and Master's degree recipients were highest in Mining, at \$66,318 and \$98,307, and Utilities, at \$58,356 and \$89,491 respectively. Wages for Doctoral degree recipients were highest in Manufacturing, at \$100,782, and wages for First Professional graduates were highest in Health Care & Social Assistance, at \$151,405.

---

<sup>1</sup> We withhold information for sectors with less than 10 graduates in order to maintain confidentiality of the data. We denote these instances with n/d.

**Table 2**  
**Industry Composition And Annualized Wages Of Graduates From W.Va. Public Higher Education**  
**Institutions From 1996-1997 To 2007-2008 Employed In W.Va. In 2009 By Degree and Industry**

Industry	Associate's		Bachelor's		Master's		First Professional		Doctoral	
	Percent of Workers	Average Annualized Wages	Percent of Workers	Average Annualized Wages	Percent of Workers	Average Annualized Wages	Percent of Workers	Average Annualized Wages	Percent of Workers	Average Annualized Wages
Accommodation and Food Services	4.9%	\$11,487	5.1%	\$11,716	1.4%	\$11,993	0.4%	\$18,553	n/d	n/d
Admin. and Waste Mngmnt and Remed. Serv.	4.7%	\$17,745	4.6%	\$22,957	1.9%	\$46,988	1.2%	\$38,526	n/d	n/d
Agriculture, Forestry, Fishing and Hunting	0.2%	\$30,360	0.2%	\$28,988	0.1%	\$49,098	n/a	n/a	n/a	n/a
Arts, Entertainment, and Recreation	0.9%	\$14,811	1.5%	\$13,296	0.8%	\$12,872	n/d	n/d	n/d	n/d
Construction	2.3%	\$34,585	1.9%	\$38,536	0.6%	\$39,524	n/d	n/d	n/d	n/d
Educational Services	7.1%	\$20,171	20.0%	\$27,769	50.8%	\$42,966	14.9%	\$41,714	71.0%	\$60,062
Finance and Insurance	3.2%	\$27,751	4.7%	\$35,568	1.9%	\$59,729	n/d	n/d	n/d	n/d
Health Care and Social Assistance	39.5%	\$36,321	20.7%	\$35,329	19.4%	\$53,155	38.4%	\$151,405	9.7%	\$54,445
Information	1.6%	\$33,791	2.7%	\$33,858	0.8%	\$41,798	n/d	n/d	n/d	n/d
Management of Companies and Enterprises	0.3%	\$41,543	0.5%	\$50,417	0.4%	\$85,901	n/d	n/d	n/d	n/d
Manufacturing	5.1%	\$44,011	4.0%	\$49,912	2.5%	\$73,955	n/d	n/d	2.4%	\$100,782
Mining	1.9%	\$58,895	1.6%	\$66,318	0.7%	\$98,307	0.5%	\$114,483	n/d	n/d
Other Services (except Public Administration)	2.8%	\$19,916	2.2%	\$20,944	1.7%	\$29,946	0.4%	\$30,074	n/d	n/d
Professional, Scientific, and Technical Services	4.8%	\$28,377	8.0%	\$39,567	5.6%	\$54,835	21.5%	\$74,492	6.4%	\$87,332
Public Administration	6.7%	\$31,777	7.1%	\$31,026	6.0%	\$42,421	8.5%	\$50,754	3.6%	\$63,381
Real Estate and Rental and Leasing	0.8%	\$28,028	1.1%	\$30,923	0.4%	\$44,951	n/d	n/d	n/d	n/d
Retail Trade	8.8%	\$15,845	9.1%	\$21,855	2.6%	\$21,967	11.9%	\$96,692	n/d	n/d
Transportation and Warehousing	1.2%	\$33,404	0.9%	\$44,300	0.4%	\$73,498	n/a	n/a	n/d	n/d
Unclassifiable	n/d	n/d	0.1%	\$35,717	0.1%	\$46,825	n/a	n/a	n/d	n/d
Utilities	1.3%	\$64,956	0.8%	\$58,356	0.3%	\$89,491	n/d	n/d	n/a	n/a
Wholesale Trade	1.9%	\$30,853	3.1%	\$56,657	1.6%	\$88,308	0.9%	\$105,803	n/d	n/d

n/a: no data available. n/d: data not disclosed.

It is informative not only to analyze the industry in which degree holders gain employment, but also the degree (or skill) composition of each industry. Table 3 shows the percent of West Virginia graduates employed for each industry by highest degree earned. Bachelor's degree recipients dominated the composition for most industries, as they were by far the most numerous degree earned. However, Health Care and Utilities employed relatively large shares of Associate's degree graduates, at 32.8 percent and 35.2 percent respectively.

Bachelor's degree graduates accounted for the largest share of jobs held by West Virginia graduates in Information (including telecommunications) and Finance & Insurance, at 72.7 percent and 69.4 percent, respectively. Bachelor's degree graduates accounted for the smallest share in Health Care, at 43.1 percent.

Master's degree graduates accounted for 44.1 percent of jobs held by West Virginia graduates in Education, by far the highest share of any industry. First Professional graduates made up a relatively large share of jobs in Health Care and Professional, Scientific, & Technical Services. Finally, Doctoral graduates made up a relatively large share of jobs in Education.

Table 4 summarizes annualized wages by industry and degree. Note that there was significant variation in wages by degree across industries. For instance, annual wages rose by 83.6 percent in Wholesale Trade for graduates with a Bachelor's degree versus those with an Associate's degree. We also found a large increase in wages for a Bachelor's degree in Professional, Scientific, & Technical Services; Retail Trade; and Education. In contrast, we found smaller increases for a Bachelor's degree in Utilities; Arts, Entertainment, & Recreation; and Agriculture.

It is important to keep in mind that the wages vary across industries and also by degree. For instance, we found that wages for Bachelor's degree recipients are similar to those for Associate's degree holders in Health Care. But we also found that wages rose significantly for graduates with First Professional and Master's degrees working in Health Care.

**Table 3**  
**Industry Skill Composition**  
**W. Va. Public Higher Education Graduates Working in W. Va. in 2009 By Degree Earned**

Degree	Industry												
	Accommodation and Food Services	Admin. and Waste Mgmt and Remed. Serv.	Agriculture, Forestry, and Fishing and Hunting	Arts, Entertainment, and Recreation	Construction	Educational Services	Finance and Insurance	Health Care and Social Assistance	Information	Management of Companies and Enterprises	Manufacturing	Wholesale Trade	Other
Associate's	25.0%	25.1%	23.8%	16.4%	28.8%	6.3%	18.7%	32.8%	16.9%	16.7%	28.5%		
Bachelor's	64.6%	61.8%	63.8%	66.5%	61.8%	44.2%	69.4%	43.1%	72.7%	61.1%	56.3%		
Masters	7.2%	9.9%	12.4%	13.4%	7.5%	44.1%	10.7%	15.9%	8.8%	19.8%	13.6%		
First Professional	0.4%	1.1%	n/a	n/d	n/d	2.2%	n/d	5.3%	n/d	n/d	n/d		
Doctoral	n/d	n/d	n/a	n/d	n/d	2.1%	n/d	0.3%	n/d	n/d	0.5%		

Degree	Industry												
	Professional, Scientific, and Technical Services	Public Administration	Real Estate and Rental and Leasing	Transportation and Warehousing	Retail Trade	Wholesale Trade	Utilities	Information	Health Care and Social Assistance	Finance and Insurance	Educational Services	Construction	Arts, Entertainment, and Recreation
Associate's	28.3%	28.1%	13.9%	19.1%	23.9%	31.0%	35.2%	16.9%	32.8%	18.7%	6.3%	28.8%	16.4%
Bachelor's	57.8%	53.0%	58.4%	68.7%	61.8%	57.1%	56.5%	61.1%	43.1%	69.4%	44.2%	61.8%	66.5%
Masters	10.6%	16.8%	15.9%	10.0%	6.9%	10.6%	8.0%	8.8%	15.9%	10.7%	44.1%	7.5%	13.4%
First Professional	1.2%	0.7%	10.5%	n/d	5.4%	n/a	n/d	n/d	5.3%	n/d	2.2%	n/d	n/d
Doctoral	n/d	n/d	0.6%	n/d	n/d	n/d	n/a	n/d	0.3%	n/d	2.1%	n/d	n/d

n/a: no data available. n/d: data not disclosed.

**Table 4**  
**Average Annualized Wages Of Graduates From W.Va. Public**  
**Higher Education Institutions Working In W.Va. In 2009 By Degree Earned And Industry**

Degree	Industry												
	Accommodation and Food Services	Admin. and Waste Mgmt and Remed. Serv.	Agriculture, Forestry, and Fishing and Hunting	Arts, Entertainment, and Recreation	Construction	Educational Services	Finance and Insurance	Health Care and Social Assistance	Information	Management of Companies and Enterprises	Manufacturing	Other Services (except Public Administration)	Professional, Scientific, and Technical Services
Associate's	\$11,487	\$17,745	\$30,360	\$14,811	\$34,585	\$20,171	\$27,751	\$36,321	\$33,791	\$41,543	\$44,011		
Bachelor's	\$11,716	\$22,957	\$28,988	\$13,296	\$38,536	\$27,769	\$35,568	\$35,329	\$33,858	\$50,417	\$49,912		
Masters	\$11,993	\$46,988	\$49,098	\$12,872	\$39,524	\$42,966	\$59,729	\$53,155	\$41,798	\$85,901	\$73,955		
First Professional	\$18,553	\$38,526	n/a	n/d	n/d	\$41,714	n/d	\$151,405	n/d	n/d	n/d		
Doctoral	n/d	n/d	n/a	n/d	n/d	\$60,062	n/d	\$54,445	n/d	n/d	\$100,782		

Degree	Industry												
	Mining	Other Services (except Public Administration)	Professional, Scientific, and Technical Services	Public Administration	Real Estate and Rental and Leasing	Retail Trade	Transportation and Warehousing	Unclassifiable	Utilities	Wholesale Trade			
Associate's	\$58,895	\$19,916	\$28,377	\$31,777	\$28,028	\$15,845	\$33,404	n/d	\$64,956	\$30,853			
Bachelor's	\$66,318	\$20,944	\$39,567	\$31,026	\$30,923	\$21,855	\$44,300	\$35,717	\$58,356	\$56,657			
Masters	\$98,307	\$29,946	\$54,835	\$42,421	\$44,951	\$21,967	\$73,498	\$46,825	\$89,491	\$88,308			
First Professional	\$114,483	\$30,074	\$74,492	\$50,754	n/d	\$96,692	n/a	n/a	n/d	\$105,803			
Doctoral	n/d	n/d	\$87,332	\$63,381	n/d	n/d	n/d	n/d	n/a	n/d			

n/a: no data available. n/d: data not disclosed.

## Results By Experience, Gender, And Area Of Concentration

### *Experience*

As time since graduation increases, graduates gain additional experience and become more valuable employees. Thus, they earn higher wages and receive additional job opportunities. Further, industries differ in their employment of graduates with varying workforce experience. Table 5 shows the breakdown of graduate employment from graduation year 1996-1997 to 2007-2008, by industry employed.

Accommodation & Food Services and Retail Trade were industries in 2009 that employed many recent graduates, but tended to lose graduates as they gained experience. For instance, in 2009 7.6 percent of graduates during 2007-2008 working in the state were in the Accommodation & Food Services sector. In contrast, only 1.9 percent of graduates during 1996-1997 working in the state were that industry. Thus, graduates with 12 years experience were much less likely to work in Accommodation & Food Services than were more recent graduates. We found a similar pattern for Retail Trade; Administration, Waste Management, & Remedial Services; and Professional, Scientific, & Technical Services. This may reflect the fact that some of these jobs are part-time or entry level positions that graduates move out of as they gain workplace experience and/or find positions more suited to their educational background and interests.

Employment by experience tended to be more stable in Arts & Entertainment; Construction; Finance & Insurance; Information; Management of Companies; Mining; Other Services; Real Estate; Transportation; Utilities; and Wholesale Trade. In contrast, we found increases in graduate employment as experience rose for Education Services; Manufacturing; Public Administration; and Health Care. Indeed, 19.0 percent of recent graduates working in the state were in the Educational Services sector. This share rose to 24.2 percent of graduates during 1996-1997.

As industries employ graduates with varying amount of experience, they also pay graduates with additional experience differently, as shown in Table 6. Wholesale Trade rewarded experience the most, paying graduates with 12 years experience \$38,840 more than graduates employed with only one year experience. Results were similar for Transportation & Warehousing. Utilities, however, gave the smallest pay increases for experience, at only \$624 (1.1 percent), for graduates with the same 12 years additional experience.

**Table 5**  
**Work Participation Of Graduates From W. Va. Public Higher Education**  
**Institutions Working In W. Va. In 2009 By Industry And Experience**

Industry	Graduation Year													
	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008		
Accommodation and Food Services	1.9%	1.8%	2.2%	2.6%	2.3%	3.0%	3.4%	3.4%	4.3%	4.9%	6.3%	7.6%		
Admin. and Waste Mgmt and Remed. Serv.	3.2%	3.6%	2.9%	3.3%	3.7%	3.4%	3.7%	3.7%	3.8%	4.3%	4.2%	5.2%		
Agriculture, Forestry, Fishing and Hunting	n/d	n/d	n/d	0.2%	n/d	n/d	0.2%	0.2%	0.2%	n/d	0.2%	0.1%		
Arts, Entertainment, and Recreation	0.9%	0.7%	0.7%	1.0%	1.1%	0.9%	1.2%	1.2%	1.2%	1.1%	1.6%	1.4%		
Construction	1.9%	1.9%	1.8%	1.6%	1.6%	1.6%	1.5%	1.6%	1.9%	1.5%	1.4%	1.7%		
Educational Services	24.2%	24.2%	25.7%	25.3%	25.3%	24.9%	25.6%	25.0%	23.7%	25.2%	21.9%	19.0%		
Finance and Insurance	4.1%	3.2%	3.8%	3.8%	3.4%	3.5%	3.9%	3.3%	3.8%	3.7%	3.3%	3.5%		
Health Care and Social Assistance	26.2%	26.5%	25.4%	26.1%	25.7%	26.1%	25.0%	26.1%	24.4%	24.2%	25.1%	24.4%		
Information	1.8%	2.0%	2.0%	1.9%	1.9%	1.8%	1.5%	1.9%	2.1%	2.4%	1.9%	1.9%		
Management of Companies and Enterprises	0.4%	0.6%	0.7%	0.4%	0.5%	0.4%	0.4%	0.5%	0.4%	0.4%	0.3%	0.3%		
Manufacturing	5.3%	5.7%	4.6%	4.0%	3.4%	4.4%	4.0%	3.6%	3.6%	3.4%	2.9%	2.7%		
Mining	1.7%	1.8%	1.4%	1.7%	1.4%	1.7%	1.2%	1.5%	1.6%	1.3%	1.3%	1.2%		
Other Services (except Public Administration)	2.2%	1.8%	2.1%	2.0%	2.1%	2.1%	2.4%	2.1%	2.5%	2.0%	2.3%	2.0%		
Professional, Scientific, and Technical Services	6.3%	6.6%	7.7%	7.3%	7.0%	7.4%	7.5%	7.4%	7.3%	6.8%	7.2%	7.6%		
Public Administration	8.4%	8.3%	7.2%	7.1%	8.9%	7.2%	6.4%	6.7%	6.6%	5.7%	6.3%	5.8%		
Real Estate and Rental and Leasing	0.6%	0.9%	0.6%	0.8%	0.7%	0.6%	0.9%	1.0%	0.9%	0.8%	0.9%	1.2%		
Retail Trade	6.3%	6.0%	5.8%	6.3%	6.1%	6.7%	6.6%	6.8%	7.6%	8.5%	9.3%	11.4%		
Transportation and Warehousing	1.2%	0.9%	0.9%	0.9%	0.7%	0.8%	0.9%	0.7%	0.8%	0.7%	1.0%	0.7%		
Unclassifiable	n/d	n/d	n/d	n/d	n/d	n/d	n/d	n/d	n/d	n/d	n/d	n/d		
Utilities	1.0%	0.8%	1.1%	1.0%	1.0%	0.7%	0.8%	0.7%	0.8%	0.6%	0.6%	0.6%		
Wholesale Trade	2.4%	2.8%	3.0%	2.6%	2.9%	2.4%	2.9%	2.6%	2.4%	2.3%	1.9%	1.7%		

n/a: no data available. n/d: data not disclosed.

**Table 6**  
**Annualized Wages Of Graduates From W.Va. Public Higher Education**  
**Institutions Working In W. Va. In 2009 By Industry And Experience**

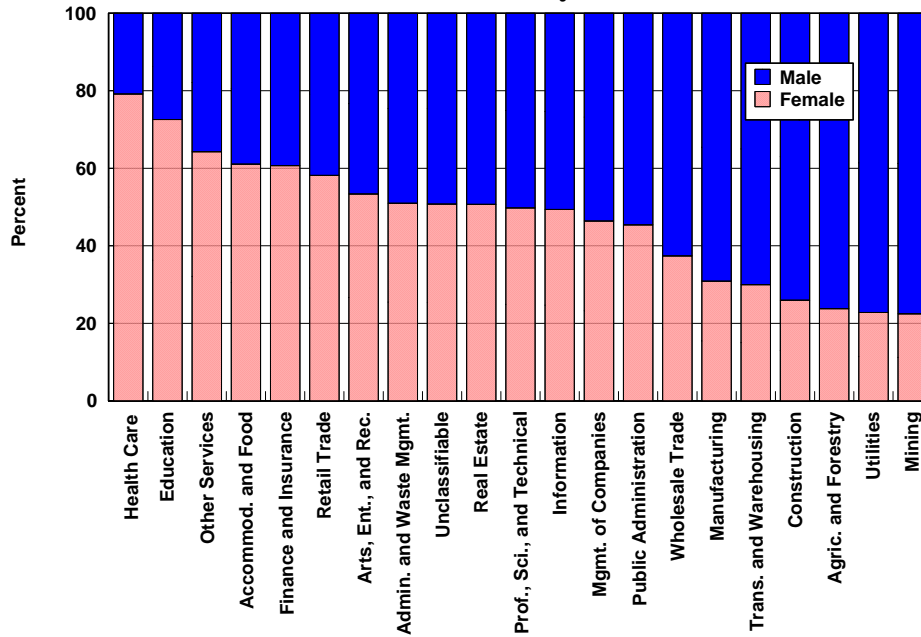
Industry	Graduation Year												
	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	
Accommodation and Food Services	\$18,198	\$19,377	\$18,002	\$18,448	\$16,550	\$15,112	\$13,599	\$11,007	\$12,361	\$10,693	\$9,281	\$8,383	
Admin. and Waste Mgmt and Remed. Serv.	\$31,858	\$32,477	\$38,071	\$33,041	\$27,108	\$23,816	\$23,004	\$29,148	\$23,692	\$19,818	\$19,078	\$17,063	
Agriculture, Forestry, Fishing and Hunting	n/d	n/d	n/d	\$41,195	n/d	n/d	n/d	\$32,073	\$28,550	n/d	\$27,149	\$15,353	
Arts, Entertainment, and Recreation	\$22,809	\$22,979	\$14,973	\$11,461	\$16,421	\$12,746	\$13,556	\$16,334	\$14,601	\$11,607	\$8,898	\$10,989	
Construction	\$42,455	\$47,008	\$55,247	\$45,391	\$45,701	\$40,162	\$38,680	\$34,263	\$32,594	\$35,026	\$31,706	\$23,550	
Educational Services	\$41,467	\$40,949	\$39,726	\$40,260	\$38,633	\$36,692	\$36,541	\$35,730	\$34,389	\$32,373	\$29,767	\$26,872	
Finance and Insurance	\$48,784	\$47,981	\$46,960	\$39,170	\$49,140	\$39,658	\$39,260	\$35,743	\$34,559	\$32,132	\$26,440	\$24,394	
Health Care and Social Assistance	\$57,033	\$58,080	\$54,446	\$52,131	\$53,535	\$46,255	\$49,467	\$43,773	\$40,518	\$37,667	\$34,663	\$32,659	
Information	\$48,678	\$50,840	\$47,084	\$46,110	\$41,187	\$34,181	\$34,426	\$31,432	\$33,631	\$27,609	\$25,324	\$24,546	
Management of Companies and Enterprises	\$71,878	\$75,738	\$65,344	\$92,590	\$54,009	\$54,620	\$62,257	\$57,257	\$48,597	\$38,322	\$46,554	\$39,024	
Manufacturing	\$63,493	\$64,914	\$60,231	\$59,993	\$56,412	\$51,077	\$53,059	\$49,736	\$46,959	\$43,687	\$41,416	\$36,264	
Mining	\$78,714	\$78,787	\$72,733	\$71,892	\$79,722	\$72,656	\$67,793	\$68,701	\$63,224	\$66,432	\$59,508	\$50,281	
Other Services (except Public Administration)	\$29,418	\$29,369	\$31,640	\$27,377	\$23,356	\$26,052	\$24,636	\$22,547	\$20,077	\$19,147	\$17,607	\$13,748	
Professional, Scientific, and Technical Services	\$57,783	\$56,911	\$58,044	\$49,450	\$53,058	\$50,625	\$47,302	\$45,023	\$43,660	\$37,648	\$34,376	\$30,288	
Public Administration	\$43,295	\$39,890	\$40,566	\$38,070	\$40,821	\$36,520	\$34,539	\$33,272	\$31,345	\$30,025	\$28,696	\$24,902	
Real Estate and Rental and Leasing	\$35,113	\$36,331	\$45,422	\$41,424	\$39,728	\$35,470	\$31,298	\$29,368	\$33,345	\$25,310	\$29,518	\$24,006	
Retail Trade	\$38,144	\$35,140	\$34,805	\$29,173	\$27,797	\$32,465	\$30,073	\$27,112	\$25,742	\$19,398	\$18,841	\$14,603	
Transportation and Warehousing	\$64,275	\$55,783	\$45,475	\$45,886	\$47,935	\$52,483	\$46,610	\$44,517	\$46,643	\$39,140	\$31,012	\$27,103	
Unclassifiable	n/d	n/d	n/d	n/d	n/d	n/d	n/d	n/d	n/d	n/d	n/d	n/d	
Utilities	\$59,932	\$64,966	\$65,922	\$65,143	\$66,585	\$73,445	\$63,366	\$64,706	\$62,465	\$56,991	\$59,612	\$59,308	
Wholesale Trade	\$73,055	\$75,012	\$78,382	\$69,805	\$67,532	\$64,296	\$60,791	\$59,568	\$45,739	\$43,991	\$36,873	\$34,215	

n/a: no data available. n/d: data not disclosed.

**Gender**

Industry employment varies significantly by gender. This is also true when we examine the industry of employment for West Virginia public higher education graduates. For instance, in 2009 Health Care & Social Assistance and Educational Services industries were composed of 79.2 percent and 72.6 percent female graduates and only 20.8 percent and 27.4 percent male graduates respectively, illustrated in Figure 1. Conversely, Mining; Utilities; and Agriculture, Forestry, Fishing & Hunting were heavily male dominated, consisting of 77.5 percent, 77.2 percent, and 76.2 percent male graduates.

**Figure 1  
Industry Composition Of W.Va. Graduates Working In  
W.Va In 2009 By Gender**

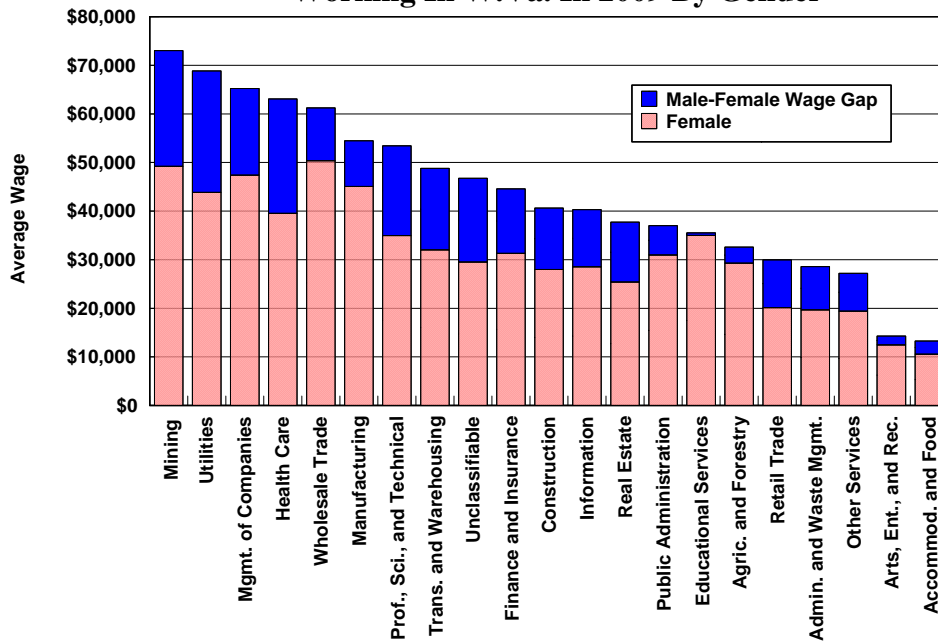


On average, male graduates working in West Virginia tend to earn higher wages than female graduates. We also found it to be true for each two-digit NAICS industry, as Figure 2 shows.<sup>2</sup> In the figure, the total height of the bar for each industry is male average wages. This total height is divided into female average wages and the male-female wage gap. The largest wage differentials were in Utilities, with male graduates earning \$24,988 more than female graduates, Mining, at \$23,799, and Health Care & Social Assistance, at \$23,547. Conversely, the smallest wage gaps were in Educational Services, with males earning \$510 more than females, and Arts, Entertainment, & Recreation, at \$1,790. Among male graduates, the highest wages were found in Mining at \$73,034 and Utilities, at \$68,864, whereas among female graduates, the highest wages were in Wholesale Trade, at \$50,390, and Mining, at \$49,235.

<sup>2</sup> This is an unconditional comparison (except for the industry of work). The gap will also be affected by degree, experience, race, and other socio-economic factors.



**Figure 2**  
**Average Annualized Wages Of W.Va. Graduates**  
**Working In W.Va. In 2009 By Gender**



**Area Of Concentration**

We also disaggregate work participation and wages by area of concentration while in college. Areas of concentration are groups of individual majors (Appendix II provides additional details). Table 7 shows our results for work participation and Table 8 provides results for annualized wages. Several areas of concentration matched closely with industries for employment. For instance, 72.5 percent of graduates in Health Professions & Related Clinical Sciences were employed in one industry: Health Care & Social Assistance. In addition, 72.2 percent of graduates with a degree in Education found employment in Educational Services and 50.2 percent of graduates with a degree in Legal Professions found employment in Professional, Scientific, & Technical Services. Graduates in other areas of concentration, such as Agriculture; Business, Management, & Marketing; Communications Technologies; Engineering Technologies/Technicians; Natural Resources & Conservation; Physical Sciences; and Social Sciences, found work in a variety of industries, since these had no more than 20 percent of graduate employment in any one industry.

Several areas of concentration generated significantly different wages depending on the industry in which the graduates were employed (Table 8). For instance, graduates earning a degree in Physical Sciences experienced a \$90,685 wage differential between graduates employed in Mining compared to graduates employed in Accommodation & Food Services. Similarly, graduates in Legal Professions experienced a wage differential of \$86,622 in Mining compared to Retail Trade. Other areas of concentration saw similar wages, regardless of industry employed. Graduates with degrees in Foreign Languages, Literatures, & Linguistics and Visual & Performing Arts saw a wage differential of less than \$20,000 between the highest and lowest earning industries in which they were employed.

**Table 7**  
**Work Participation Of Graduates From W.Va. Public Higher**  
**Education Institutions Working In W.Va. In 2009 By Industry And Area Of Concentration**

Industry	Area Of Concentration									
	Agriculture, Biological and Agricultural Operations	Blomical Sciences	Business, Management, Marketing, and Related Programs	Communication, Journalism, and Related Programs	Communications Technologies	Computer and Information Sciences	Education	Engineering	Engineering Technologies	English Language and Literature/Letters
Accommodation and Food Services	5.9%	5.2%	5.4%	6.6%	8.9%	3.7%	2.7%	1.5%	1.4%	6.6%
Admin. and Waste Mgmt and Remed. Serv.	4.9%	3.5%	6.1%	4.4%	8.9%	7.2%	1.4%	4.9%	4.8%	6.5%
Agriculture, Forestry, Fishing and Hunting	2.0%	n/d	0.2%	n/a	n/a	n/a	0.1%	n/d	n/d	n/a
Arts, Entertainment, and Recreation	1.8%	1.5%	1.4%	1.6%	n/d	1.5%	0.6%	n/d	0.6%	2.0%
Construction	4.8%	1.3%	2.5%	0.9%	n/d	1.4%	0.5%	5.5%	8.7%	n/d
Educational Services	15.7%	15.9%	8.0%	27.3%	7.5%	14.1%	72.2%	6.7%	5.4%	26.7%
Finance and Insurance	2.6%	2.1%	10.8%	4.7%	4.7%	3.4%	0.9%	n/d	2.1%	4.1%
Health Care and Social Assistance	8.8%	27.4%	12.5%	7.6%	7.5%	7.3%	7.9%	1.2%	3.5%	9.1%
Information	1.8%	0.7%	2.6%	13.2%	12.1%	3.7%	0.5%	2.3%	2.3%	6.6%
Management of Companies and Enterprises	n/d	n/d	1.3%	n/d	n/a	1.4%	n/d	1.1%	0.7%	n/d
Manufacturing	7.3%	5.8%	6.0%	1.6%	8.4%	5.1%	0.7%	16.0%	14.7%	2.1%
Mining	1.8%	1.2%	2.6%	n/d	n/a	1.5%	0.3%	7.0%	9.0%	n/d
Other Services (except Public Administration)	2.0%	2.3%	2.5%	3.6%	n/d	1.4%	1.5%	1.2%	2.9%	2.6%
Professional, Scientific, and Technical Services	14.4%	9.8%	10.2%	7.2%	6.1%	28.6%	1.6%	27.8%	14.7%	9.3%
Public Administration	11.5%	6.5%	6.6%	6.1%	5.6%	6.2%	3.8%	10.3%	7.3%	5.0%
Real Estate and Rental and Leasing	n/d	n/d	1.8%	1.5%	n/d	n/d	0.3%	n/d	1.2%	1.5%
Retail Trade	8.4%	10.7%	11.8%	8.4%	15.9%	7.6%	3.5%	2.3%	6.2%	12.9%
Transportation and Warehousing	n/d	1.0%	1.3%	1.0%	n/a	n/d	0.2%	3.2%	2.8%	n/d
Unclassifiable	n/a	n/d	0.1%	n/d	n/a	n/d	n/d	n/d	n/d	n/d
Utilities	n/d	1.0%	1.0%	0.4%	n/d	n/d	0.1%	3.4%	7.6%	n/d
Wholesale Trade	3.1%	3.2%	5.2%	3.1%	6.5%	4.1%	0.9%	4.7%	3.9%	2.6%

Industry	Area Of Concentration									
	Family and Consumer Sciences/ Human Sciences	Foreign Languages, Literatures, and Linguistics	Health Professions and Related Clinical Sciences	History	Legal Professions and Studies	Liberal Arts and Humanities	Mathematics and Statistics	Mechanic and Repair Technicians	Mult/ Interdisciplinary Studies	Natural Resources and Conservation
Accommodation and Food Services	5.7%	10.4%	1.4%	8.1%	2.3%	5.8%	7.0%	n/d	4.4%	3.9%
Admin. and Waste Mgmt and Remed. Serv.	2.9%	5.4%	1.9%	5.9%	3.2%	5.5%	6.4%	5.5%	4.5%	4.6%
Agriculture, Forestry, Fishing and Hunting	n/a	n/a	n/d	n/a	n/a	n/a	n/a	n/a	n/d	7.4%
Arts, Entertainment, and Recreation	n/d	n/d	0.4%	2.1%	n/d	1.4%	n/d	n/d	1.3%	1.8%
Construction	n/d	n/d	0.3%	n/d	n/d	1.7%	n/d	7.7%	3.3%	6.1%
Educational Services	18.7%	43.2%	9.8%	20.8%	6.1%	17.9%	33.7%	n/d	19.8%	8.5%
Finance and Insurance	2.1%	n/d	1.1%	4.3%	1.5%	4.7%	2.3%	n/d	2.3%	n/d
Health Care and Social Assistance	36.2%	11.3%	72.5%	13.1%	6.8%	21.7%	7.6%	n/d	22.3%	2.5%
Information	1.5%	4.5%	0.1%	3.1%	n/d	2.6%	n/d	n/a	1.3%	n/d
Management of Companies and Enterprises	n/a	n/a	0.1%	n/a	n/d	0.3%	n/d	n/a	n/d	n/d
Manufacturing	1.8%	n/d	0.5%	2.4%	n/d	4.4%	n/d	30.1%	5.2%	13.8%
Mining	n/a	n/d	0.2%	n/d	1.2%	1.2%	n/d	n/d	n/d	5.4%
Other Services (except Public Administration)	4.1%	n/d	0.9%	3.3%	1.2%	3.0%	n/d	n/d	7.8%	3.1%
Professional, Scientific, and Technical Services	3.8%	n/d	1.7%	9.5%	50.2%	4.8%	8.1%	n/d	5.7%	11.8%
Public Administration	2.5%	n/d	2.2%	6.7%	20.3%	8.4%	n/d	n/d	9.5%	17.5%
Real Estate and Rental and Leasing	n/d	n/d	0.3%	n/d	n/d	1.3%	n/a	n/a	0.9%	n/d
Retail Trade	15.3%	9.5%	5.3%	14.0%	3.2%	10.6%	9.3%	n/d	7.9%	3.3%
Transportation and Warehousing	n/a	n/d	0.2%	n/d	n/d	1.0%	n/a	19.1%	n/d	n/d
Unclassifiable	n/d	n/a	n/d	n/a	n/a	n/d	n/a	n/d	n/a	n/a
Utilities	n/d	n/d	n/d	n/a	n/d	0.8%	n/a	n/d	n/d	2.0%
Wholesale Trade	2.8%	n/d	0.8%	2.4%	n/d	2.7%	n/d	n/d	1.7%	3.8%

n/a: no data available. n/d: data not disclosed.

Table 7. Cont.

Industry	Area Of Concentration										
	Parks, Recreation, Leisure and Fitness Studies	Personal and Culinary Services	Physical Sciences	Precision Production	Psychology	Public Administration and Social Service Prof	Science Technologists/ Technicians	Security and Protective Services	Social Sciences	Performing Arts	Visual and Performing Arts
Accommodation and Food Services	8.0%	34.4%	4.0%	n/d	5.9%	3.0%	4.9%	6.0%	n/a	n/a	8.8%
Admin. and Waste Mgmt and Remed. Serv.	4.7%	n/d	5.1%	n/d	4.0%	2.7%	4.7%	5.6%	n/a	n/a	5.6%
Agriculture, Forestry, Fishing and Hunting	n/a	n/a	n/d	n/a	n/a	n/a	n/d	n/d	n/d	n/d	n/d
Arts, Entertainment, and Recreation	5.7%	n/a	n/d	n/a	1.0%	0.6%	n/d	1.0%	n/a	n/a	4.8%
Construction	3.1%	n/d	n/d	18.4%	0.8%	0.8%	2.4%	1.8%	1.3%	n/a	1.1%
Educational Services	15.0%	9.6%	15.0%	5.5%	12.7%	12.6%	7.3%	5.8%	n/a	n/a	25.4%
Finance and Insurance	3.3%	n/a	n/d	n/d	2.9%	2.4%	n/d	3.0%	3.9%	n/a	2.3%
Health Care and Social Assistance	20.4%	24.0%	10.8%	n/d	45.0%	56.7%	32.6%	16.3%	n/a	n/a	8.2%
Information	1.8%	n/a	n/d	n/d	1.5%	n/d	n/d	1.3%	1.7%	n/a	5.7%
Management of Companies and Enterprises	n/d	n/a	n/d	n/a	n/d	n/d	n/a	n/d	n/a	n/a	n/d
Manufacturing	2.1%	n/d	17.7%	35.9%	1.4%	n/d	14.2%	2.9%	2.2%	n/a	3.7%
Mining	n/d	n/d	4.0%	4.6%	0.5%	n/d	2.4%	2.2%	1.1%	n/a	n/d
Other Services (except Public Administration)	4.1%	n/d	n/d	6.9%	1.8%	2.7%	2.1%	1.4%	n/a	n/a	2.7%
Professional, Scientific, and Technical Services	5.9%	n/d	13.5%	n/d	5.0%	3.4%	3.6%	6.7%	9.8%	n/a	9.3%
Public Administration	7.2%	n/d	8.6%	n/d	5.1%	7.1%	4.3%	30.0%	n/a	n/a	3.6%
Real Estate and Rental and Leasing	1.6%	n/a	n/d	n/d	0.5%	n/d	n/d	1.1%	1.1%	1.1%	1.3%
Retail Trade	9.1%	n/d	9.9%	n/d	8.9%	4.9%	8.8%	10.6%	10.1%	10.1%	14.3%
Transportation and Warehousing	1.6%	n/a	n/d	n/d	n/d	n/d	n/d	1.5%	1.0%	1.0%	n/d
Unclassifiable	n/a	n/a	n/d	n/a	n/d	n/a	n/a	n/d	n/d	n/d	n/d
Utilities	n/d	n/a	n/d	n/d	n/d	n/d	3.6%	0.7%	0.6%	n/d	n/d
Wholesale Trade	4.2%	n/d	3.0%	5.5%	1.8%	0.8%	2.6%	1.7%	1.8%	1.8%	1.2%

n/a: no data available. n/d: data not disclosed.

**Table 8  
Annualized Wages Of Graduates From W. Va. Public Higher  
Education Institutions Working In W. Va. In 2009 By Industry And Area Of Concentration**

Industry	Area Of Concentration									
	Agriculture, Operations	Biological and Biomaterial Sciences	Business, Management, Marketing, and Related Programs	Communication, Journalism, and Related Programs	Computer and Information Technologies	Education	Engineering	Engineering Technicians	English Language and Literature/Letters	Health Professions and Related Sciences
Accommodation and Food Services	\$13,764	\$10,425	\$15,906	\$12,778	\$9,917	\$11,357	\$7,986	\$13,816	\$7,447	
Admin. and Waste Mgmt and Remed. Serv.	\$15,351	\$25,149	\$27,666	\$17,599	\$17,916	\$17,558	\$68,667	\$45,959	\$13,136	
Agriculture, Forestry, Fishing and Hunting	\$37,130	n/d	\$38,167	n/a	n/a	\$33,547	n/d	n/d	n/a	
Arts, Entertainment, and Recreation	\$14,959	\$8,903	\$18,818	\$22,678	n/d	\$15,909	\$9,671	\$15,831	\$9,687	
Construction	\$33,338	\$30,591	\$36,968	\$27,283	n/d	\$20,604	\$25,548	\$67,934	n/d	
Educational Services	\$30,981	\$29,613	\$26,731	\$39,890	\$20,647	\$35,954	\$39,388	\$46,321	\$24,182	
Finance and Insurance	\$26,511	\$27,257	\$41,017	\$33,819	\$43,599	\$31,838	\$33,863	\$45,230	\$25,035	
Health Care and Social Assistance	\$31,483	\$45,342	\$35,740	\$27,980	\$24,635	\$30,763	\$24,739	\$34,607	\$20,596	
Information	\$31,775	\$27,203	\$38,760	\$27,603	\$26,544	\$48,544	\$28,816	\$79,793	\$19,879	
Management of Companies and Enterprises	n/d	n/d	\$54,852	n/d	n/a	\$61,416	n/d	\$93,149	n/d	
Manufacturing	\$39,688	\$55,517	\$56,288	\$46,468	\$30,981	\$49,757	\$69,619	\$52,863	\$31,961	
Mining	\$54,420	\$41,714	\$65,774	n/d	n/a	\$69,948	\$45,929	\$91,934	\$77,748	
Other Services (except Public Administration)	\$12,512	\$14,539	\$26,146	\$29,230	n/d	\$30,697	\$13,971	\$39,447	\$22,120	
Professional, Scientific, and Technical Services	\$45,360	\$31,802	\$41,965	\$36,680	\$30,666	\$58,898	\$27,658	\$64,003	\$33,702	
Public Administration	\$28,596	\$28,953	\$31,315	\$20,993	\$20,993	\$40,143	\$34,196	\$50,850	\$28,927	
Real Estate and Rental and Leasing	n/d	n/d	\$36,879	\$28,277	n/d	n/d	\$18,826	n/d	\$34,733	
Retail Trade	\$18,261	\$19,482	\$24,794	\$16,291	\$18,429	\$19,681	\$12,288	\$17,511	\$13,018	
Transportation and Warehousing	n/d	\$37,757	\$43,958	\$33,463	n/a	n/d	\$36,755	\$92,584	\$53,086	
Unclassifiable	n/a	n/d	\$48,098	n/d	n/a	n/d	n/d	n/d	n/d	
Utilities	n/d	\$58,604	\$58,017	\$44,224	n/d	n/d	\$41,848	\$82,919	\$71,274	
Wholesale Trade	\$51,587	\$69,067	\$61,898	\$54,281	\$39,321	\$55,418	\$66,607	\$54,391	\$43,169	

Industry	Area Of Concentration									
	Family and Consumer Sciences/ Human Sciences	Foreign Languages, Literatures, and Linguistics	Health Professions and Related Clinical Sciences	History	Legal Professions and Studies	Liberal Arts and Humanities	Mathematics and Statistics	Mechanic and Repair Technicians	Multidisciplinary Studies	Natural Resources and Conservation
Accommodation and Food Services	\$11,083	\$10,236	\$8,997	\$14,284	\$12,990	\$10,732	\$7,143	n/d	\$10,571	\$6,981
Admin. and Waste Mgmt and Remed. Serv.	\$22,565	\$9,551	\$23,356	\$15,464	\$20,424	\$19,394	\$42,846	\$11,593	\$18,721	\$32,631
Agriculture, Forestry, Fishing and Hunting	n/a	n/a	n/d	n/a	n/a	n/a	n/a	n/a	n/d	\$31,802
Arts, Entertainment, and Recreation	n/d	n/d	\$12,301	\$10,751	n/d	\$12,476	n/d	n/d	\$11,985	\$9,559
Construction	n/d	n/d	\$20,125	n/d	n/d	\$27,936	n/d	\$32,259	\$43,383	\$40,378
Educational Services	\$22,437	\$26,235	\$35,820	\$26,917	\$24,539	\$23,777	\$36,629	n/d	\$26,626	\$36,472
Finance and Insurance	\$18,278	n/d	\$31,394	\$27,541	\$34,023	\$32,606	\$27,692	n/d	\$26,792	n/d
Health Care and Social Assistance	\$22,589	\$16,010	\$58,931	\$22,314	\$30,860	\$29,080	\$40,148	n/d	\$24,689	\$27,214
Information	\$27,612	\$15,541	\$30,234	\$22,208	n/d	\$38,988	n/d	n/a	\$26,814	n/d
Management of Companies and Enterprises	n/a	n/a	\$43,113	n/a	n/d	\$60,561	n/d	n/a	n/d	n/d
Manufacturing	\$37,357	n/d	\$44,831	\$44,044	n/d	\$47,301	n/d	\$52,858	\$54,183	\$44,078
Mining	n/a	n/d	\$47,665	n/d	\$96,706	\$61,823	n/d	n/d	n/d	\$50,900
Other Services (except Public Administration)	\$16,076	n/d	\$19,495	\$22,960	\$31,801	\$20,740	n/d	n/d	\$26,733	\$34,040
Professional, Scientific, and Technical Services	\$23,644	n/d	\$34,226	\$32,162	\$67,625	\$32,657	\$60,235	n/d	\$37,881	\$34,627
Public Administration	\$27,409	n/d	\$30,926	\$26,159	\$46,929	\$32,129	n/d	n/d	\$38,112	\$32,360
Real Estate and Rental and Leasing	n/d	n/d	\$34,931	n/d	n/d	\$31,659	n/a	n/a	\$34,959	n/d
Retail Trade	\$18,728	\$7,069	\$64,775	\$12,483	\$10,084	\$17,480	\$21,950	n/d	\$14,913	\$23,041
Transportation and Warehousing	n/a	n/d	\$17,921	n/d	n/d	\$33,237	n/a	\$41,038	n/d	n/d
Unclassifiable	n/d	n/a	n/d	n/a	n/a	n/d	n/d	n/d	n/a	n/a
Utilities	n/d	n/d	n/d	n/d	n/d	\$55,162	n/a	n/d	n/d	\$63,930
Wholesale Trade	\$46,849	n/d	\$70,898	\$38,329	n/d	\$52,157	n/d	n/d	\$50,828	\$44,407

n/a. no data available. n/d. data not disclosed.

Table 8 Cont.

Industry	Area Of Concentration									
	Recreation, Leisure and Fitness Studies	Personal and Culinary Services	Physical Sciences	Precision Production	Psychology	Public Administration and Social Service Prof	Science Technicians/ Technicians	Security and Protective Services	Social Sciences	Visual and Performing Arts
Accommodation and Food Services	\$11,199	\$16,875	\$8,064	n/d	\$9,919	\$11,829	\$10,033	\$11,899	n/a	\$8,905
Admin. and Waste Mgmt and Remed. Serv.	\$15,355	n/d	\$36,203	n/d	\$16,608	\$24,538	\$21,925	\$17,919	n/a	\$14,796
Agriculture, Forestry, Fishing and Hunting	n/a	n/a	n/d	n/d	n/a	n/a	n/d	n/d	n/d	n/d
Arts, Entertainment, and Recreation	\$24,854	n/a	n/d	n/a	\$7,546	\$8,105	n/d	\$6,343	n/a	\$7,882
Construction	\$23,123	n/d	n/d	\$47,831	\$21,096	\$20,994	\$24,526	\$26,249	\$39,040	\$23,626
Educational Services	\$21,848	\$20,606	\$28,179	\$20,147	\$29,058	\$29,260	\$18,186	\$18,913	n/a	\$27,473
Finance and Insurance	\$37,094	n/a	n/d	n/d	\$31,579	\$36,958	n/d	\$28,212	\$33,653	\$17,637
Health Care and Social Assistance	\$29,173	\$20,425	\$50,260	n/d	\$27,841	\$33,108	\$23,568	\$24,183	n/a	\$24,726
Information	\$32,496	n/a	n/d	n/d	\$30,109	n/d	n/d	\$30,542	\$28,053	\$23,007
Management of Companies and Enterprises	n/d	n/a	n/d	n/a	n/d	n/d	n/a	n/d	n/a	n/d
Manufacturing	\$34,693	n/d	\$60,210	\$40,529	\$44,593	n/d	\$45,891	\$39,524	\$34,421	\$21,029
Mining	n/d	n/d	\$98,749	\$45,693	\$48,292	n/d	\$53,022	\$55,748	\$49,401	n/d
Other Services (except Public Administration)	\$16,997	n/d	n/d	\$30,588	\$14,057	\$25,769	\$11,228	\$21,520	n/a	\$12,324
Professional, Scientific, and Technical Services	\$31,919	n/d	\$37,845	n/d	\$26,805	\$31,995	\$31,765	\$33,507	\$33,763	\$25,611
Public Administration	\$29,800	n/d	\$34,596	n/d	\$27,640	\$31,981	\$27,737	\$38,278	n/a	\$15,395
Real Estate and Rental and Leasing	\$29,084	n/a	n/d	n/d	\$24,082	n/d	n/d	\$25,678	\$25,189	\$17,150
Retail Trade	\$20,097	n/d	\$20,823	n/d	\$13,277	\$9,224	\$12,900	\$19,083	\$16,738	\$12,634
Transportation and Warehousing	\$46,568	n/a	n/d	n/d	n/d	n/d	n/d	\$26,953	\$42,455	n/d
Unclassifiable	n/a	n/a	n/d	n/a	n/d	n/a	n/a	n/d	n/d	n/d
Utilities	n/d	n/a	n/d	n/d	n/d	n/d	\$66,550	\$58,264	\$55,169	n/d
Wholesale Trade	\$68,853	n/d	\$82,101	\$30,086	\$51,375	\$38,378	\$33,638	\$35,568	\$41,982	\$22,736

n/a: no data available. n/d: data not disclosed.

As many areas of concentration lead graduates to seek employment in similar industries, industries may also seek and employ graduates with specific degree concentrations. Table 9 shows how industries vary in areas of concentration of West Virginia graduates they employ.

Industries tend to seek a diverse selection of graduate areas of concentration. Schools, for example, need to employ not only teachers, but also a school nurse, cafeteria workers, a custodial staff, and administrators. Indeed, only three industries drew over 50 percent of their workers from a single area of concentration: Educational Services, with Education at 57.4 percent, Management of Companies, with Business, Management, & Marketing at 52.9 percent, and Health Care & Social Assistance, with Health Professions & Related Clinical Sciences at 50.4 percent.

The broader and more encompassing industries employ a wide range of graduates with varying areas of concentration. Public Administration drew its highest share of graduates from Security & Protective Services (police, fireman, etc.), at 16.2 percent, and Other Services (which includes personal care services, religious services, death care services, pet care services, etc.) drew its highest share of graduates from Business, Management, & Marketing (at 19.7 percent).

Table 10 summarizes annual wages by area of concentration and industry. Given that industries employ graduates with a variety of areas of concentration, graduates with various areas of concentration within an industry may expect to receive immensely different wages, particularly when dealing with specialists. This can easily be seen in Management of Companies, where Engineering graduates earned \$83,598 more than Foreign Languages, Literatures, & Linguistics graduates. Likewise, in Transportation & Warehousing, Engineering graduates earned \$74,663 more than Health Professions & Related Clinical Sciences graduates. Other industries saw very small wage differentials by area of concentration such as Accommodation & Food Services, at a maximum of only \$9,894, and Arts, Entertainment, & Recreation, at a maximum of only \$18,511.

**Table 9**  
**Work Participation Of Graduates From W.Va. Public Higher**  
**Education Institutions Working In W.Va. In 2009 By Area Of Concentration And Industry**

Area of Concentration	Industry										
	Accommodation and Food Services	Admin. and Waste Mgmt and Remed. Serv.	Agriculture, Forestry, Fishing and Hunting	Arts, Entertainment, and Recreation	Construction	Educational Services	Finance and Insurance	Health Care and Social Assistance	Information	Management of Companies and Enterprises	Manufacturing
Agriculture, Agriculture Operations	1.1%	1.0%	10.5%	1.2%	2.3%	0.3%	0.6%	0.3%	0.7%	n/d	1.5%
Architecture and Related Services	n/d	n/d	n/a	n/a	n/d	n/d	n/d	n/a	n/a	n/d	n/d
Biological and Biomedical Sciences	2.5%	1.7%	n/d	2.5%	1.6%	1.3%	1.1%	2.1%	0.7%	n/d	3.0%
Business, Management, Marketing, and Related	21.7%	25.5%	17.1%	20.4%	24.6%	5.6%	49.7%	8.2%	22.0%	52.9%	26.3%
Communication, Journalism, and Related Programs	5.3%	3.8%	n/a	4.7%	1.7%	3.9%	4.3%	1.0%	23.0%	n/d	1.4%
Communications Technologies	0.7%	0.7%	n/a	n/d	n/d	0.1%	0.4%	0.1%	1.9%	0.7%	0.7%
Computer and Information Sciences	1.3%	2.7%	n/a	1.9%	1.2%	0.9%	1.4%	0.4%	2.7%	4.8%	1.9%
Education	12.1%	6.8%	10.5%	15.5%	5.4%	0.7%	4.5%	5.9%	4.7%	n/d	3.5%
Engineering	0.9%	3.0%	n/d	n/d	8.2%	0.6%	n/d	0.1%	2.9%	6.5%	10.3%
Engineering Technologies/Technicians	0.9%	3.0%	n/d	1.2%	13.1%	0.6%	1.5%	0.3%	3.0%	4.1%	9.7%
English Language and Literature/Letters	1.8%	1.9%	n/a	2.0%	n/d	1.3%	1.3%	0.4%	3.9%	n/d	0.6%
Family and Consumer Sciences/Human Sciences	1.3%	0.7%	n/a	n/d	n/d	0.7%	0.6%	1.3%	0.7%	0.7%	0.5%
Foreign Languages, Literatures, and Linguistics	0.8%	0.4%	n/a	n/d	n/d	0.6%	n/d	0.1%	0.7%	0.4%	n/d
Health Professions and Related Clinical Sciences	6.1%	8.5%	n/d	6.8%	3.4%	7.2%	5.2%	50.4%	1.3%	5.8%	2.3%
History	1.6%	1.2%	n/a	1.5%	n/d	0.7%	1.0%	0.4%	1.3%	1.2%	0.5%
Legal Professions and Studies	1.0%	1.4%	n/a	n/d	n/d	0.4%	0.7%	0.5%	n/d	n/d	n/d
Liberal Arts and Sci., Gen. Stud., and Humanities	14.0%	13.9%	n/a	12.4%	10.2%	7.5%	13.0%	8.6%	13.4%	7.2%	11.8%
Library Science	n/a	n/a	n/a	n/a	n/a	n/d	n/d	n/a	n/d	n/d	n/a
Mathematics and Statistics	0.4%	0.4%	n/a	n/d	n/d	0.4%	0.5%	0.1%	n/d	n/d	n/d
Mechanic and Repair Technologies/Technicians	n/d	0.4%	n/a	n/d	1.2%	n/d	n/d	n/d	n/d	0.4%	2.1%
Multi/Interdisciplinary Studies	1.9%	2.1%	n/d	2.0%	3.6%	1.5%	1.2%	1.6%	1.2%	n/d	2.6%
Natural Resources and Conservation	0.8%	1.0%	42.9%	1.4%	3.2%	0.3%	n/d	0.1%	n/d	n/d	3.2%
Parks, Recreation, Leisure and Fitness Studies	1.7%	1.1%	n/a	4.4%	1.7%	0.6%	0.8%	0.7%	0.8%	n/d	0.5%
Personal and Culinary Services	1.5%	n/d	n/a	n/a	n/d	0.1%	n/d	0.2%	n/a	n/d	n/d
Philosophy and Religious Studies	n/d	n/d	n/a	n/d	n/a	n/d	n/d	n/d	n/a	n/d	n/d
Physical Sciences	0.7%	1.0%	n/d	n/d	n/d	0.5%	n/d	0.3%	n/d	n/d	3.6%
Precision Production	n/d	n/d	n/d	n/a	3.5%	0.1%	n/d	n/d	n/d	n/d	3.0%
Psychology	4.1%	3.0%	n/a	2.6%	1.4%	1.5%	2.4%	5.1%	2.3%	n/d	1.1%
Public Administration and Social Service Prof	1.7%	1.6%	n/a	1.2%	1.1%	1.2%	1.5%	5.1%	n/d	n/d	1.1%
Science Technologies/Technicians	0.8%	0.8%	n/d	n/d	1.0%	0.2%	n/d	0.9%	n/d	0.8%	2.5%
Security and Protective Services	5.3%	5.2%	n/d	3.1%	2.3%	0.9%	3.1%	2.4%	2.5%	n/d	2.9%
Social Sciences	4.3%	4.1%	n/d	3.9%	2.3%	1.6%	3.1%	2.7%	2.5%	4.1%	1.6%
Transportation and Materials Moving	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Visual and Performing Arts	3.3%	2.2%	n/d	6.6%	1.0%	1.7%	1.0%	0.3%	4.6%	n/d	1.6%

n/a: no data available. n/d: data not disclosed.

Table 9 Cont.

Area of Concentration	Industry									
	Mining	Other Services (except Public Administration)	Professional, Scientific, and Technical	Public Administration	Real Estate and Rental and Leasing	Retail Trade	Transportation and Warehousing	Unclassifiable	Utilities	Wholesale Trade
Agriculture, Agriculture Operations	1.0%	0.7%	1.6%	1.3%	n/d	0.9%	n/d	n/a	n/d	1.0%
Architecture and Related Services	n/d	n/d	0.2%	n/d	n/a	n/d	n/d	n/a	n/a	n/d
Biological and Biomedical Sciences	1.6%	2.1%	2.6%	1.9%	n/d	2.7%	2.2%	n/d	2.7%	2.6%
Business, Management, Marketing, and Related	29.6%	19.7%	23.4%	16.0%	35.1%	25.2%	25.2%	23.7%	22.8%	35.7%
Communication, Journalism, and Related Programs	n/d	5.7%	3.4%	3.0%	5.7%	3.7%	3.9%	n/d	1.9%	4.3%
Communications Technologies	n/a	n/d	0.3%	0.3%	n/d	0.6%	n/a	n/a	n/d	0.8%
Computer and Information Sciences	1.5%	0.9%	5.7%	1.3%	n/d	1.4%	n/d	n/d	n/d	2.5%
Education	3.8%	13.0%	4.3%	10.5%	6.7%	8.5%	4.5%	n/d	2.9%	7.3%
Engineering	12.0%	1.3%	9.3%	3.7%	n/d	0.7%	9.3%	n/d	11.0%	4.7%
Engineering Technologies/Technicians	15.7%	3.4%	5.0%	2.7%	3.3%	2.0%	8.2%	n/d	24.9%	4.1%
English Language and Literature/Letters	n/d	1.4%	1.5%	0.8%	2.0%	1.9%	n/d	n/d	n/d	1.3%
Family and Consumer Sciences/Human Sciences	n/a	1.8%	0.5%	0.3%	n/d	1.8%	n/a	n/d	n/d	1.1%
Foreign Languages, Literatures, and Linguistics	n/d	n/d	n/d	n/d	n/d	0.4%	n/d	n/a	n/d	n/d
Health Professions and Related Clinical Sciences	2.8%	7.6%	4.2%	5.6%	5.7%	12.1%	4.5%	n/d	n/d	5.6%
History	n/d	1.3%	1.1%	0.8%	n/d	1.5%	n/d	n/a	n/d	0.8%
Legal Professions and Studies	1.5%	0.9%	12.0%	5.2%	n/d	0.7%	n/d	n/a	n/d	n/d
Liberal Arts and Sci., Gen. Std., and Humanities	8.5%	14.3%	6.6%	12.4%	15.3%	13.6%	12.2%	n/d	10.6%	11.1%
Library Science	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Mathematics and Statistics	n/d	n/d	0.3%	n/d	n/a	0.3%	n/a	n/d	n/a	n/d
Mechanic and Repair Technologies/Technicians	n/d	n/d	n/d	n/d	n/a	n/d	6.0%	n/a	n/d	n/d
Multi/Interdisciplinary Studies	n/d	6.7%	1.4%	2.5%	2.0%	1.9%	n/d	n/a	n/d	1.3%
Natural Resources and Conservation	3.3%	1.3%	1.4%	2.3%	n/d	0.4%	n/d	n/a	2.3%	1.4%
Parks, Recreation, Leisure and Fitness Studies	n/d	1.7%	0.7%	0.9%	1.7%	1.0%	1.7%	n/a	n/d	1.6%
Personal and Culinary Services	n/d	n/d	n/d	n/d	n/a	n/d	n/a	n/a	n/a	n/d
Philosophy and Religious Studies	n/a	n/d	n/d	n/d	n/a	n/d	n/a	n/a	n/a	n/a
Physical Sciences	2.1%	n/d	1.4%	0.9%	n/d	1.0%	n/d	n/d	n/d	1.0%
Precision Production	1.0%	1.0%	n/d	n/d	n/d	n/d	n/d	n/a	n/d	0.7%
Psychology	1.1%	2.5%	2.0%	2.2%	1.8%	3.3%	n/d	n/d	n/d	2.2%
Public Administration and Social Service Prof	n/d	2.9%	1.1%	2.4%	n/d	1.5%	n/d	n/a	n/d	0.8%
Science Technologies/Technicians	1.1%	0.7%	0.3%	0.4%	n/d	0.8%	n/d	n/a	3.2%	0.7%
Security and Protective Services	5.7%	2.4%	3.4%	16.2%	4.7%	5.0%	6.5%	n/d	3.6%	2.6%
Social Sciences	2.2%	2.8%	3.8%	5.0%	3.5%	3.7%	3.3%	n/d	2.3%	2.2%
Transportation and Materials Moving	n/a	n/a	n/a	n/a	n/a	n/a	n/d	n/a	n/a	n/a
Visual and Performing Arts	n/d	2.0%	2.0%	0.8%	2.3%	2.9%	n/d	n/d	n/d	0.8%

n/a: no data available. n/d: data not disclosed.



**Table 10**  
**Annualized Wages Of Graduates From W. Va. Public**  
**Higher Education Institutions Working In W. Va. In 2009 By Area Of Concentration And Industry**

Area of Concentration	Industry										
	Accommodation and Food Services	Admin. and Waste Mgmt and Remed. Serv.	Agriculture, Forestry, Fishing and Hunting	Arts, Entertainment, and Recreation	Construction	Educational Services	Finance and Insurance	Health Care and Social Assistance	Information	Management of Companies and Enterprises	Manufacturing
Agriculture, Agriculture Operations	\$13,764	\$15,351	\$37,130	\$14,959	\$33,338	\$30,981	\$26,511	\$31,483	\$31,775	n/d	\$39,688
Architecture and Related Services	n/d	n/d	n/a	n/a	n/d	n/d	n/d	n/a	n/a	n/d	n/d
Biological and Biomedical Sciences	\$10,425	\$25,149	n/d	\$8,903	\$30,591	\$29,613	\$27,257	\$45,342	\$27,203	n/d	\$55,517
Business, Management, Marketing, and Related	\$15,906	\$27,666	\$38,167	\$18,818	\$36,968	\$26,731	\$41,017	\$35,740	\$38,760	\$54,852	\$56,288
Communication, Journalism, and Related Programs	\$12,778	\$17,599	n/a	\$22,678	\$27,283	\$39,890	\$33,819	\$27,980	\$27,603	n/d	\$46,468
Communications Technologies	\$9,917	\$17,916	n/a	n/d	n/d	\$20,647	\$43,599	\$24,635	\$26,544	\$17,916	\$30,981
Computer and Information Sciences	\$11,357	\$31,070	n/a	\$15,909	\$20,604	\$35,954	\$31,838	\$30,763	\$48,544	\$61,416	\$49,757
Education	\$8,213	\$15,558	\$33,547	\$9,671	\$25,548	\$39,388	\$33,863	\$24,739	\$28,816	n/d	\$40,221
Engineering	\$7,986	\$68,667	n/d	n/d	\$67,934	\$46,321	n/d	\$47,279	\$79,793	\$93,149	\$69,619
Engineering Technologies/Technicians	\$13,816	\$45,959	n/d	\$15,831	\$47,628	\$25,782	\$45,230	\$34,607	\$63,833	\$65,296	\$52,863
English Language and Literature/Letters	\$7,447	\$13,136	n/a	\$9,687	n/d	\$24,182	\$25,085	\$20,596	\$19,879	n/d	\$31,961
Family and Consumer Sciences/Human Sciences	\$11,083	\$22,565	n/a	n/d	n/d	\$22,437	\$18,278	\$22,589	\$27,612	\$22,565	\$37,357
Foreign Languages, Literatures, and Linguistics	\$10,236	\$9,551	n/a	n/d	n/d	\$26,235	n/d	\$16,010	\$15,541	\$9,551	n/d
Health Professions and Related Clinical Sciences	\$8,997	\$23,356	n/d	\$12,301	\$20,125	\$35,820	\$31,394	\$58,931	\$30,234	\$43,113	\$44,831
History	\$14,284	\$15,464	n/a	\$10,751	n/d	\$26,917	\$27,541	\$22,314	\$22,208	\$15,464	\$44,044
Legal Professions and Studies	\$12,990	\$20,424	n/a	n/d	n/d	\$24,539	\$34,023	\$30,860	n/d	n/d	n/d
Liberal Arts and Sci., Gen. Std., and Humanities	\$10,732	\$19,394	n/a	\$12,476	\$27,936	\$23,777	\$32,606	\$29,080	\$38,988	\$60,561	\$47,301
Library Science	n/a	n/a	n/a	n/a	n/a	n/d	n/d	n/a	n/d	n/d	n/a
Mathematics and Statistics	\$7,143	\$42,846	n/a	n/d	n/d	\$36,629	\$27,692	\$40,148	n/d	n/d	n/a
Mechanic and Repair Technologies/Technicians	n/d	\$11,593	n/a	n/d	\$32,259	n/d	n/d	n/d	n/d	\$11,593	\$52,858
Multi/interdisciplinary Studies	\$10,571	\$18,721	n/d	\$11,985	\$43,383	\$26,626	\$26,792	\$24,689	\$26,814	n/d	\$54,183
Natural Resources and Conservation	\$6,981	\$32,631	\$31,802	\$9,559	\$40,378	\$36,472	n/d	\$27,214	n/d	n/d	\$44,078
Parks, Recreation, Leisure and Fitness Studies	\$11,199	\$15,355	n/a	\$24,854	\$23,123	\$21,848	\$37,094	\$29,173	\$32,496	n/d	\$34,693
Personal and Culinary Services	\$16,875	n/d	n/a	n/a	n/d	\$20,606	n/d	\$20,425	n/a	n/d	n/d
Philosophy and Religious Studies	n/d	n/d	n/a	n/d	n/a	n/d	n/d	n/d	n/a	n/d	n/d
Physical Sciences	\$8,064	\$36,203	n/d	n/d	n/d	\$28,179	n/d	\$50,260	n/d	n/d	\$60,210
Precision Production	n/d	n/d	n/a	n/a	\$47,831	\$20,147	n/d	n/d	n/d	n/d	\$40,529
Psychology	\$9,919	\$16,608	n/a	\$7,546	\$21,096	\$29,058	\$31,579	\$27,841	\$30,109	n/d	\$44,593
Public Administration and Social Service Prof	\$11,829	\$24,538	n/a	\$8,105	\$20,994	\$29,260	\$36,958	\$33,108	n/d	n/d	n/d
Science Technologies/Technicians	\$10,033	\$21,925	n/d	\$24,526	\$24,526	\$18,186	n/d	\$23,568	n/d	\$21,925	\$45,891
Security and Protective Services	\$11,899	\$17,919	n/d	\$6,343	\$26,249	\$18,913	\$28,212	\$24,183	\$30,542	n/d	\$39,524
Social Sciences	\$10,650	\$16,066	n/d	\$7,619	\$39,040	\$25,975	\$33,653	\$24,811	\$28,053	\$16,066	\$34,421
Transportation and Materials Moving	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Visual and Performing Arts	\$8,905	\$14,796	n/d	\$7,882	\$23,626	\$27,473	\$17,637	\$24,726	\$23,007	n/d	\$21,029

n/a: no data available. n/d: data not disclosed.

Table 10 Cont.

Area of Concentration	Industry									
	Mining	Other Services (except Public Administration)	Professional, Scientific, and Technical Services	Public Administration	Real Estate and Rental and Leasing	Retail Trade	Transportation and Warehousing	Unclassifiable	Utilities	Wholesale Trade
Agriculture, Agriculture Operations	\$54,420	\$12,512	\$45,360	\$28,596	n/d	\$18,261	n/d	n/a	n/d	\$51,587
Architecture and Related Services	n/d	n/d	\$42,064	n/d	n/a	n/d	n/d	n/a	n/a	n/d
Biological and Biomedical Sciences	\$41,714	\$14,539	\$31,802	\$28,953	n/d	\$19,482	\$37,757	n/d	\$58,604	\$69,067
Business, Management, Marketing, and Related	\$65,774	\$26,146	\$41,965	\$31,315	\$36,879	\$24,794	\$43,958	\$48,098	\$58,017	\$61,898
Communication, Journalism, and Related Programs	n/d	\$29,230	\$36,680	\$31,105	\$28,277	\$16,291	\$33,463	n/d	\$44,224	\$54,281
Communications Technologies	n/a	n/d	\$30,666	\$20,993	n/d	\$18,429	n/a	n/a	n/d	\$39,321
Computer and Information Sciences	\$69,948	\$30,697	\$58,898	\$40,143	n/d	\$19,681	n/d	n/d	n/d	\$55,418
Education	\$45,929	\$13,971	\$27,658	\$34,196	\$18,826	\$12,268	\$36,755	n/d	\$41,848	\$55,716
Engineering	\$91,934	\$39,447	\$64,003	\$50,850	n/d	\$17,511	\$92,584	n/d	\$82,919	\$66,607
Engineering Technologies/Technicians	\$77,748	\$26,547	\$43,896	\$34,870	\$34,733	\$26,214	\$53,086	n/d	\$71,274	\$54,391
English Language and Literature/Letters	n/d	\$22,120	\$33,702	\$28,927	\$16,666	\$13,018	n/d	n/d	n/d	\$43,169
Family and Consumer Sciences/Human Sciences	n/a	\$16,076	\$23,644	\$27,409	\$16,666	\$18,728	n/d	n/d	n/d	\$46,849
Foreign Languages, Literatures, and Linguistics	n/d	n/d	n/d	n/d	n/d	\$7,069	n/d	n/a	n/d	n/d
Health Professions and Related Clinical Sciences	\$47,665	\$19,495	\$34,226	\$30,926	\$34,931	\$64,775	\$17,921	n/d	n/d	\$70,898
History	n/d	\$22,960	\$32,162	\$26,159	n/d	\$12,483	n/d	n/a	n/d	\$38,329
Legal Professions and Studies	\$96,706	\$31,801	\$67,625	\$46,929	n/d	\$10,084	n/d	n/a	n/d	n/d
Liberal Arts and Sci., Gen. Std., and Humanities	\$61,823	\$20,740	\$32,657	\$32,129	\$31,659	\$17,480	\$33,237	n/d	\$55,162	\$52,157
Library Science	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Mathematics and Statistics	n/d	n/d	\$60,235	n/d	n/a	\$21,950	n/a	n/d	n/a	n/d
Mechanic and Repair Technologies/Technicians	n/d	n/d	n/d	n/d	n/a	n/d	\$41,038	n/a	n/d	n/d
Multi/Interdisciplinary Studies	n/d	\$26,733	\$37,881	\$38,112	\$34,959	\$14,913	n/d	n/a	n/d	\$50,828
Natural Resources and Conservation	\$50,900	\$34,040	\$34,627	\$32,360	n/d	\$23,041	n/d	n/a	\$63,930	\$44,407
Parks, Recreation, Leisure and Fitness Studies	n/d	\$16,997	\$31,919	\$29,800	\$29,084	\$20,097	\$46,568	n/a	n/d	\$68,853
Personal and Culinary Services	n/d	n/d	n/d	n/d	n/a	n/d	n/a	n/a	n/a	n/d
Philosophy and Religious Studies	n/a	n/d	n/d	n/d	n/a	n/d	n/a	n/a	n/a	n/a
Physical Sciences	\$98,749	n/d	\$37,845	\$34,596	n/d	\$20,823	n/d	n/d	n/d	\$82,101
Precision Production	\$45,693	\$30,588	n/d	n/d	n/d	n/d	n/d	n/a	n/d	\$30,086
Psychology	\$48,292	\$14,057	\$26,805	\$27,640	\$24,082	\$13,277	n/d	n/d	n/d	\$51,375
Public Administration and Social Service Prof	n/d	\$25,769	\$31,995	\$31,981	n/d	\$9,224	n/d	n/a	n/d	\$38,378
Science Technologies/Technicians	\$53,022	\$11,228	\$31,765	\$27,737	n/d	\$12,900	n/d	n/a	\$66,550	\$33,638
Security and Protective Services	\$55,748	\$21,520	\$33,507	\$38,278	\$25,678	\$19,083	\$26,953	n/d	\$58,264	\$35,568
Social Sciences	\$49,401	\$23,292	\$33,763	\$29,272	\$25,189	\$16,738	\$42,455	n/d	\$55,169	\$41,982
Transportation and Materials Moving	n/a	n/a	n/a	n/a	n/a	n/a	n/d	n/a	n/a	n/a
Visual and Performing Arts	n/d	\$12,324	\$25,611	\$15,395	\$17,150	\$12,634	n/d	n/d	n/d	\$22,736

n/a: no data available, n/d: data not disclosed.

## Conclusion And Future Direction

This report shows that West Virginia public higher education graduates work in **all sectors** of the state economy, but that they tend to concentrate in Education and Health Care. We also find significant variation in industry of work and wages by summary degree, experience, gender, and area of concentration.

Overall, this report highlights the contributions that public higher education graduates make to all sectors of the state economy. It also makes clear that industries differ significantly in their employment of graduates. Thus, while it is likely that there are fewer employment opportunities (compared to other states) for college graduates in the state, there are also many industries that require large numbers of highly educated workers.

Further, future demand for graduates will depend on the rate of job growth in West Virginia and how that growth is distributed across industries. In particular, job growth in Health Care is likely to be relatively strong in the future, which will mean additional job opportunities for graduates.

Recent academic research highlights the characteristics of local economies that contributed to strong growth in human capital accumulation during the past 30 years.<sup>3</sup> This research suggests that labor markets with large employment shares in Construction, Finance, and Services also tended to generate particularly strong increases in the share of residents with a Bachelor's degree or better.<sup>4</sup> Further, large metropolitan areas also tended to generate particularly strong gains. Part of the low college attainment in West Virginia is thus attributable to employment mix (low shares in Finance and Services) and the lack of large metropolitan areas.

The impact of industry structure (as well as metropolitan status) suggests the importance of demand-side influences on human capital growth. However, the supply side matters as well because this research also suggests that local economies with more colleges per capita tended to post faster increases in the share of residents with a Bachelor's degree or better.

Finally, it's important to consider that in the long run, growing the concentration of college graduates may change the underlying industry/occupation mix, make the overall state economy more competitive, and in turn contribute to additional job growth for college graduates.

Our next report in the 2010 series will document the geography of work of public higher education graduates in West Virginia. Thus, we will track graduates by their place of employment in the state. This will provide information on the degree to which graduates match employment opportunities across regions of the state. We will also address geographic variation in wages earned by graduates.

---

<sup>3</sup> See Hammond, George W. and Eric C. Thompson. Forthcoming. "Divergence and Mobility in College Attainment Across U.S. Labor Market Areas: 1970-2000," *International Regional Science Review*.

<sup>4</sup> Finance and Services are defined using the Standard Industrial Classification code. Services defined in this way includes Health Care, Education, and Business Services, among several other NAICS sectors.

## **Appendix I: Detailed Description Of Employment Data**

The West Virginia data analyzed in this study come from the matching of demographic information on graduates from West Virginia institutions of higher education (compiled by the HEPC<sup>5</sup>) with employment records maintained by Workforce West Virginia. Graduates reflect the highest degree earned at the time of measurement (during the 1996-1997 to 2007-2008 period).

The employment data used is gathered from West Virginia unemployment compensation records. This is a well-known dataset which measures employment by place of work. It covers jobs and wages reported by firms participating in the West Virginia Unemployment Compensation system. As a general rule, any firm which employs one or more workers for some part of a day in at least 20 different weeks of a calendar year is required to contribute to the state's unemployment insurance system. Major exceptions are railroad companies and the federal government, which contribute to separate systems. The self-employed, student workers, most church workers, and unpaid family workers are also generally not covered.

For this report, we do not include civilian federal government employment and wages due to recent administrative problems with the FEDES match. The U.S. Postal Service and the Office of Personnel Management have begun to vary their response quarter (and whether they respond at all). Based on recent matches to Federal employment data, there are roughly 2,000 graduates (during the past decade) that hold Federal jobs.

Also excluded in this study are results from a match of West Virginia graduates with covered employment (including federal employment) at establishments located in five nearby states (and the District of Columbia). These include Maryland, New Jersey, Ohio, Pennsylvania, Virginia, and the District of Columbia. These states participate in the Regional Wage Record Exchange Project (TRADE), but the data does not include industry of employment.

Covered employment counts 709,575 jobs at establishments in West Virginia in 2008.<sup>6</sup> As Figure 3 shows, this measure of employment is lower than two other major measures of employment: employment measured by the U.S. Bureau of Economic Analysis (BEA) and employment measured by the U.S. Bureau of Labor Statistics (BLS) household survey. Differences arise because of the treatment of the self-employed, who are excluded from covered jobs but are included in the BEA measure and in the BLS household survey, as well as the exclusion of student workers, most church workers, and unpaid family members from the measure of covered jobs. Further, BLS household employment is measured by place of residence, which includes state residents working out of state.

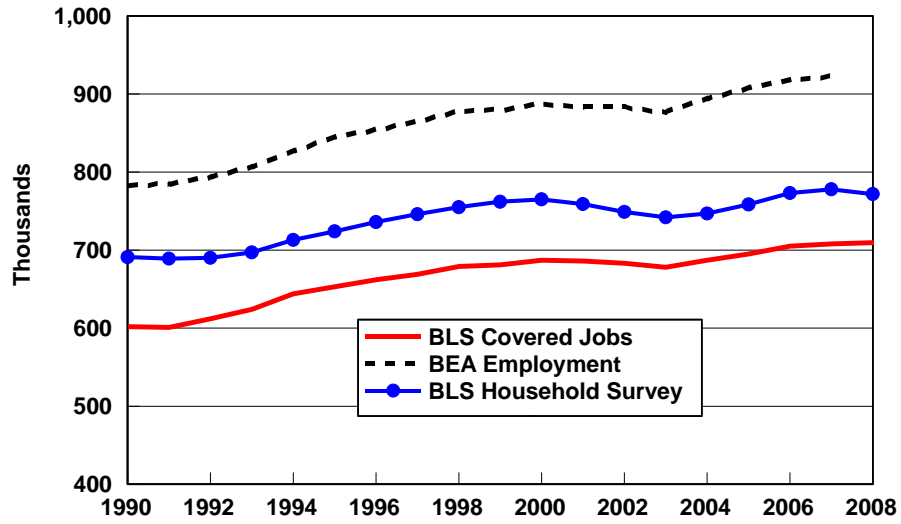
Finally, the wages documented in the report are an important source of compensation, but they are not the only source. Data on wage income is readily available, well understood, and is useful in the evaluation of returns to work of state higher education graduates. However, wage data does not include fringe benefits provided by firms, particularly employer-paid pension and health insurance. This source of income has accounted for an increasing share of work compensation during the last 30 years. Indeed, the share of other labor income to gross earnings by place of work has risen from 6.3 percent in 1969 to 13.3 percent by 2007 for West Virginia.

---

<sup>5</sup> We would like to thank Rob Anderson and Larry Ponder of the WVHEPC for providing the bulk of the data used in this study.

<sup>6</sup> Federal government jobs are added in separately for completeness.

**Figure 3**  
**Three Measures Of West Virginia Employment**



## **Appendix II: List Of Institutions, Degrees, And Areas Of Concentration**

### **Public Higher Education Institutions**

Bluefield State College  
Community and Technical College at WVU Tech  
Community and Technical College of Shepherd  
Concord University  
Fairmont State University  
Eastern West Virginia Community and Technical College  
Fairmont State Community and Technical College  
Glenville State College  
Marshall Community and Technical College  
Marshall University  
New River Community and Technical College  
Potomac State College of West Virginia University  
Shepherd University  
Southern West Virginia Community & Tech College  
West Liberty State College  
West Virginia Northern Community College  
West Virginia School of Osteopathic Medicine  
West Virginia State Community and Technical  
West Virginia State University  
West Virginia University  
West Virginia University Institute of Technology  
West Virginia University at Parkersburg

### **Degrees**

Undergraduate Certificate  
Associate's Degree  
Bachelor's Degree  
First Professional  
Master's Degree  
Post-Master's Certificate  
Doctoral Degree

### **Areas Of Concentration And Majors**

#### **Agriculture, Agriculture Operations, and Related Sciences**

Agricultural Economics  
Agriculture, Agriculture Operations, and Related Sciences, Other.  
Agriculture, General  
Animal Sciences, General.  
Aquaculture  
Plant Sciences, Other.

#### **Architecture and Related Services**

Landscape Architecture

#### **Biological and Biomedical Sciences**

Anatomy  
Biochemistry  
Biochemistry, Biophysics and Molecular Biology, Other  
Biological and Biomedical Sciences, Other.  
Biology/Biological Sciences, General  
Botany/Plant Biology  
Exercise Physiology  
Genetics, General.  
Medical Microbiology and Bacteriology  
Microbiological Sciences and Immunology, Other.  
Pharmacology and Toxicology  
Physiology, General  
Reproductive Biology  
Zoology/Animal Biology

**Business, Management, Marketing, and Related Support Services**

Accounting  
Accounting Technology/Technician and Bookkeeping  
Administrative Assistant and Secretarial Science, General  
Business Administration and Management, General  
Business Administration, Management and Operations, Other  
Business, Management, Marketing, and Related Support Services, Other  
Business/Commerce, General  
Business/Managerial Economics  
Business/Office Automation/Technology/Data Entry  
Entrepreneurship/Entrepreneurial Studies  
Executive Assistant/Executive Secretary  
Fashion Merchandising  
Finance, General  
Hospitality Administration/Management, General  
Hospitality Administration/Management, Other  
Hotel/Motel Administration/Management  
Information Resources Management/CIO Training.  
Labor and Industrial Relations  
Management Information Systems, General  
Marketing/Marketing Management, General  
Office Management and Supervision  
Operations Management and Supervision  
Retailing and Retail Operations.  
Sales, Distribution, and Marketing Operations, General  
Tourism and Travel Services Marketing

**Communication, Journalism, and Related Programs**

Communication Studies/Speech Communication and Rhetoric.  
Communication, Journalism, and Related Programs, Other.  
Journalism

**Communications Technologies/Technicians and Support Services**

Graphic and Printing Equipment Operator, General Production.  
Printing Press Operator.  
Graphic Communications, Other.  
Communications Technologies/Technicians and Support Services, Other

**Computer and Information Sciences and Support**

Computer and Information Sciences and Support Services, Other.  
Computer and Information Sciences,  
Computer and Information Sciences, General.  
Computer Programming, Specific Applications.  
Computer Programming/Programmer, General.  
Computer Science.  
Information Science/Studies.

**Education**

Adult and Continuing Education and Teaching  
Agricultural Teacher Education.  
Business Teacher Education  
Counselor Education/School Counseling and Guidance Services.  
Curriculum and Instruction.  
Early Childhood Education and Teaching.  
Education, General.  
Educational Administration and Supervision, Other.  
Educational Leadership and Administration, General.  
Educational Psychology. (Moved, Report Under 42.18 series)  
Educational/Instructional Media Design.  
Elementary Education and Teaching  
Junior High/Intermediate/Middle School Education and Teaching  
Kindergarten/Preschool Education and Teaching  
Physical Education Teaching and Coaching  
Reading Teacher Education  
Secondary Education and Teaching  
Special Education and Teaching, General  
Teacher Assistant/Aide.  
Teacher Education and Professional Development, Specific Levels and Methods, Other  
Technical Teacher Education.  
Trade and Industrial Teacher Education

**Engineering**

Aerospace, Aeronautical and Astronautical Engineering



Chemical Engineering.  
Civil Engineering, General  
Computer Engineering, General.  
Computer Software Engineering.  
Electrical, Electronics and Communications Engineering  
Engineering Physics  
Engineering Science  
Engineering, General.  
Engineering, Other  
Environmental/Environmental Health Engineering  
Industrial Engineering.  
Mechanical Engineering.  
Mining and Mineral Engineering  
Petroleum Engineering.  
Systems Engineering.

**Engineering Technologies/Technicians**

Aeronautical/Aerospace Engineering Technology/Technician  
Architectural Drafting and Architectural CAD/CADD  
Architectural Engineering Technology/Technician  
Automotive Engineering Technology/Technician  
Civil Engineering Technology/Technician  
Computer Engineering Technology/Technician  
Computer Technology/Computer Systems Technology  
Drafting and Design Technology/Technician, General  
Electrical, Electronic and Communications Engineering Technology/Technician  
Electromechanical Technology/Electromechanical Engineering Technology  
Energy Management and Systems Technology/Technician  
Engineering Technologies/Technicians, Other  
Engineering/Industrial Management  
Environmental Engineering Technology/Environmental Technology  
Industrial Production Technologies/Technicians, Other  
Industrial Technology/Technician  
Manufacturing Technology/Technician  
Mechanical Drafting and Mechanical Drafting CAD/CADD.  
Mechanical Engineering Related Technologies/Technicians, Other  
Mechanical Engineering/Mechanical Technology/Technician  
Mining Technology/Technician.  
Occupational Safety and Health Technology/Technician  
Petroleum Technology/Technician  
Surveying Technology/Surveying.

**English Language and Literature/Letters**

Creative Writing.  
English Language and Literature, General.  
Speech and Rhetorical Studies.

**Family and Consumer Sciences/Human Sciences**

Child Care and Support Services Management.  
Family and Consumer Sciences/Human Sciences, General  
Housing and Human Environments, Other.

**Foreign Languages, Literatures, and Linguistics**

Foreign Languages and Literatures, General  
French Language and Literature.  
Sign Language Interpretation and Translation.

**Health Professions and Related Clinical Sciences**

Athletic Training/Trainer  
Audiology/Audiologist and Speech-Language Pathology/Pathologist.  
Clinical Laboratory Science/Medical Technology/Technologist  
Clinical/Medical Laboratory Science and Allied Professions, Other  
Clinical/Medical Laboratory Technician  
Community Health Services/Liaison/Counseling  
Cytotechnology/Cytotechnologist  
Dental Clinical Sciences, General  
Dental Hygiene/Hygienist  
Dental Laboratory Technology/Technician  
Dentistry (DDS, DMD).  
Dietetics/Dietitian (RD).  
Emergency Medical Technology/Technician (EMT Paramedic).  
Health Information/Medical Records Technology/Technician  
Health Professions and Related Clinical Sciences, Other  
Health/Health Care Administration/Management  
Medical Administrative/Executive Assistant and Medical Secretary  
Medical Radiologic Technology/Science – Radiation Therapist  
Medical Transcription/Transcriptionist  
Medical/Clinical Assistant  
Medicine (MD).  
Nuclear Medical Technology/Technologist  
Nurse/Nursing Assistant/Aide and Patient Care Assistant  
Nursing, Other  
Nursing/Registered Nurse (RN, ASN, BSN, MSN)  
Occupational Therapy/Therapist  
Osteopathic Medicine/Osteopathy (DO).  
Pharmaceutics and Drug Design.  
Pharmacy (PharmD [USA], PharmD or BS/BPharm [Canada])

Pharmacy Technician/Assistant  
Physical Therapist Assistant  
Physical Therapy/Therapist  
Psychiatric/Mental Health Services Technician  
Public Health, General (MPH, DPH).  
Respiratory Care Therapy/Therapist  
Speech-Language Pathology/Pathologist  
Surgical Technology/Technologist  
Veterinary/Animal Health Technology/Technician and Veterinary Assistant  
Vocational Rehabilitation Counseling/Counselor

**History**

History, General

**Legal Professions and Studies**

Law (LL.B., J.D.).  
Legal Administrative Assistant/Secretary.  
Legal Assistant/Paralegal.  
Legal Professions and Studies, Other.

**Liberal Arts and Sciences, General Studies and Humanities**

General Studies  
Humanities/Humanistic Studies.  
Liberal Arts and Sciences, General Studies and Humanities, Other  
Liberal Arts and Sciences/Liberal Studies

**Library Science**

Library Science/Librarianship

**Mathematics and Statistics**

Mathematics, General.  
Statistics, General

**Mechanic and Repair Technologies/Technicians**

Avionics Maintenance Technology/Technician  
Heating, Ventilation, AC and Refrigeration Maintenance Technology (HAC(R), HVAC(R)).  
Heavy/Industrial Equipment Maintenance Technologies, Other  
Mechanic and Repair Technologies/Technicians, Other

**Multi/Interdisciplinary Studies**

Biological and Physical Sciences  
Gerontology  
Multi-/Interdisciplinary Studies, Other  
Science, Technology and Society  
Systems Science and Theory

**Natural Resources and Conservation**

Environmental Studies.  
Forest Management/Forest Resources Management.

Forest Sciences and Biology.  
Forest Technology/Technician.  
Forestry, General.  
Natural Resource Economics.  
Natural Resources Management and Policy, Other.  
Wildlife and Wildlands Science and Management.  
Wood Science and Wood Products/Pulp and Paper Technology.

**Parks, Recreation, Leisure and Fitness Studies**

Health and Physical Education, General  
Kinesiology and Exercise Science  
Parks, Recreation and Leisure Facilities Management  
Parks, Recreation and Leisure Studies

**Personal and Culinary Services**

Culinary Arts/Chef Training.  
Food Preparation/Professional Cooking/Kitchen Assistant.  
Institutional Food Workers  
Restaurant, Culinary, and Catering Management/Manager

**Philosophy and Religious Studies**

Philosophy

**Physical Sciences**

Chemistry, General.  
Geology/Earth Science, General  
Physical Sciences.  
Physics, General.

**Precision Production**

Machine Shop Technology/Assistant  
Welding Technology/Welder  
Precision Metal Working, Other

**Psychology**

Counseling Psychology  
Educational Psychology  
Psychology, General  
School Psychology

**Public Administration and Social Service Prof**

Community Organization and Advocacy  
Public Administration  
Social Work

**Sciences Technologies/Technicians**

Chemical Technology/Technician  
Science Technologies/Technicians, Other

**Security and Protective Services**

Corrections  
Criminal Justice/Police Science  
Criminal Justice/Safety Studies  
Criminalistics and Criminal Science  
Fire Protection and Safety Technology/Technician  
Forensic Science and Technology  
Security and Protective Services, Other

**Social Sciences**

Economics, General  
Geography  
International Relations and Affairs  
Political Science and Government, General.  
Social Sciences, General.  
Social Sciences, Other.  
Sociology

**Visual and Performing Arts**

Art/Art Studies, General  
Commercial and Advertising Art  
Design and Visual Communications, General  
Drama and Dramatics/Theatre Arts, General  
Drawing  
Graphic Design  
Interior Design  
Music, General  
Visual and Performing Arts, General  
Visual and Performing Arts, Other