

# State Council of Higher Education for Virginia Data Memo

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**Strategic Plan Development Project**

**July 16, 2014**

**Contents**

Executive summary ..... 6

Virginia background ..... 9

    Economic and demographic characteristics of Virginia ..... 9

        Ethnic and racial diversity ..... 9

        Poverty ..... 11

        Aging population ..... 13

        Section summary ..... 13

Regional differences ..... 13

    Section summary ..... 17

Projection of High School graduates by race and ethnicity ..... 17

    College Ready Skills ..... 19

    Remediation ..... 20

    Section summary ..... 20

Education levels ..... 21

Employment profile ..... 22

    Federal Government ..... 24

    Occupational demand ..... 25

    General skills ..... 28

    Section summary ..... 29

Higher education ..... 29

    Higher education institutions ..... 29

Enrollment ..... 29

    In state and out-of-state enrollment ..... 32

    Historically Black Colleges in Virginia ..... 33

    Distance education ..... 35

    Enrollment of underserved students ..... 36

Degree production ..... 40

    Summary of section ..... 45

Completion rates ..... 46

First year persistence rates ..... 46

Transfer rates ..... 46

Graduation rates ..... 47

Section summary ..... 49

Affordability ..... 50

    Student Aid ..... 52

    Debt burden of graduates ..... 53

    Section summary ..... 55

Sustainability ..... 56

    Salaries ..... 57

    Section summary ..... 58

    Economic impact of Higher Education ..... 59

Research ..... 59

    Research university faculty salaries ..... 61

    Faculty racial/ethnic characteristics ..... 63

Partnerships with business and communities ..... 65

    Examples of employer/higher education partnerships in Virginia ..... 65

Conclusion and summary ..... 67

Bibliography ..... 68

Appendix A. List of accredited postsecondary institutions operating in Virginia, JBLA ..... 73

Appendix B. University research parks and off-campus centers ..... 80

Appendix C. JBLA regional crosswalk ..... 84

**List of tables**

TABLE 1. PROJECTED CHANGE IN DISTRIBUTIONS BY RACE AND ETHNICITY FOR VIRGINIA TO 2040..... 10

TABLE 2. HISPANIC POPULATION IN VIRGINIA BY NATIONAL ORIGIN 2011 ..... 10

TABLE 3. CHILDREN UNDER 18 IN VIRGINIA LIVING IN POVERTY BY RACE AND ETHNICITY ..... 11

TABLE 4. OUTCOMES OF GROWING UP IN POVERTY ..... 12

TABLE 5. REGIONAL DIFFERENCES ACROSS THE STATE..... 14

TABLE 6. PROJECTED CHANGE IN THE NUMBER OF 18 TO 24 YEAR OLDS FOR VIRGINIA TO 2030..... 18

TABLE 7. PERCENT OF POSTSECONDARY DEGREE HOLDERS AMONG INDIVIDUALS 25-44 YEARS OLD ..... 21

TABLE 8. FIFTY LARGEST EMPLOYERS IN VIRGINIA..... 24

TABLE 9. THE TWENTY OCCUPATIONS PROJECTED TO HAVE GREATEST INCREASE IN DEMAND TO 2020..... 26

TABLE 10. LIST OF VIRGINIA’S 20 FASTEST GROWING OCCUPATIONS THAT REQUIRE A BACHELOR’S DEGREE 2010-2020 .. 27

TABLE 11. PERCENT OF VIRGINIA EMPLOYERS RATING A SKILL AS ESSENTIAL FOR NEW EMPLOYEES ..... 28

TABLE 12. ENROLLMENT IN PUBLIC VIRGINIA COLLEGES AND UNIVERSITIES, FALL 2012..... 31

TABLE 13. ENROLLMENT IN PRIVATE-NOT-FOR-PROFIT COLLEGES AND UNIVERSITIES, FALL 2012 ..... 31

TABLE 14. ENROLLMENT IN PRIVATE, FOR-PROFIT COLLEGES AND SCHOOLS, FALL 2012 ..... 31

TABLE 15. ENROLLMENT IN ALL COLLEGES AND SCHOOLS, FALL 2012 ..... 32

TABLE 16. FIRST-TIME STUDENTS WHO ARE VIRGINIA CITIZENS ENROLLING IN PUBLIC FOUR-YEAR COLLEGES AND  
UNIVERSITIES IN VIRGINIA ..... 33

TABLE 17. VIRGINIA HBCU FTE ENROLLMENT, NUMBER OF STUDENTS RECEIVING DEGREES, AND GRADUATION RATE 2012  
..... 34

TABLE 18. NUMBER OF VIRGINIA STUDENTS ENROLLED IN DISTANCE EDUCATION ..... 35

TABLE 19. ENROLLMENT BY ETHNIC/RACIAL MINORITIES IN VIRGINIA FOUR-YEAR PUBLIC COLLEGES AND UNIVERSITIES,  
2013-14 ..... 37

TABLE 20. ENROLLMENT BY ETHNIC/RACIAL MINORITIES IN VIRGINIA FOUR-YEAR PUBLIC COLLEGES AND UNIVERSITIES,  
2013-14 ..... 38

TABLE 21. DEGREES AND CERTIFICATES AWARDED BY VIRGINIA POSTSECONDARY INSTITUTIONS..... 41

TABLE 22. DISTRIBUTION OF DEGREES AWARDED BY VIRGINIA INSTITUTIONS TO STUDENTS BY ETHNIC/RACIAL CATEGORIES  
..... 43

TABLE 23. DISTRIBUTION OF DEGREES AWARDED BY PUBLIC AND PRIVATE, NOT-FOR-PROFIT COLLEGES AND UNIVERSITIES IN  
VIRGINIA BY RACE/ETHNICITY, 2012-13..... 45

TABLE 24. BACHELOR’S DEGREES CONFERRED PER 1,000 INDIVIDUALS 18–24 YEARS OLD, 1990–2011..... 45

TABLE 25. FOUR-YEAR COMPLETION RATES OF ALL STUDENTS TRANSFERRING TO ALL PUBLIC FOUR-YEAR INSTITUTIONS IN  
FALL AND SPRING ..... 47

TABLE 26. ONE HUNDRED AND FIFTY PERCENT NORMAL TIME GRADUATION RATES FOR ALL UNDERGRADUATE DEGREE-  
SEEKING STUDENTS, BY LEVEL AND CONTROL ..... 48

TABLE 27. ONE HUNDRED AND FIFTY PERCENT NORMAL TIME GRADUATION RATES FOR DEGREE SEEKING UNDERSERVED  
MINORITY STUDENTS, BY LEVEL AND CONTROL ..... 48

TABLE 28. PRICE OF ATTENDANCE FOR IN-STATE STUDENTS ATTENDING PUBLIC FOUR-YEAR COLLEGES AND UNIVERSITIES IN  
VIRGINIA, 2012-2013 ..... 51

TABLE 29. AVERAGE UNDERGRADUATE CHARGE AT PUBLIC 4-YEAR INSTITUTIONS AS A PERCENTAGE OF DISPOSABLE  
PERSONAL INCOME: 2000–2011..... 52

TABLE 30. STATE EXPENDITURES ON STUDENT AID/UNDERGRADUATE ENROLLMENT AT 4-YEAR INSTITUTIONS (\$)..... 52

TABLE 31. MEAN DEBT OF STUDENT BORROWERS AT PUBLIC 4-YEAR INSTITUTIONS 2011-12 ..... 54

TABLE 32. MEAN DEBT OF STUDENT BORROWERS AT PUBLIC 2-YEAR INSTITUTIONS 2011-12 ..... 55

TABLE 33. APPROPRIATIONS OF STATE TAX FUNDS FOR OPERATING EXPENSES OF HIGHER EDUCATION AS A PERCENTAGE OF GROSS DOMESTIC PRODUCT, BY STATE: 2000–2012 ..... 56

TABLE 34. FACULTY SALARIES OF FULL-TIME FACULTY IN VIRGINIA PUBLIC 4-YEAR INSTITUTIONS (9-10 MONTH CONTRACT) ..... 57

TABLE 35. FACULTY SALARIES OF FULL-TIME FACULTY IN VIRGINIA COMMUNITY COLLEGES (9-10 MONTH CONTRACT)..... 58

TABLE 36. LEADING VIRGINIA RESEARCH UNIVERSITY CHARACTERISTICS ..... 60

TABLE 37. TOTAL EXPENDITURES ON RESEARCH AND DEVELOPMENT PER NONMEDICAL FACULTY MEMBER..... 61

TABLE 38. STATE FUNDING FOR PUBLIC RESEARCH UNIVERSITIES PER FTE STUDENT BY STATE: 2000-2010 ..... 61

TABLE 39. FACULTY SALARIES IN PEER GROUP UNIVERSITIES AND IN VIRGINIA RESEARCH UNIVERSITIES..... 62

TABLE 40. PERCENT OF FULL-TIME FACULTY AT PUBLIC FOUR-YEAR COLLEGES AND UNIVERSITIES THAT IDENTIFIES AS AMERICAN INDIAN OR NATIVE ALASKAN, ASIAN, BLACK/AFRICAN AMERICAN, HISPANIC OR LATINO, NATIVE HAWAIIAN OR PACIFIC ISLANDER, OR TWO OR MORE RACES ..... 63

TABLE 41. PERCENT OF FULL-TIME FACULTY AT PUBLIC TWO-YEAR COLLEGES AND UNIVERSITIES THAT IDENTIFIES AS AMERICAN INDIAN OR NATIVE ALASKAN, ASIAN, BLACK/AFRICAN AMERICAN, HISPANIC OR LATINO, NATIVE HAWAIIAN OR PACIFIC ISLANDER, AMERICAN OR TWO OR MORE RACES. .... 64

**List of figures**

FIGURE A. EDUCATIONAL ATTAINMENT BY REGION IN VIRGINIA ..... 15

FIGURE B. UNEMPLOYMENT RATE, BY VIRGINIA REGION ..... 16

FIGURE C. HIGH SCHOOL GRADUATES IN VIRGINIA ..... 18

FIGURE D. PERCENT OF VIRGINIA HIGH SCHOOL GRADUATES WITH COLLEGE READY SKILLS, 2009-11 ..... 20

FIGURE E. PERCENT OF VIRGINIA POPULATION BY RACE/ETHNICITY, 25 TO 64 WITH A COLLEGE DEGREE ..... 21

FIGURE F. EDUCATION LEVELS OF VIRGINIA POPULATION 18+ ..... 22

FIGURE G. SCIENCE AND ENGINEERING OCCUPATIONS, BY STATE..... 23

FIGURE H. DOLLARS FROM FEDERAL CONTRACTS TO COMPANIES IN VIRGINIA, 2000-2011 (IN BILLIONS) ..... 25

FIGURE I. VIRGINIA HIGHER EDUCATION FALL ENROLLMENT IN DEGREE GRANTING INSTITUTIONS, 1970 TO 2012 ..... 30

FIGURE J. HEADCOUNT ENROLLMENT IN ALL HBCUS IN VIRGINIA ..... 34

FIGURE K. STUDENTS TRANSFERRING FROM ALL PUBLIC TWO-YEAR INSTITUTIONS INTO ALL PUBLIC FOUR-YEAR INSTITUTIONS IN THE FALL AND SPRING ..... 46

FIGURE L. 150 PERCENT OF NORMAL TIME GRADUATION RATES IN PUBLIC FOUR-YEAR INSTITUTIONS, BY RACIAL/ETHNIC GROUP..... 49

FIGURE M. VIRGINIA’S TALENT PIPELINE ..... 66

## Executive summary

This environmental scan provides information relative to assessing risks, challenges, and opportunities that will be important considerations for higher education in the Commonwealth. This overview provides a summary of potential issues for each of these categories.

Averages hide important issues in Virginia. Northern Virginia dominates state averages on measures of population, income, and jobs. Looking at the different regions of the state provides a much more complicated set of issues. The success and reputation of Virginia colleges and universities do not reflect the experience of many Virginia citizens who do not have the money or the academic preparation to take advantage of the educational opportunity. The eroding funding for public higher education in Virginia suggests that the levels of excellence gained in the past cannot be held in the future.

Higher education in Virginia will operate in a changing demographic environment. More minority students, for example, will be coming to the doors of the states four-year and community colleges. Many of these students will not have had the same level of education success or the same life experiences as better-off White students. This change will take place in a period of little increase in the state's college age population.

The regional diversity of Virginia provides a different context defined in terms of what is needed from colleges and universities. The headquarter companies and federal agencies in Northern Virginia need a different mix of trained employees than do the smaller towns and rural areas of Virginia. College leaders will need to continue to be sensitive to local needs as well as larger state needs.

Technology will continue to change how education is delivered. Distance education has the potential to make education available to more students who need the flexibility to fit their education with work and family. On campus, technology has the potential to enable students to complete their coursework more quickly than traditional classes while maintaining the same educational standards.

State financial support of higher education in Virginia has been declining with associated increases in tuition and fees. This raises two issues. The first issue is finding a way to keep college affordable. The price of education at a four-year public college or university is beyond the ability of the average family to pay, even with student grants to help. There is an upper limit to how much students can borrow to close the gap between the price of attendance and what families can pay.

The second issue is that the erosion of state support over the last several years threatens the capacity of public colleges and universities to attract and maintain the personnel necessary to remain competitive with universities in other states. Human resources are the main expense in colleges and universities and having the talent necessary for breakthrough research and effective teaching is a significant concern for Virginia's colleges and universities.

There is little argument that higher education is important to Virginia. Universities and colleges need to continue to develop meaningful partnerships with high schools to help improve the preparation of incoming students. They also need to forge productive working relationships with employers to ensure

graduates at all levels have the skills necessary to succeed in the workforce and to fill high demand jobs. Meeting the needs of the community, businesses, and the students should be an important goal of higher education in the state.

The scan of important environmental issues in Virginia suggests the following risks, challenges, and opportunities.

### **Risks**

- An aging Virginia population will be an important political constituency that will be less likely to perceive higher education as a spending priority than younger families.
- A flat to declining number of high school graduates in the state will result in greater competition for qualified students and make it more difficult to increase the number of degrees produced in Virginia. This increased competition for students also has the potential to result in funding reductions for colleges that lose enrollment.
- Four-year universities and colleges in Virginia have become less affordable as state support declines and tuition increases. Even after an award of grant aid, many low-income students in Virginia may be dissuaded from attending college because of price. Or, if they do attend, such students may borrow more than is comfortable relative to their financial conditions.
- Unpredictable and late state appropriation decisions introduce uncertainty into institutional planning processes and outcomes.
- Research universities in Virginia lag other major state universities in the amount of research funding they receive. Academic research is a critical input of a high-tech economy, and a requisite for economic growth. If support for research is inadequate, Virginia faces the possibility of emerging technology and science industries locating to other states.
- Virginia's economy is vulnerable to changes in federal spending. Reduction in federal spending could reduce state tax revenues available for higher education.

### **Challenges**

- An increasingly diverse ethnic/racial population, especially school age, will require an education system that is responsive to their needs.
- Significant variation in the levels of education, income, and poverty among regions of Virginia must be considered by any state plan to improve higher education.
- The state will need significantly more graduates with skills in IT related occupations than are currently projected to be generated. The same holds for health related occupations. Simply increasing the number of graduates to meet general goals will not produce enough graduates in these high-demand fields.
- A significant number of students in Virginia are enrolled exclusively online. The provider of the classes can be in or outside the state. Distance education introduces new competitors for students. Colleges and universities in Virginia need to be able to provide effective distance education to compete in an education market that has no boundaries.

- The decentralized higher education system in Virginia, in which each public four-year institution has a great deal of latitude to make decisions, is a strength; however, it is also a distinct challenge when trying to meet overarching state education goals.
- Academic research in the state is not well supported relative to other states. Finding the resources necessary to move up in international ranking of research institutions will take commitment from a number of different groups.

### Opportunities

- Virginia is home to a well-educated population. This population is more likely to understand the need for an effective higher education system and be willing to support it than would those with less direct college experience.
- Virginia's 4-year public higher education institutions have a history of better-than-average graduation rates and a reputation for quality, which provides a strong foundation upon which to build system change and improvement.
- The public community colleges in Virginia are important resources for the regions they serve. They can work closely with employers and four-year colleges to help students succeed, regardless of their educational and occupational goals, and to meet local educational and employment needs.
- Private sector colleges and schools in Virginia provide educational choice for students at a relatively low cost to the state.
- Businesses in Virginia are willing to be actively engaged with colleges and universities to improve and address the state's workforce training needs.

## Virginia background

With 8.2 million citizens, Virginia is the 12<sup>th</sup> most populous state with the 10th largest economy and the seventh highest level of per capita personal income in the nation. The Commonwealth has a well-educated workforce that is vital for a high-tech service economy. Part of the growth in the high tech economy is the result of federal expenditures. Virginia is ranked third in the number of Department of Defense civilian and military employees and second in per capita federal expenditures.<sup>1</sup>

The following list provides some basic data about Virginia as reported in 2012:<sup>2</sup>

- Population 8,185,900
- Labor Force 4,209,500
- Unemployment Rate 5.9%
- Median Household Income \$64,600
- Per Capita Income \$48,400

This positive view is tempered when unpacking the averages and looking at different groups in the state that do not fully share in the prosperity and success. Virginia is a state of contrasts with one of the most concentrated wealth regions in the Northern end of the state and perhaps one of the lowest income regions in the country in Southern end. One has a bright future of growth and opportunity and the other is projected to lose population. Public higher education is charged with providing education that is appropriate to all regions of the state with their unique economies and needs.

## Economic and demographic characteristics of Virginia

### Ethnic and racial diversity

Younger Virginians, in many localities, will live in increasingly diverse communities. Racial and ethnic diversity will increase due to continued immigration, interracial marriage and births among the growing minority population, especially Asian and Hispanic Virginians.

According to VirginiaLMI.com, the proportion of the Virginia population that is Hispanic will grow from 8 percent in 2010 to 19 percent in 2040. This makes the group the fastest growing minority ethnic group in Virginia. Asians will increase as a share of the population. African American's will maintain a stable share of the population until 2020 and drop slightly over the next two decades.

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<sup>1</sup> Kusiak, J.N. (2013). *The Virginia Report 2013*. Council on Virginia's Future. Richmond, VA.  
<http://www.future.virginia.gov/publications/docs/VaReport/2013VirginiaReport-Web.pdf>.

<sup>2</sup> Data gathered from multiple sources as documented in report.

**Table 1. Projected change in distributions by race and ethnicity for Virginia to 2040**

Race/Ethnicity Group	2010		2020		2030		2040	
White	5,486,852	69%	5,755,170	65%	5,978,914	62%	6,167,568	59%
Black or African/American	1,551,399	19%	1,678,122	19%	1,766,810	18%	1,820,482	17%
Asian	439,890	5%	605,366	7%	790,250	8%	1,014,116	10%
Other Races, Total	522,890	7%	772,855	9%	1,109,306	12%	1,528,062	15%
<b>Total Population, All Races</b>	<b>8,001,031</b>	<b>100%</b>	<b>8,811,513</b>	<b>100%</b>	<b>9,645,280</b>	<b>100%</b>	<b>10,530,228</b>	<b>100%</b>
Not Hispanic or Latino	7,369,199	92%	7,829,144	89%	8,225,824	85%	8,574,709	81%
Hispanic or Latino	631,825	8%	982,367	11%	1,419,457	15%	1,955,519	19%
<b>Total Population, All Ethnicities</b>	<b>8,001,031</b>	<b>100%</b>	<b>8,811,511</b>	<b>100%</b>	<b>9,645,281</b>	<b>100%</b>	<b>10,530,228</b>	<b>100%</b>

Source: Virginia Employment Commission.

[http://bi.virginialmi.com/rdPage.aspx?rdReport=lmtools\\_demographics&tabsDemographics=tpnlPopProj&rdNoShowWait=True&rdWaitCaption>Loading...](http://bi.virginialmi.com/rdPage.aspx?rdReport=lmtools_demographics&tabsDemographics=tpnlPopProj&rdNoShowWait=True&rdWaitCaption>Loading...) LMI Tools: Demographics.

Nearly half of the Hispanic population in Virginia was born outside the USA. The largest single group identifies as being from Central American countries. The diverse language, culture and educational experiences represented by the Hispanic community need to be considered in all educational efforts in the state.

**Table 2. Hispanic population in Virginia by national origin 2011**

Hispanic Origin	All	Native born	Foreign born
Mexican	157,000	99,000	58,000
Central American	221,000	80,000	141,000
South American	122,000	38,000	84,000
Caribbean	104,000	94,000	10,000
Other Hispanic	44,000	34,000	10,000
<b>Total</b>	<b>648,000</b>	<b>345,000</b>	<b>303,000</b>
<b>Distribution</b>	<b>100%</b>	<b>53.2%</b>	<b>46.8%</b>

Source: Pew Research Center's Hispanic Trends Project tabulations of the 2011 ACS (1% IPUMS sample)

<http://www.pewhispanic.org/>.

**Conclusion: Virginia's population, especially the younger population, is becoming increasingly diverse. By 2040, it is expected that half of Virginia's population will other than White, non-Hispanic.**

**Poverty**

One of the problems posed by the changing demographics of the state is the fact that Black/African American and Hispanic children are three and two times more likely to grow up in poverty than are either Asian American or White, non-Hispanic children. However, poverty is not just a minority issue; Virginia has areas of low-income White communities throughout the state.

**Table 3. Children under 18 in Virginia living in poverty by race and ethnicity**

<b>Race/Ethnicity</b>		<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
Asian and Pacific Islander	Number	7,000	6,000	9,000	11,000	9,000
	Percent	8%	7%	9%	10%	8%
Black or African American	Number	114,000	109,000	109,000	110,000	113,000
	Percent	30%	28%	28%	28%	30%
Hispanic or Latino	Number	28,000	31,000	36,000	49,000	42,000
	Percent	16%	17%	18%	24%	19%
Non-Hispanic White	Number	87,000	96,000	100,000	93,000	100,000
	Percent	8%	9%	10%	9%	10%
Two or More Races	Number	11,000	15,000	15,000	22,000	19,000
	Percent	13%	15%	13%	20%	15%
<b>Total</b>	<b>Number</b>	<b>247,000</b>	<b>253,000</b>	<b>265,000</b>	<b>280,000</b>	<b>279,000</b>
	<b>Percent</b>	<b>14%</b>	<b>14%</b>	<b>14%</b>	<b>15%</b>	<b>15%</b>

Source: Kids Count Data Center. (2013). <http://datacenter.kidscount.org/data/tables/44-children-in-poverty-by-race-and-ethnicity?loc=48&loct=2#detailed/2/48/false/868,867,133,38,35/10,11,9,12,1,13,185/324,323>. US Census Bureau American Community Survey.

The lifetime cost of early poverty is expressed in a number of ways. Table 4 shows measures on the loss of personal income potential and the societal costs associated with early poverty. Increased welfare costs, higher incarceration costs and single mothers are all outcomes of growing up in poverty. It is important to decide what higher education can do to help solve these issues in Virginia.

**Table 4. Outcomes of growing up in poverty**

	<b>Below official poverty line</b>	<b>Between one and two times poverty line</b>	<b>More than twice the poverty line</b>
<b>Completed years of schooling</b>	11.8	12.7	14
<b>Earnings (\$1,000s)</b>	\$17.90	\$26.80	\$39.70
<b>Annual work hours</b>	1,512	1,839	1,963
<b>Food stamps</b>	\$896	\$337	\$70
<b>Poor health</b>	13%	13%	5%
<b>Arrested (men only)</b>	26%	21%	13%
<b>Non-marital birth (women only)</b>	50%	28%	9%

Source: Duncan, G. J., & Magnuson, K. (2011, Winter). *The long reach of early childhood poverty*. Pathways, 22–27.

Virginia today is living with a racial heritage that was forged in the past. The following summary represents the conclusions of the Demographics & Workforce Group at the Weldon Cooper Center (University of Virginia, [www.coopercenter.org/demographics](http://www.coopercenter.org/demographics)). The experts from the Weldon Cooper Center conclude that the residual effects of historical inequalities are still a challenge as higher education endeavors to improve economic and social mobility for all of Virginia’s citizens.

“Over the past thirty years, blacks in Virginia have achieved significant gains in educational attainment and income, despite patterns of persistent divergence between black and white Virginians—patterns with deep and wide roots in Virginia history. The divergences in place, in educational outcomes, in economic wellbeing between Virginia’s largest minority group and the majority are reflected in these patterns:

- Black Virginians continue to be concentrated in the southern and eastern portions of the state, a pattern established during Virginia’s pre Civil War history.
- Rates of residential racial segregation in Virginia’s large metropolitan areas remain high, with little change in the last two decades.
- Despite gains in education, blacks still lag far behind the educational attainment of whites.
- The household income of blacks continues to trail significantly behind that of whites, despite absolute gains; and a significant differential income is found even among blacks and whites with the same level of education and number of hours worked.
- On additional metrics of economic wellbeing unemployment, home ownership, and poverty black Virginians remain consistently worse off than white Virginians.”<sup>3</sup>

<sup>3</sup> Claibourn, M.P., (2012). *Blacks in Virginia: Demographic trends in historical context*. Weldon Cooper Center, UVA. [http://www.coopercenter.org/sites/default/files/publications/NC\\_Blacks-in-Virginia\\_4\\_30\\_12.pdf](http://www.coopercenter.org/sites/default/files/publications/NC_Blacks-in-Virginia_4_30_12.pdf). p. 13.

**Conclusion: Poverty among African American and Hispanic/Latino communities is two to three times more prevalent than it is among White, non-Hispanic communities in Virginia. The long-term effects of poverty are negative for the individual and costly for the state.**

## **Aging population**

Race, ethnicity and poverty are not the only demographic issues of importance to Virginia. The state is aging, which has the potential to change public priorities. By 2030, almost 20 percent of Virginians will be over 65, compared with 12 percent in 2010. By 2030, the youngest of the Baby Boomer generation will have turned 65, and the oldest Boomers will be turning 85. Many localities will be challenged to address the growing needs of their senior population in the coming decades. This has the potential to shift public priorities toward addressing the needs of the aging and away from the young.

## **Section summary**

Virginia is becoming more diverse and that diversity will challenge higher education in the state to provide education to students with greater variation in cultural, economic and experience background. Higher rates of poverty are associated with being from a minority racial or ethnic background. The long-term social costs of poverty are measured in public dollars going to welfare, prisons, lost taxes, and health care. Higher education can be an important partner in assuring that more Virginia citizens are prepared for a productive future.

## **Regional differences**

According to the Weldon Cooper Center for Public Service, growth will continue to be uneven across regions and localities of Virginia.

- Northern Virginia and Richmond regions are projected to continue to grow faster than other regions in the state.
- Regions with older populations and more people moving out than in – such as Southwest, Southside and Eastern – are expected to experience stagnant, low growth.
- The Hampton Roads region is projected to maintain moderate growth through this decade.

Over the last decade, the population in Northern Virginia grew by 24 percent, while eight communities in Southside Virginia lost population.<sup>4</sup>

The following table shows variation in poverty levels that range from 6 percent in Northern Virginia to 20 percent in Southside. Northern Virginia leads the state in percent of population with a high school diploma, a BA or higher and in median family income. Southside and Southwest trail on those measures. Racial/ethnic diversity also varies across the regions. Hampton Roads has the highest proportion of

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<sup>4</sup> Weldon Cooper Center for Public Service, Demographic Research Center, University of Virginia

African American citizens; Northern Virginia has the largest share of Hispanic citizens and Southwest has the highest predominance of White citizens.

Only Northern Virginia was below the average poverty rate for the state. All the rest of the regions were at or above the state average. Southside and Southwest had the highest poverty rate.

**Table 5. Regional differences across the state**

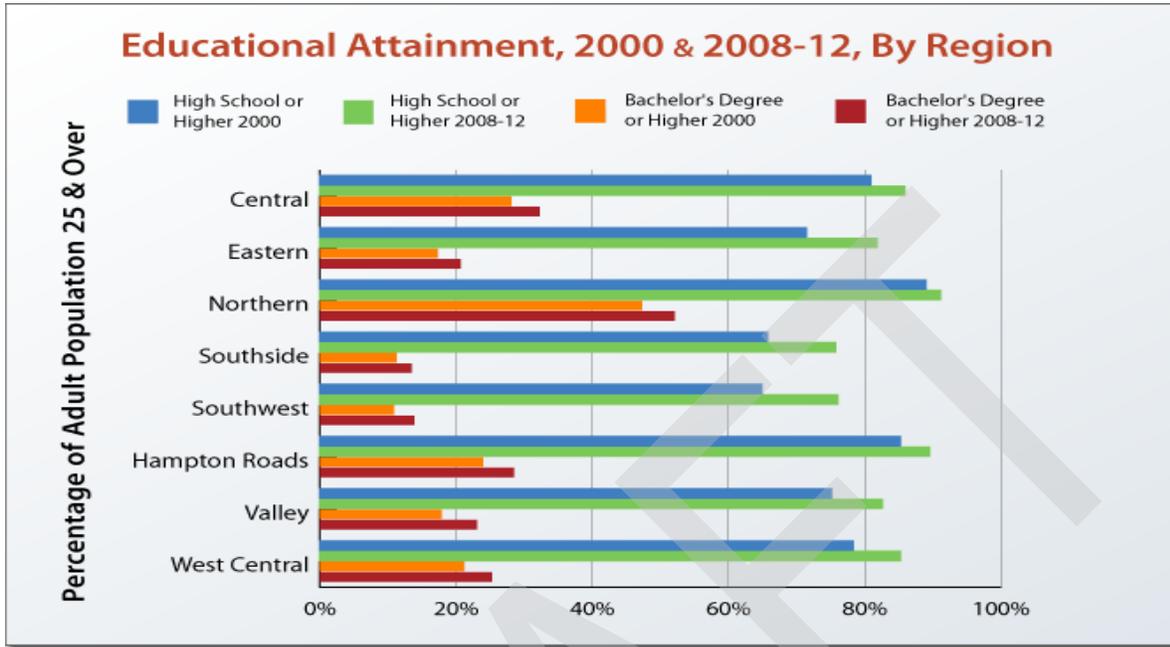
Region	Population 2012	Population estimate 2020	% Below poverty line 2008-12	% with BA or higher 2008-12 (Age 25+)	% HS graduate or higher 2008-12 (Age 25+)	% White 2012	% Black 2012	% Hispanic or Latino 2012	Median household income 2008-12
<i>Central</i>	1,608,666	1,780,663	12%	33%	86%	67%	27%	5%	\$60,311
<i>Eastern</i>	142,353	148,686	13%	21%	82%	70%	27%	5%	\$51,774
<i>Hampton Roads</i>	1,669,237	1,746,578	11%	29%	89%	60%	32%	6%	\$60,249
<i>Northern</i>	2,753,553	3,017,815	6%	52%	91%	71%	13%	16%	\$102,198
<i>Southside</i>	383,977	392,314	20%	14%	76%	63%	35%	3%	\$36,118
<i>Southwest</i>	413,334	420,604	19%	14%	76%	96%	3%	2%	\$35,819
<i>Valley</i>	485,971	530,801	14%	24%	83%	91%	5%	6%	\$49,950
<i>West Central</i>	729,537	774,052	16%	26%	85%	83%	13%	3%	\$47,188
<b>Virginia</b>	<b>8,186,628</b>	<b>8,811,512</b>	<b>11%</b>	<b>35%</b>	<b>87%</b>	<b>71%</b>	<b>20%</b>	<b>8%</b>	<b>\$63,636</b>
<b>United States</b>	<b>313,914,040</b>	<b>333,896,000</b>	<b>15%</b>	<b>29%</b>	<b>86%</b>	<b>63%</b>	<b>12%</b>	<b>17%</b>	<b>\$53,046</b>

Note: Data derived from Population Estimates, American Community Survey, Census of Population and Housing, State and County Housing Unit Estimates, County Business Patterns, Non-employer Statistics, Economic Census, Survey of Business Owners, Building Permits. Population projection data comes from Virginia State Demographer Projections.

Sources: US Census Bureau State and County Quick Facts, [http://quickfacts.census.gov/qfd/download\\_data.html](http://quickfacts.census.gov/qfd/download_data.html), Demographics Research Group, <http://www.coopercenter.org/demographics/virginia-population-projections>.

The following chart tracks the changes in educational attainment in each of the regions. The regions with lowest high school graduation rates show the greatest improvement between 2000 and the 2008-12 attainment rate. Increases in bachelor degree attainment are consistent, but modest in all the regions.

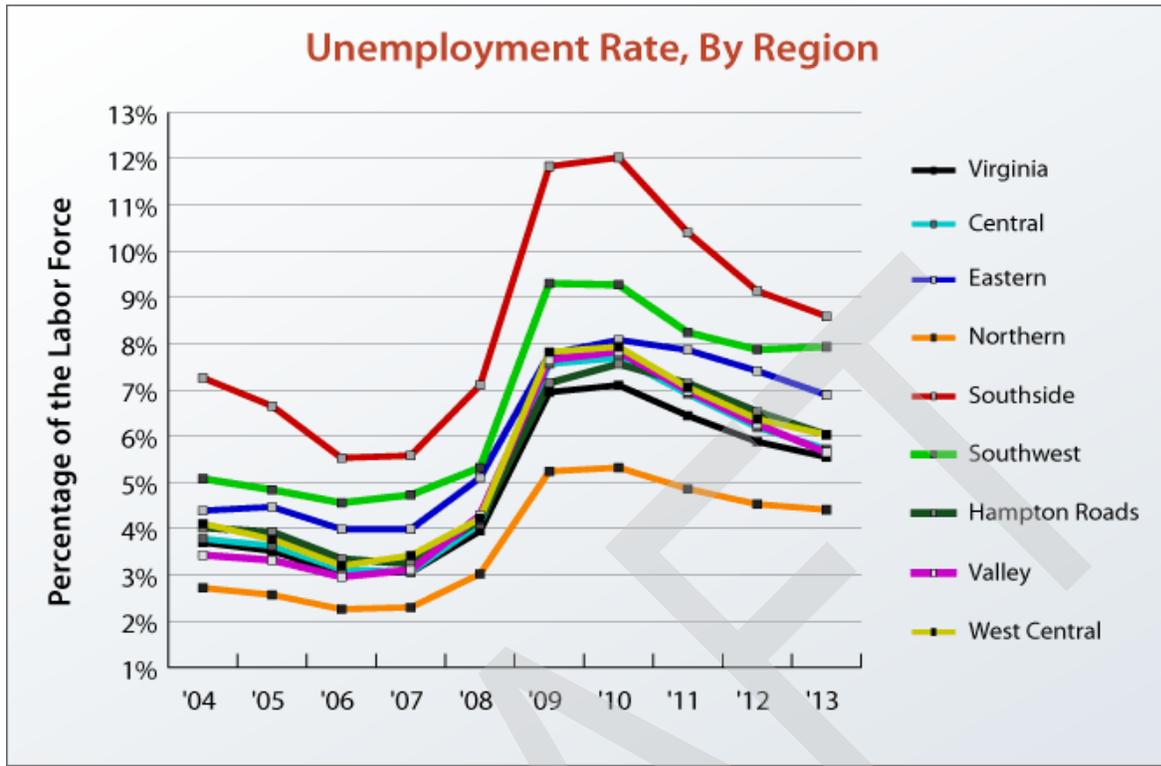
Figure A. Educational attainment by region in Virginia



Source: Virginia.gov, (2014) *Educational Attainment*. Council on Virginia's Future: *Virginia Performs* <http://vaperforms.virginia.gov/indicators/education/edAttainment.php>.

The following chart marking the unemployment rate between 2004 and 2013 shows the effects of the recession in Virginia. All regions showed increasing unemployment starting in 2009 with a declining rate in 2010-11. The negative effects were greatest in Southside and were much more modest in Northern Virginia where government employment was not as vulnerable to the recession as was private employment. As of 2013, unemployment in each region was still higher than was the case prior to the recession.

Figure B. Unemployment rate, by Virginia Region



Source: Virginia.gov, (2014). *Unemployment*. Council on Virginia’s Future: Virginia Performs. <http://vaperforms.virginia.gov/indicators/economy/unemployment.php>

Virginia’s community colleges have initiated a program called the Rural Horseshoe Initiative, which is designed to address the needs of regions in Virginia that are generally rural, lower income and losing employment. They make the case that many parts of Virginia are seeing positive economic activity as the state grows out of the recession; this is not the case for nearly 75 percent of the Commonwealth’s geography. If Virginia’s education gap in the Rural Horseshoe is not addressed, vast areas of the state will face a future of high poverty, population decline and a continuing reliance on support from government entities.

**Conclusion: Northern Virginia has a population that is wealthy, well-educated and increasing in numbers. Because of its size, it obscures the economic and educational issues that are more typical of the rest of the state. The rural areas of the state face a much less optimistic future unless coordinated efforts are made to develop employment opportunities and the education necessary to prepare the next generation for those opportunities.**

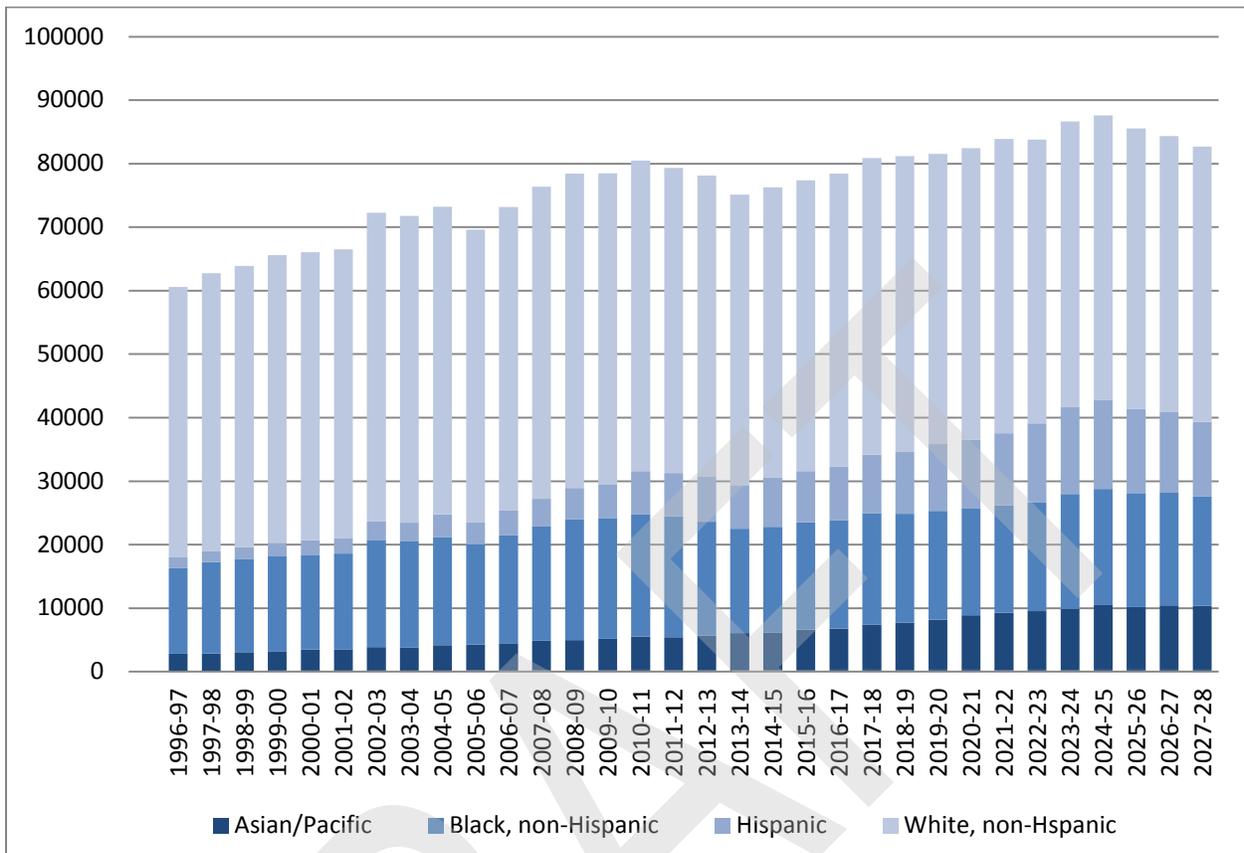
**Section summary**

The regions in Virginia represent different economic, demographic and educational contexts for higher education. Northern Virginia is dominated by big government, big contracting companies and all the consulting needs that drive the demand for trained experts. Some of the other regions of the state face potential decline with an aging population, limited job opportunities and out-migration of younger residents. Higher education institutions in the state need to find ways to contribute to all the regions of the state and build partnerships that will sustain local economies.

**Projection of High School graduates by race and ethnicity**

The projection of the number of high school graduates in Virginia shows several things. First, the Commonwealth is in the midst of a period of declining number of high school graduates with modest growth projected for the next few years. The number of Hispanic and Asian/Pacific graduates will increase and Black, non-Hispanic students will maintain their numbers. By 2027, nearly half the high school graduates in Virginia will be other than White, non-Hispanic. Many of the Hispanic students will come from first-generation families who may have little knowledge about American opportunities. Higher education institutions in Virginia need to anticipate this change

Figure C. High School graduates in Virginia



Source: WICHE. (2012). *Knocking at the College Door: Projections of High School Graduates*. <http://www.wiche.edu/pub/knocking-8th-and-supplements>.

Some students do not enroll in college immediately after graduating from high school, so the number of citizens in the college age group is another indicator of potential enrollment. According to the SREB, the number of Virginians from age 18 to 24 is expected to change by 4 percent between 2010 and 2020 before increasing from 2020 through 2030.

Table 6. Projected change in the number of 18 to 24 year olds for Virginia to 2030

Year	Actual	Projected			
	2010	2015	2020	2025	2030
Population	807,186	837,024	838,974	900,687	950,207
% Change from 2010		4%	4%	12%	18%

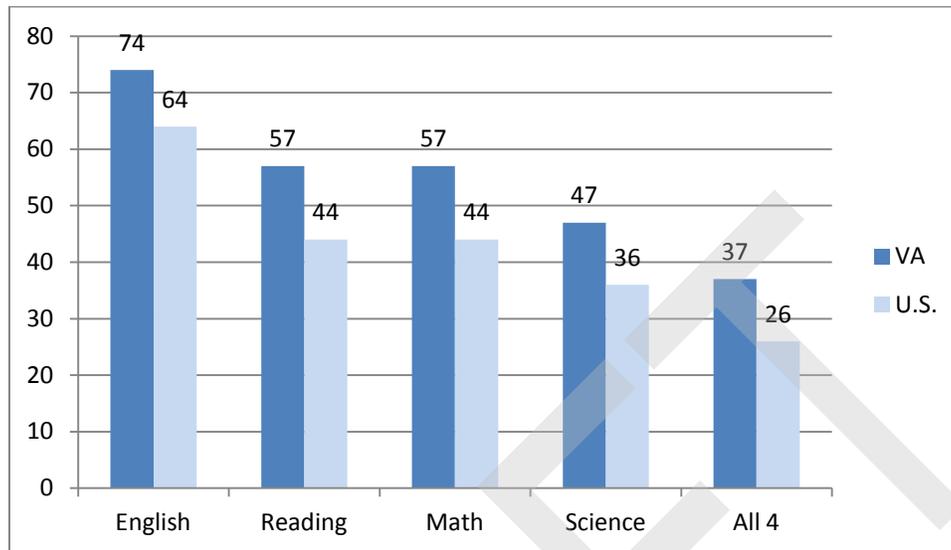
Source: SREB, [http://info.sreb.org/DataLibrary/tables/FB13\\_06.xlsx](http://info.sreb.org/DataLibrary/tables/FB13_06.xlsx)

**Conclusion: Virginia will experience a period of slow to no growth in the college age population over the next few years. An increasing share of that population will be Hispanic and African American. Improving college enrollment rates of these students will be necessary to maintain college and university enrollment.**

**College Ready Skills**

Students with a combined SAT score of 1550 across the critical reading, math, and writing portions of the college-entrance exam have a 65 percent chance of earning a 2.67 GPA or higher during their first year of college, according to College Board research. Students who meet that benchmark have a much higher chance of graduating from college than do students who score below the benchmark. The average combined SAT score for Virginia high school students in 2013 was 1528. Students in the 25<sup>th</sup> percentile received a combined score of 1260. By this measure, the average SAT test taker in Virginia falls below the score at which College Board predicts that two-thirds would succeed in their first year. Those in the bottom quarter would struggle to succeed in college.

ACT has validated measures that predict the college readiness of high school graduates. Not all Virginia students take the ACT, but it provides an indicator of the skills where high school graduates in the state might have problems in college. The following figure shows the percent of high school graduates between 2009 and 2011 deemed ready for college-level work. The good news is that 37 percent of Virginia's high school graduates were prepared in all four areas tracked by ACT. That is better than the national average, but given that NCHES reports that 67.2 percent of Virginia high school graduates go directly to college, the difference suggests that nearly half of new college students in Virginia are starting with less than adequate college level skills whether they are remanded to developmental education or not.

**Figure D. Percent of Virginia high school graduates with college ready skills, 2009-11**

Source: ACT, (2013), <http://www.act.org/newsroom/data/2013/states/pdf/Virginia.pdf>

### Remediation

An indicator of academic risk for incoming students is the need for remedial or developmental education when the student enters college. Twenty-two percent of incoming students in Virginia were in at least one remedial course last year. That represents nearly 10,000 students. Remedial courses include English, ESL, reading and math. The largest enrollments were in English and math.

Virginia has been working on a College and Career Readiness Initiative to ensure that college ready standards in reading, writing and mathematics are taught in each Virginia high school classroom. The goal is to strengthen students' preparation for college and the work force before leaving high school.

**Conclusion: Improving the academic skill of incoming students will be an important precondition necessary to increase the number of successful college and university graduates.**

### Section summary

Virginia has been and is working to develop college and career ready skills in their high school curriculum. Colleges and employers need to be partners in the process to help more students make a successful transition from high school to college and on to employment. Alignment of standards will help assure that students leaving high school will not find themselves having to take remedial courses before they can start "real college." Remedial education is costly for the student and the college and often does not lead to the success.

### Education levels

Virginia is home to more postsecondary degree holders than the national average. That trend has been true for a long time. In 2011, nearly half the Virginia population 25 to 44 years old had a postsecondary degree. Not all of these degree holders received a degree from a Virginia institution, but some may have moved from other states.

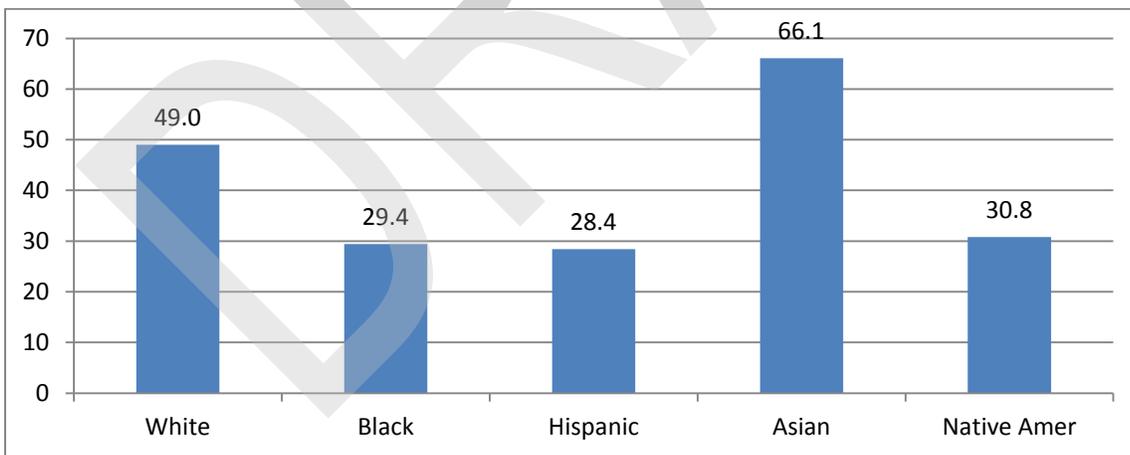
**Table 7. Percent of postsecondary degree holders among individuals 25-44 years old**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
<b>United States</b>	34.7	35.3	36	36.9	37.6	37.9	38.3	38.7	39	39.7	39.6	40.4
<b>Virginia</b>	39.1	40.1	40.4	41.2	41.8	42.2	43.3	43.5	43.8	44.3	45.9	47.4

Source: National Science Foundation, <http://www.nsf.gov/statistics/seind14/index.cfm/state-data/table.htm?table=31>, Census Bureau, 2000 and 2010 Decennial Censuses, Population Estimates Program (various years), and American Community Survey (various years).

The distribution of college degrees is not uniform across races and ethnicities, however. Figure E shows the college degree attainment by Virginia citizens ages 25 to 64. White and Asian citizens are more likely to have a college degree than are those from other ethnic or racial groups. Given the increasing diversity of Virginia’s population and the growing demand for an educated workforce, these education gaps will have an increasingly negative impact on the state unless they are addressed.

**Figure E. Percent of Virginia population by race/ethnicity, 25 to 64 with a college degree**

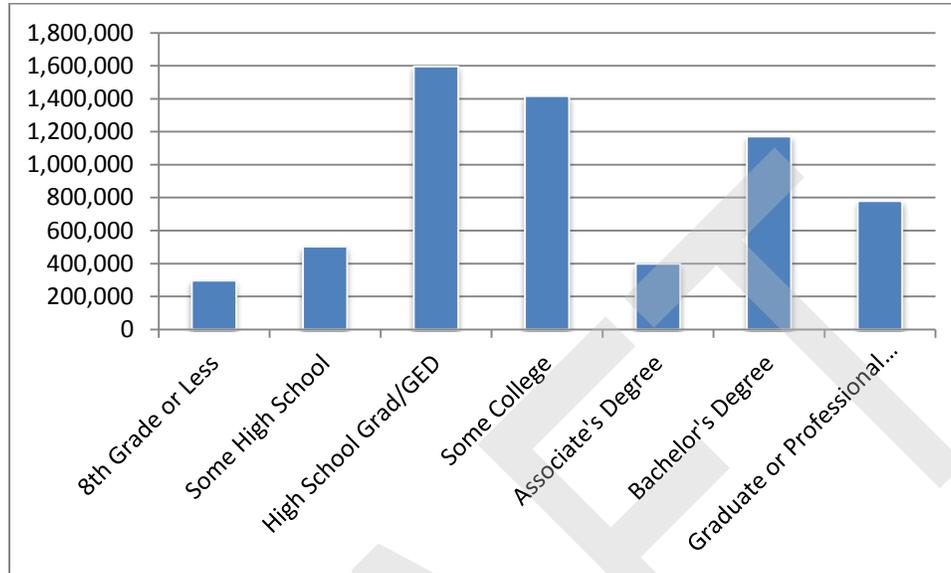


Source: Matthews, D. (2014). [http://www.luminafoundation.org/publications/A\\_stronger\\_nation\\_through\\_higher\\_education-2014.pdf](http://www.luminafoundation.org/publications/A_stronger_nation_through_higher_education-2014.pdf). Lumina Foundation.

The chart below provides an overview of the education levels of the population in Virginia that is 18 years old or over. The two groups with the most people are high school graduates and those with some college. Some college could mean they were a dropout or received a certificate of less than two-years.

Given the demand for an educated workforce, these two groups represent those individuals that could continue in college especially at a time when traditional age high school graduates will be in less supply.

**Figure F. Education levels of Virginia population 18+**



Source: Virginia Employment Commission, Virginia Community Profile, [http://virginialmi.com/report\\_center/community\\_profiles/5101000000.pdf](http://virginialmi.com/report_center/community_profiles/5101000000.pdf)

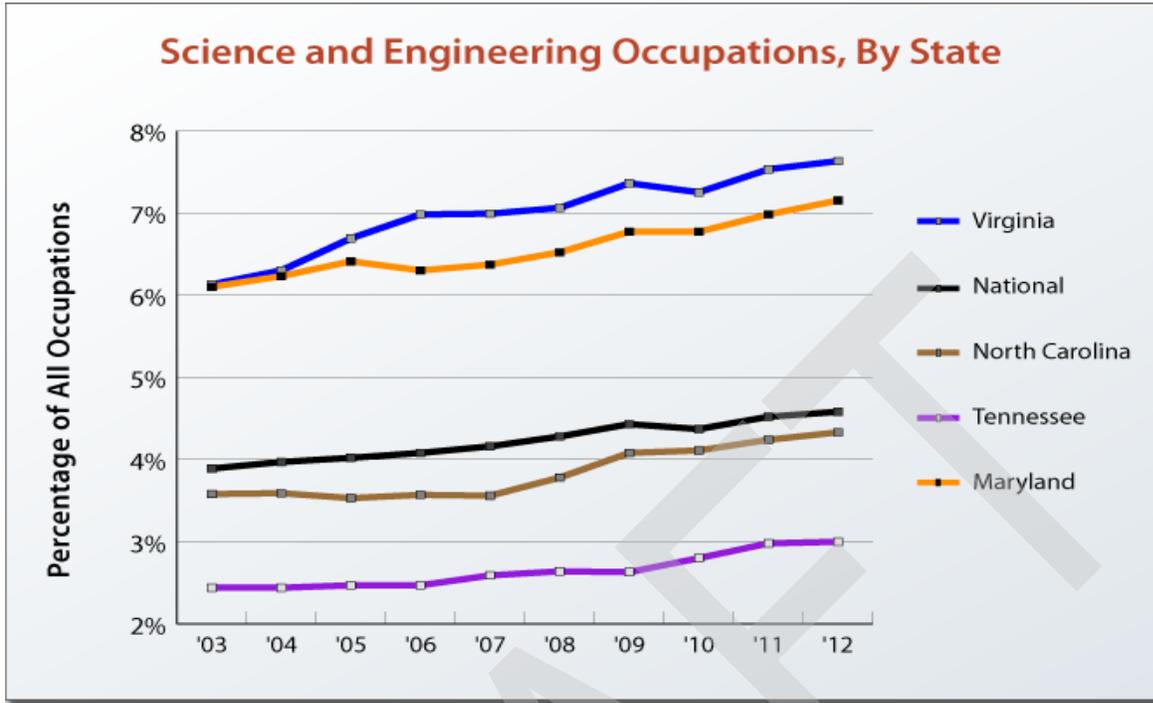
**Conclusion: Virginia has more postsecondary degree holders than most states, but the two largest groups by education level are high school graduates with no college and those with some college. Helping adults in these groups to return to college would help Virginia meet its goal of increasing the number of postsecondary degree holders.**

### Employment profile

Virginia’s workforce has a high proportion of science and engineering occupations compared with other states in the region. Virginia’s occupational shift to professional, scientific, and technical services has been concentrated in Northern Virginia. Technology companies have been expanding in Virginia to take advantage of the largest concentration of high-tech workers in the U.S.; 9.8 percent of the state’s private sector workforce is in tech, according to TechAmerica Foundation’s annual Cyberstates report. Amazon.com has added roughly 2,000 jobs in the area in the recent past for two distribution centers and its cloud computing business (Amazon Web Services). Microsoft has invested \$1 billion to build and expand a data center in southern Virginia.

The following figure shows the trend in percent of the workforce that is defined as science and engineering occupations in Virginia in comparison with other states and the nation. The chart shows the high density of these jobs in Virginia compared with bordering states and the nation.

Figure G. Science and engineering occupations, by state



Source: Virginia.gov, (2014). *Workforce Quality*. Council on Virginia's Future: Virginia Performs.  
<http://vaperforms.virginia.gov/indicators/economy/workforceQuality.php>

The following list of the 50 largest employers in the state includes several higher education related organizations that are shown in bold. The list shows the importance of health and education organizations as major employers in the state. The list also shows the importance of service jobs provided by these large organizations, especially government (in italics). Only one of the big employers, Huntington Ingalls Industries, builds, mine or make anything as a central business. The number of employees is a headcount where a part-time counts the same as a full-time employee.

**Table 8. Fifty largest employers in Virginia**

1. U.S. Department of Defense	27. The Home Depot
2. Wal Mart	<b>28. MCV Hospital</b>
3. Fairfax County Public Schools	29. U.P.S.
4. Huntington Ingalls Industries, Inc.	30. U.S. Department of Veterans Affairs
5. Sentara Healthcare	31. Wells Fargo Bank NA
6. Food Lion	32. VDOT
7. Postal Service	33. Bon Secours Richmond Health System
8. County of Fairfax	34. City of Virginia Beach
9. HCA Virginia Health System	35. Chesapeake City Public School Board
10. U.S. Department of Homeland Defense	36. Norfolk City School Board
11. Prince William County School Board	37. Northrop Grumman Corporation
12. Capital One Bank	<b>38. University of Virginia Medical Center</b>
13. City of Virginia Beach Schools	39. Roanoke Memorial Community Hospital
14. Inova Health System	<b>40. George Mason University</b>
15. Loudoun County Schools	41. Dominion Virginia Power
<b>16. University of Virginia / Blue Ridge Hospital</b>	42. Red Lobster & the Olive Garden
17. Target Corp	43. Science Applications International Corporation
<b>18. Virginia Commonwealth University</b>	44. GEICO, Government Employees Insurance
19. U.S. Department of Commerce	45. Centra Health
20. Lowes' Home Centers, Inc	46. Giant Food
21. Booz, Allen and Hamilton	47. Arlington County School Board
<b>22. Virginia Tech Cooperative Extension Office</b>	48. City of Norfolk
23. Riverside Regional Medical Center	49. United Airlines Inc.
24. Kroger	50. Navy Federal Credit Union
25. Chesterfield County School Board	
26. Henrico County School Board	

Source: Virginia Employment Commission, Quarterly Census of Employment and Wages (QCEW), 4th Quarter (October, November, December) 2013

### **Federal Government**

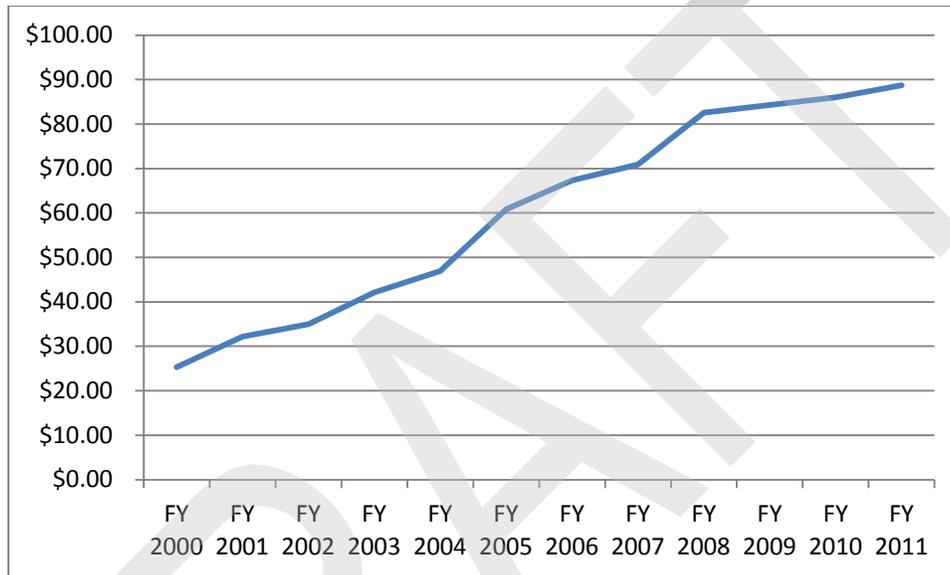
Virginia is the number one state for federal contracts. The growing role of government in Virginia is apparent from the percentage of jobs in federal, state and local governments' rising from 18.1 percent to 19.3 percent between 2006 and 2011. Military personnel are not included in these numbers and would add 129,699 (as of August 2013) more to the total government employment in Virginia if they were counted.

Any reduction in government contracts will have the biggest effect in Northern Virginia and Hampton Roads. Federal contracts given to companies in Virginia represented 13.7 percent of the state's gross state product (Fedspending.org). When direct government spending is included in the total, roughly, 30 percent of Virginia's economy is tied to the federal government. As a result, the threats of a federal

sequester or long-term reduction in government spending is a very real risk for the state economy and could have a negative effect on hiring and tax revenue.

Experts suggest even with federal cutbacks, the state economy is diverse enough to be able to absorb federal cuts (Kurt Badenhausen, "Virginia Tops 2013 List of the Best States for Business", Forbes, 9/25/2013). It is reasonable to anticipate that even in a best case, federal spending in the state will not increase at the same rate as has been experienced over the last decade. The rate of increase started to slow in 2008.

**Figure H. Dollars from federal contracts to companies in Virginia, 2000-2011 (in billions)**



Source: FedSpending.org. (2011). *Contracts Performed in Virginia*.  
[http://www.fedspending.org/fpds/fpds.php?reptype=p&detail=1&fiscal\\_year=2011&sortby=f&database=fpds&datatype=T&stateCode=VA](http://www.fedspending.org/fpds/fpds.php?reptype=p&detail=1&fiscal_year=2011&sortby=f&database=fpds&datatype=T&stateCode=VA)

Chase/JP Morgan, anticipates that Virginia’s economy will grow a little faster than it has into 2014, despite headwinds related to the sequestration. Compared with national averages, professional and business services as well as the government sector contribute a disproportionate amount to the Commonwealths gross state product.

**Conclusion: Virginia’s economy is dominated by service jobs and government employment. There is the risk that declines in federal funding could have a negative effect on hiring and, in turn, tax revenues in the state.**

**Occupational demand**

In a related document called Gap Analysis, JBLA has identified a specific need by degree level for students trained for specific occupations. This overview provides a more detailed assessment of

occupations in Virginia with high need. The results suggest a demand for employees with strong background in computer and IT skills or health related training.

The Virginia Employment Commission, through VirginiaLMI.com, provides projections of employment demand for the Commonwealth. Included are projections for the number of openings by occupation statewide between now and 2020 without regard for education level. Openings are the result of individuals leaving the occupation and growth. Three of the top ten occupations needing the largest number of employees will be computer or health related. Those in bold in the list are occupations that require STEM-H preparation

**Table 9. The twenty occupations projected to have greatest increase in demand to 2020**

Rank	Occupation	Projected annual growth Rate	Projected openings by 2020
1	Office and Administrative Support Occupations	1.25	71,402
<b>2</b>	<b>Computer and Mathematical Occupations</b>	<b>2.98</b>	<b>67,976</b>
<b>3</b>	<b>Computer Specialists</b>	<b>2.99</b>	<b>66,340</b>
4	Business and Financial Operations Occupations	2.11	59,804
5	Sales and Related Occupations	1.33	58,348
6	Education, Training, and Library Occupations	2.15	55,568
<b>7</b>	<b>Healthcare Practitioners and Technical Occupations</b>	<b>2.30</b>	<b>48,903</b>
8	Construction and Extraction Occupations	2.13	46,186
9	Food Preparation and Serving Related Occupations	1.46	45,967
10	Business Operations Specialists	2.24	44,228
11	Personal Care and Service Occupations	2.55	37,198
12	Construction Trades Workers	2.12	34,395
13	Retail Sales Workers	1.35	32,822
<b>14</b>	<b>Healthcare Support Occupations</b>	<b>3.13</b>	<b>32,141</b>
15	Transportation and Material Moving Occupations	1.29	31,037
16	Other Personal Care and Service Workers	3.40	29,970
<b>17</b>	<b>Health Diagnosing and Treating Practitioners</b>	<b>2.34</b>	<b>29,935</b>
18	Food and Beverage Serving Workers	1.58	29,623
19	Installation, Maintenance, and Repair Occupations	1.57	25,778
20	Primary, Secondary, and Special Education School Teachers	2.19	25,390

Source: VirginiaLMI.com, [http://virginalmi.com/download\\_center/industry\\_occupation\\_projections/occprj.zip](http://virginalmi.com/download_center/industry_occupation_projections/occprj.zip)

The following list is the projection of the 20 fastest growing occupations in Virginia that will require a bachelor's degree over the decade 2010 -20. Some of them represent a relatively small number of jobs. Those that do represent a larger number of jobs are indicated in bold. All of the fast growing occupations with the largest number of job slots requiring a bachelor's degree are related to computer technology and programming.

**Table 10. List of Virginia's 20 fastest growing occupations that require a bachelor's degree 2010-2020**

	Employment		Percent Change
	2010	2020	
1 Biomedical Engineers	460	910	96%
2 Interpreters and Translators	4,850	7,780	60%
3 Meeting, Convention, and Event Planners	3,660	5,670	55%
<b>4 Software Developers, Systems Software</b>	<b>31,370</b>	<b>48,180</b>	<b>54%</b>
5 Market Research Analysts and Marketing Specialists	11,370	16,740	47%
6 Personal Financial Advisors	3,820	5,370	41%
<b>7 Software Developers, Applications</b>	<b>31,900</b>	<b>44,600</b>	<b>40%</b>
8 Cost Estimators	7,260	10,110	39%
9 Database Administrators	5,880	8,190	39%
10 Athletic Trainers	520	720	38%
11 Logisticians	6,640	9,160	38%
12 Coaches and Scouts	7,030	9,680	38%
13 Training and Development Specialists	8,990	12,270	36%
<b>14 Network and Computer Systems Administrators</b>	<b>20,040</b>	<b>27,290</b>	<b>36%</b>
15 Agricultural Engineers	270	360	35%
16 Financial Examiners	880	1,180	34%
17 Geographers	90	120	33%
18 Health Educators	1,290	1,720	33%
19 Credit Counselors	620	820	31%
<b>20 Computer Systems Analysts</b>	<b>32,220</b>	<b>42,180</b>	<b>31%</b>

Source: CareerOneStop: Fastest Growing Occupations Virginia.

<http://www.careerinfonet.org/oview1.asp?next=oview1&Level=edu3&optstatus=&jobfam=&id=1&nodeid=3&soccode=&stfips=51&ShowAll=>. Virginia Employment Commission.

A Brookings Institution study (*The Hidden STEM Economy*, by Jonathan Rothwell) found that half of all STEM jobs nationally are available to workers without a four-year college degree, and these jobs pay \$53,000 on average—a wage 10 percent higher than jobs with similar educational requirements.

Half of all STEM jobs are in manufacturing, health care, or construction industries. Installation, maintenance, and repair occupations constitute 12 percent of all STEM jobs. Other blue-collar or technical jobs in fields such as construction and production also frequently demand STEM knowledge.

STEM jobs that require at least a bachelor's degree are highly clustered in certain metropolitan areas, while sub-bachelor STEM jobs are prevalent in every large metropolitan area. San Jose, CA, and Washington, D.C., have the most active STEM-based economies among large metro areas. These sub-bachelor's STEM jobs are more evenly distributed among smaller towns and localities that are not home to high tech employers, but they pay relatively high wages in the large metropolitan areas as well.

**Conclusion: IT and computer related occupations will require the most new employees over the few years. Those college graduates with degrees or certificates below the bachelor's degree represent half the need.**

**General skills**

A difference exists between listing high-demand occupations that require specific training and the general skills employers are looking for in their hiring, regardless of occupation. The top qualities look more like what colleges and universities argue is their strength in producing liberal arts graduates than a list of technical skills. Employers look for new employees with certain applied skills, but beyond that employers are looking for a series of traits and abilities that may not be directly taught in colleges and universities. The following table lists the percent of Virginia employers rating a skill as essential. Most of the desired skills represent broader capacities than specific applied skills.

**Table 11. Percent of Virginia employers rating a skill as essential for new employees**

1	Positive Work Ethic	96%
2	Speaking & Listening	96%
3	Professional Ethics	95%
4	Participates As A Team Member	89%
5	Reading & Writing	89%
6	Diversity Awareness	82%
7	Reasoning, Problem-Solving, & Decision-Making	76%
8	Technology Applications	68%
9	Understanding Health, Wellness, & Safety	67%
10	Understands The Big Picture	64%
11	Lifelong Learning	63%
12	Job Acquisition & Advancement	60%
13	Telecommunications	58%
14	Internet Use & Safety	58%
15	Creativity, Innovation, & Adaptability	57%
16	Leadership & Resource Management	54%
17	Research & Synthesis	53%
18	Applying & Understanding Mathematics	51%
19	Data & File-Management	50%
20	Computer Hardware Basics	34%
21	Employment-Related Financial Literacy	34%

Source: Carrier, A., Gunter, M. (2010). *Weldon Cooper Center*.

<http://www.coopercenter.org/sites/default/files/publications/Critical%20Workplace%20Skills%20for%20Virginia.pdf>.

**Conclusion: The greatest job opportunities are in the fields of computer/IT and health. Employers, however, are looking for more than specific job skills. New employees need broader personal skills to succeed over the long run.**

## Section summary

Occupational demand in IT and computer technology fields is robust and growing in the state as is the constant demand for health care workers. Equally important as specific employment skills, however, are the soft skills of being able to communicate and analyze and be creative. The foundations of a well-rounded education program should provide both.

Many students who have taken a program of study that would be logically linked to specific occupations do not necessarily follow that direct road. Plans change, other opportunities present themselves and occupational requirements may change quickly. All of this makes tying specific majors to specific occupations questionable as a planning tool.

## Higher education

### Higher education institutions

The public higher education institutions in Virginia are part of a larger postsecondary community, ranging from barber colleges to medical schools. The U.S. Department of Education (ED) recognizes 189 accredited postsecondary institutions that are eligible for Title IV student aid in Virginia. The list does not include institutions that do not offer federal student aid. One hundred of these recognized schools and colleges are for-profit, including four-year, two-year and less-than-two-year institutions. The 42 recognized non-profit postsecondary institutions in the state range from professional graduate programs to less-than-two-year institutions, with the majority providing four-year undergraduate programs with some graduate degrees. Twenty-three community colleges are on the ED list, some of these colleges have several campuses. Several of the four-year institutions in the state offer two-year degrees, but are not included as community colleges. Five of the institutions in the state are classified as HBCU, two public and three private, not-for-profit, one of which is a two-year college. ED does not list any Hispanic serving institutions in Virginia.

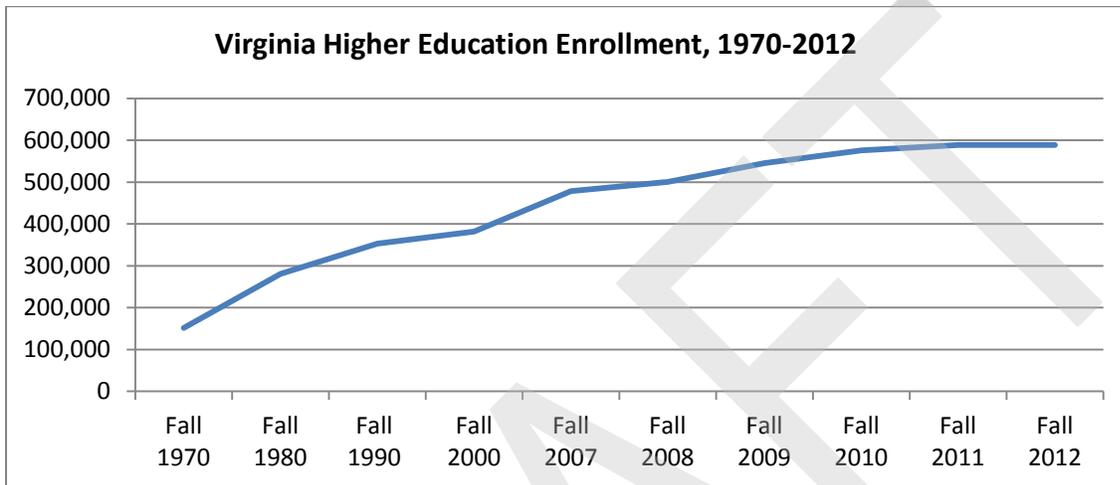
SCHEV recognizes institutions from other states that offer programs in Virginia. In addition, students living in Virginia may be taking courses online that originate from providers in other states.

### Enrollment

Students have many ways that they can attend college. Most traditionally, they can enroll in a physical campus located in the state or attend college in another state. In addition, they can take course online, or attend a program provided by a college headquartered in another state, but offering classes in Virginia. Some students may take classes in more than one of these settings. During the course of the year, a student could be counted more than once because he/she take classes from different providers. (See appendix for list of accredited postsecondary institutions in Virginia)

Enrollment<sup>5</sup> growth in Virginia colleges and universities started slowing in 2010. Nevertheless, enrollment has increased by 23 percent since 2007, compared with a national growth rate of 13 percent for the same years. The majority of postsecondary students in Virginia are enrolled in public institutions, but according to NCES, the greatest growth has been in private colleges; 66 percent increase in enrollment since 2007 in the private sector compared with 10.6 percent in the public sector. Enrollment includes students from other states and online enrollment.

**Figure I. Virginia higher education Fall enrollment in degree granting institutions, 1970 to 2012**



Source: NCES, Digest of Education Statistics, 2013, Table 304.1, [http://nces.ed.gov/programs/digest/d13/tables/dt13\\_304.10.asp](http://nces.ed.gov/programs/digest/d13/tables/dt13_304.10.asp)

The following tables show several measures of enrollment in all postsecondary institutions in the state, including for-profit institutions. These tables include all students that are enrolled in accredited degree and certificate programs in postsecondary institutions that are eligible for Federal student aid in Virginia. Institutions are classified according to the highest degree offered.

Public colleges and universities account for 69 percent of the total fall enrollment; 22 percent of the students attend not-for-profit institutions, and 9 percent for-profit institutions. Table 12 shows the relatively large number of part-time students enrolled in public two-year colleges in Virginia.

<sup>5</sup> Enrollment can be measured in different ways. First, head-count treats full- and part-time students the same, full-time-equivalent counts three part-time students as equal to one-full-time student. Second, there is a difference between higher education enrollment, which includes only institutions that offer academic associate or higher degrees, and the more inclusive postsecondary enrollment. Postsecondary enrollment includes the enrollment of students in shorter occupational programs. Third, enrollment can be reported as the number of students enrolled in the fall, or as an annual number, which includes all the unique students enrolled at any point in the year.

**Table 12. Enrollment in public Virginia colleges and universities, Fall 2012**

	Fall enrollment				Annual
	Full-time	Part-time	FTE	Total Fall	
Public, 2	67,370	127,057	109,722	194,427	290,976
Public, < 2	378	164	433	542	942
Public, 4+	174,550	40,776	188,142	215,326	257,162
<b>Total Public</b>	<b>242,298</b>	<b>167,997</b>	<b>298,297</b>	<b>410,295</b>	<b>549,080</b>

Source: IPEDS data (2012). JBLA analysis.

The majority of students attending private, not-for-profit colleges and universities are most likely to attend four-year colleges.

**Table 13. Enrollment in private-not-for-profit colleges and universities, Fall 2012**

	Fall enrollment				Annual
	Full-time	Part-time	FTE	Total Fall	
Not-for-profit 2	902	154	953	1,056	1,474
Not-for-profit < 2	76	150	126	226	396
Not-for-profit 4+	77,984	50,222	94,725	128,206	159,351
<b>Total not-for-profit</b>	<b>78,962</b>	<b>50,526</b>	<b>95,804</b>	<b>129,488</b>	<b>161,221</b>

Source: IPEDS data (2012). JBLA analysis.

Annual enrollment is a better measure of enrollment in for-profit colleges and schools than the more traditional fall enrollment. They generally do not follow traditional semester enrollment cycles and start new classes monthly and they operate year-round.

**Table 14. Enrollment in private, for-profit colleges and schools, Fall 2012**

	Fall enrollment				Annual
	Full-time	Part-time	FTE	Total Fall	
For-profit, 2-	7,460	1,866	8,082	9,326	16,735
For-profit, < 2	2,056	660	2,276	2,716	4,492
For-profit, 4+	26,024	15,721	31,264	41,745	75,212
<b>Total, for-profit</b>	<b>35,540</b>	<b>18,247</b>	<b>41,622</b>	<b>53,787</b>	<b>96,439</b>

Source: IPEDS data (2012). JBLA analysis.

Total enrollment of students in Virginia postsecondary institutions that are eligible for federal student aid is approaching 594,000. Sixty-nine percent of the total Fall enrollment is accounted for by public colleges and universities. Twenty-two percent of the students enrolled in Fall attend non-profit colleges and universities. The remaining 9 percent attend for-profit schools and colleges. Annually, more than 806,000 students enrolled in a postsecondary institution somewhere in the state.

**Table 15. Enrollment in all colleges and schools, Fall 2012**

	Fall enrollment				Annual
	Full-time	Part-time	FTE	Total Fall	
Total Public	242,298	167,997	298,297	410,295	549,080
Total not-for-profit	78,962	50,526	95,804	129,488	161,221
Total, for-profit	35,540	18,247	41,622	53,787	96,439
<b>Total</b>	<b>356,800</b>	<b>236,770</b>	<b>435,723</b>	<b>593,570</b>	<b>806,740</b>

Source: IPEDS data (2012). JBLA analysis.

**Conclusion: Public colleges and universities enroll the majority of students at all levels, but private sector schools enroll a significant share.**

### **In state and out-of-state enrollment**

Part of the enrollment in Virginia colleges and universities comes from other states. The following table shows the number and percentage of Virginia citizens enrolled in public four-year colleges and universities in the state as they start their first year along with the share of entering enrollment represented by students coming from other states. Out-of-state students pay higher tuition in public institutions and represent more revenue than is available from in-state students. Students are classified as being in-state/out-of-state based on his or her tuition classification as reported by the institution.

Table 16 shows that three public colleges have the largest share of students from other states. Virginia Military Institute enrolls 46 percent of its students from other states. Thirty-six percent of College of William and Mary's entering students come from other states, as do 35 percent of those entering UVA.

**Table 16. First-time students who are Virginia citizens enrolling in public four-year colleges and universities in Virginia**

	% In-State 1st-time Students	% Out-of-State 1st-time Students
Public 4-year	77.5%	22.5%
Longwood University	96.1%	3.9%
University of Virginia's College at Wise	94.0%	6.0%
Radford University	93.9%	6.1%
Christopher Newport University	92.7%	7.3%
University of Mary Washington	89.9%	10.1%
Old Dominion University	89.2%	10.8%
Virginia Commonwealth University	85.6%	14.4%
Norfolk State University	83.7%	16.3%
George Mason University	79.0%	21.0%
James Madison University	70.1%	29.9%
Virginia State University	68.9%	31.1%
Virginia Tech	68.4%	31.6%
University of Virginia	64.9%	35.1%
College of William and Mary	64.1%	35.9%
Virginia Military Institute	53.9%	46.1%

Source: SCHEV. (2012). [http://research.schev.edu/enrollment/E2\\_Report.asp](http://research.schev.edu/enrollment/E2_Report.asp).

Virginia is a net importer of students according to NCES data. In 2012, 13,478 Virginia residents enrolled for the first time in a college located in another state, while 20,680 students came from another state to enroll in a Virginia college or university.

**Conclusion: Students from other states tend to enroll in the most selective Virginia public universities or those with a special mission. They represent a revenue stream to the institution and help diversify the student body, but may take enrollment slots away from qualified Virginia residents.**

### Historically Black Colleges in Virginia

Historically Black Colleges and Universities (HBCU) provided an enrollment option for African American students who were excluded from enrolling in other colleges prior to the end of segregated education in the 1960's. The Higher Education Act of 1965, as amended, defines an HBCU as any accredited historically black college or university that was established prior to 1964, whose principal mission was, and is, the education of black Americans. The five HBCU's in Virginia include both public and private not-for-profit institutions.

- Hampton University four-year, Private not-for-profit
- Norfolk State University four-year, Public

- Virginia State University four-year, Public
- Virginia Union University four-year, Private not-for-profit
- Virginia University of Lynchburg four-year, primarily associate's, Private not-for-profit
- St. Paul's College four-year Private not-for-profit (closed)

**Table 17. Virginia HBCU FTE enrollment, number of students receiving degrees, and graduation rate 2012**

Institution Name	FTE fall enrollment 2012	Doctor's degree 2012	Master's degree 2012	Bachelor's degree 2012	Associate's degree 2012	Graduation rate total cohort 2012
Hampton University	4,631	79	144	830	0	59%
Norfolk State University	6,220	5	261	813	77	34%
Saint Paul's College*	111	0	0	68	0	17%
Virginia State University	5,698	3	135	836	21	42%
Virginia Union University	1,719	12	103	153	0	30%
Virginia University of Lynchburg	388	7	8	18	29	82%

\*Closed

Source: IPEDS data center. (2012).

Enrollment in Virginia's HBCUs has been erratic over the last few years, but overall enrollment has been improving since 2007.

**Figure J. Headcount enrollment in all HBCUs in Virginia**



Note: Enrollments in historically black, degree-granting institutions eligible for federal Title IV student financial aid.

Source: SREB [http://www.sreb.org/page/1354/date\\_library\\_enrollment\\_instructional\\_delivery\\_modes.html#\\_Enrollment\\_and\\_Student\\_Characteristics](http://www.sreb.org/page/1354/date_library_enrollment_instructional_delivery_modes.html#_Enrollment_and_Student_Characteristics)

**Conclusion: Historically Black Colleges and Universities have played an important role in Virginia, but are challenged by changing conditions. How best to position these institutions to continue to be successful in the future is an important consideration.**

## Distance education

Virginia enrolls a higher percentage of students in distance education than is found nationally. The following table shows the enrollment of students from Virginia who are enrolled in distance education. Unlike other tables that show students enrolled by the location of the institution, the following table shows results by the home state of the student, regardless of the state of the institution where he or she might be enrolled. An important part of the online enrollment is accounted for by Liberty university, which now exceeds 74,000 enrolled students, with nearly 62,000 enrolled online. That makes Liberty the largest university in Virginia ([http://www.washingtonpost.com/local/education/virginias-liberty-transforms-into-evangelical-mega-university/2013/03/04/931cb116-7d09-11e2-9a75-dab0201670da\\_story.html](http://www.washingtonpost.com/local/education/virginias-liberty-transforms-into-evangelical-mega-university/2013/03/04/931cb116-7d09-11e2-9a75-dab0201670da_story.html)).

**Table 18. Number of Virginia students enrolled in distance education**

	Virginia		US
	Number	Percent	Percent
<b>Enrolled students</b>	592,273	100%	100%
<b>Exclusively in Distance Ed</b>	109,927	18.6%	12.5%
<b>Some Distance Ed</b>	97,038	16.4%	14.2%
<b>No Distance Ed</b>	385,308	66.1%	74.2%

Source: NCES (2014), <http://nces.ed.gov/pubs2014/2014023.pdf>

The popularity of distance education among students is generally accounted for in terms of convenience. The option to attend class when you can and where you want is helpful for working students with families. Students enrolled in physical courses may take a class online as a way to manage their time more efficiently. The Electronic Campus of Virginia is a cooperative instructional technology initiative among the state's public and private colleges and universities that links students to offerings provided by colleges and universities across the state. NOVA's Extended Learning Institute is used by community colleges across the state to support online learning. Increasingly, online education is part of almost every institution's offering.

The Southern Regional Education Board's Electronic Campus is a central marketplace for some 28,000 courses and more than 800 degree programs offered online by colleges and universities in the South. Under a reciprocity agreement among participating states, the Electronic Campus offers courses and programs that have won approval from regulators within their home states. This approval is based on a set of commonly developed "principles of good practice" consistent across the US states and functioning as a regional certification of course or program quality.

These digitally mediated approaches, and others like them, provide the option to improve course delivery, reduce the time it takes to finish a class and to make college available to people who otherwise

could not enroll. Online education is an important part of the higher education delivery system in Virginia.

**Conclusion: One-third of Virginia students are taking some or all of their coursework online. This complicates traditional definitions of what it means to be in college, but online tools have the potential to increase access and productivity at the same time.**

### **Enrollment of underserved students**

Providing access to higher education to traditionally underserved student populations, including students of color, is an important part of Virginia's higher education strategy. To give a sense of how Virginia compares with other states in providing these opportunities, JBLA looked the percent of enrolled students who are members of traditional underserved minorities, including African American, Hispanic/Latino, American Indian or Alaska Native, or reported as two-or-more races.

The following table shows the racial/ethnic enrollment for each of the public four-year colleges and universities in Virginia. The weighted average minority enrollment is nearly 20 percent when the two HBCUs are included. The remaining institutions range from 8 percent minority enrollment to 28.2 percent. George Mason enrolls the most Hispanic students and Norfolk State has the largest African American enrollment.

**Table 19. Enrollment by ethnic/racial minorities in Virginia four-year public colleges and universities, 2013-14**

Institution	African American Fall enrollment	American Indian Fall enrollment	Hispanic Fall enrollment	Total Fall enrollment	% minority
College of William and Mary <sup>1</sup>	597	25	610	8,258	14.9%
Christopher Newport U	408	12	241	5,186	12.7%
Eastern Virginia Medical School <sup>1</sup>	114	8	10	993	13.3%
George Mason U <sup>1</sup>	2,810	68	2,915	32,961	17.6%
James Madison U <sup>1</sup>	779	29	788	19,927	8.0%
Longwood U	359	14	190	4,834	11.6%
U of Mary Washington	345	10	309	5,093	13.0%
Norfolk State U* <sup>1</sup>	5,916	14	168	7,100	85.9%
Old Dominion U <sup>1</sup>	5,475	93	1,384	24,670	28.2%
Radford U	708	33	351	9,573	11.4%
The U of VA College at Wise	223	6	37	2,420	11.0%
VA Polytechnic Institute and State U <sup>1</sup>	1,201	56	1,337	31,087	8.3%
VA Commonwealth U <sup>1</sup>	5,055	99	1,845	31,445	22.3%
U of VA-Main Campus <sup>1</sup>	1,408	34	1,165	23,907	10.9%
VA Military Institute	81	5	64	1,664	9.0%
VA State U* <sup>1</sup>	5,151	12	92	6,208	84.6%
<b>Total</b>	<b>30,630</b>	<b>518</b>	<b>11,506</b>	<b>215,326</b>	<b>19.8%</b>

\* Historically Black College or University

<sup>1</sup> Classified as a research university

Source: IPEDS Data Center (2013-14).

Because so many students are enrolled part-time in community colleges, the percentages for each race/ethnic group are presented for both full- and part-time students. The results are consistent with the distribution of Virginia population distribution by race/ethnicity. The largest share of Hispanic/Latino students is in Northern Virginia

**Table 20. Enrollment by Ethnic/racial minorities in Virginia two-year public colleges and universities, 2013-14**

Public 2 Year	White	Black or African American	Asian	Hispanic or Latino	Other	% total minority
<b>Blue Ridge CC</b>						
undergraduate full-time	83.2%	6.2%	1.5%	4.7%	3.9%	16.8%
undergraduate part-time	84.8%	5.3%	1.2%	5.2%	3.0%	15.2%
<b>Central Virginia CC</b>						
undergraduate ft	75.2%	17.8%	1.2%	2.1%	3.1%	24.8%
undergraduate pt	77.6%	14.6%	1.2%	2.3%	3.7%	22.4%
<b>Dabney S Lancaster CC</b>						
undergraduate ft*	90.4%	5.0%	0.2%	1.0%	2.5%	9.6%
undergraduate pt	88.8%	4.9%	0.5%	1.1%	3.9%	11.2%
<b>Danville CC</b>						
undergraduate ft	57.2%	39.2%	0.4%	1.7%	1.2%	42.8%
undergraduate pt	57.2%	38.0%	1.0%	2.0%	1.3%	42.8%
<b>Eastern Shore CC</b>						
undergraduate ft*	53.5%	39.8%	0.3%	4.3%	1.6%	46.5%
undergraduate pt	52.7%	39.1%	0.8%	5.1%	1.5%	47.3%
<b>Germanna CC</b>						
undergraduate ft	67.5%	16.0%	2.5%	7.9%	5.3%	32.5%
undergraduate pt	68.6%	16.3%	2.3%	7.0%	5.1%	31.4%
<b>J Sargeant Reynolds CC</b>						
undergraduate ft	51.0%	34.2%	4.7%	5.1%	4.3%	49.0%
undergraduate pt	51.6%	37.5%	2.9%	3.5%	3.6%	48.4%
<b>John Tyler CC</b>						
undergraduate ft	59.3%	27.4%	1.9%	6.6%	4.0%	40.7%
undergraduate pt	61.9%	25.2%	2.9%	5.0%	4.5%	38.1%
<b>Lord Fairfax CC</b>						
undergraduate ft	83.5%	4.8%	1.9%	5.2%	3.9%	16.5%
undergraduate pt	83.9%	5.1%	1.7%	5.2%	3.3%	16.1%
<b>Mountain Empire CC</b>						
undergraduate ft	96.8%	1.3%	0.1%	0.7%	0.8%	3.2%
undergraduate pt	95.1%	2.1%	0.3%	1.1%	1.0%	4.9%
<b>New River CC</b>						
undergraduate ft	85.6%	8.1%	1.7%	1.6%	2.2%	14.4%
undergraduate pt	86.7%	4.9%	2.2%	2.2%	3.9%	13.3%
<b>Northern Virginia CC</b>						
undergraduate ft	39.5%	16.8%	17.7%	17.9%	6.9%	60.5%
undergraduate pt	45.7%	17.6%	12.4%	16.9%	6.2%	54.3%
<b>Patrick Henry CC</b>						
undergraduate ft	67.7%	26.8%	0.6%	2.1%	2.4%	32.3%

undergraduate <b>pt</b>	69.5%	25.5%	0.5%	2.5%	1.4%	30.5%
<b>Paul D Camp CC</b>						
undergraduate <b>ft</b>	42.1%	50.4%	0.4%	2.7%	3.4%	57.9%
undergraduate <b>pt</b>	59.3%	35.0%	0.5%	1.9%	2.6%	40.7%
<b>Piedmont Virginia CC</b>						
undergraduate <b>ft</b>	74.1%	13.1%	3.0%	4.0%	5.5%	25.9%
undergraduate <b>pt</b>	74.8%	13.6%	3.1%	3.5%	4.5%	25.2%
<b>Rappahannock CC</b>						
undergraduate <b>ft</b>	73.3%	18.6%	0.5%	2.8%	3.7%	26.7%
undergraduate <b>pt</b>	71.8%	18.7%	1.1%	3.2%	4.1%	28.2%
<b>Richard Bland College</b>						
undergraduate <b>ft</b>	52.1%	35.2%	1.2%	2.6%	8.6%	47.9%
undergraduate <b>pt</b>	61.4%	27.4%	2.5%	1.7%	6.6%	38.6%
<b>Southside Virginia CC</b>						
undergraduate <b>ft</b>	56.3%	39.6%	0.6%	1.7%	1.2%	43.7%
undergraduate <b>pt</b>	56.2%	39.1%	0.6%	2.0%	1.6%	43.8%
<b>Southwest Virginia CC</b>						
undergraduate <b>ft</b>	95.5%	2.2%	0.4%	0.7%	1.0%	4.5%
undergraduate <b>pt</b>	93.3%	3.5%	0.6%	0.9%	1.1%	6.7%
<b>Thomas Nelson CC</b>						
undergraduate <b>ft</b>	51.4%	31.8%	2.9%	6.8%	5.8%	48.6%
undergraduate <b>pt</b>	49.2%	35.8%	3.2%	5.6%	5.0%	50.8%
<b>Tidewater CC</b>						
undergraduate <b>ft</b>	46.1%	36.6%	4.4%	6.3%	5.0%	53.9%
undergraduate <b>pt</b>	50.3%	35.3%	3.9%	5.2%	4.0%	49.7%
<b>Virginia Highlands CC</b>						
undergraduate <b>ft</b>	94.1%	3.0%	0.3%	1.3%	1.1%	5.9%
undergraduate <b>pt</b>	95.1%	1.5%	0.7%	1.1%	1.5%	4.9%
<b>Virginia Western CC</b>						
undergraduate <b>ft</b>	78.6%	13.1%	2.7%	2.4%	2.5%	21.4%
undergraduate <b>pt</b>	81.8%	10.0%	2.6%	2.4%	2.6%	18.2%
<b>Wytheville CC</b>						
undergraduate <b>ft</b>	92.0%	4.3%	0.3%	1.7%	1.2%	8.0%
undergraduate <b>pt</b>	85.5%	8.9%	0.7%	2.6%	1.9%	14.5%

Note: Other includes two or more races and race/ethnicity unknown

Source: IPEDS Data Center

\*n count is below 500 interpret with caution

**Conclusion: Enrollment of minority students varies by institution mission, selectivity and in the case of community colleges, by region of the state. The opportunity to enroll in college for many students is defined by where they live and what they can afford.**

## **Degree production**

Virginia colleges and universities awarded over 133,000 certificates and degrees to students in 2012-13. Bachelor's degrees were the most often awarded with associate and Master's degrees in a close tie for second most frequently awarded.

The following tables provide an overview of the number of degrees and certificates awarded by institutions in Virginia. Table 21 includes awards at less than the associate level and those awards made by any postsecondary institution recognized by the U.S. Department of Education, not just institutions of higher education. For-profit institutions produced 1/3rd of the associate degrees awarded in the state, with 63 percent awarded by community colleges in the state.

In order to be included in this list, the certificate program must be offered by an accredited school, be at least three months in length, and prepare an individual for employment. Community colleges awarded 54 percent of the certificates. It is worth noting that some four-year colleges award associate degrees and certificates.

Public colleges and universities in the state provided 68 percent of the bachelor degrees awarded in the state, 55 percent of the master's degrees, 78 percent of the doctoral degrees, and half the professional degrees.

**Table 21. Degrees and certificates awarded by Virginia postsecondary institutions**

Total Postsecondary Degrees and Certificates awarded by Virginia Public Postsecondary Institutions							
	Total degree	Assoc. degree	Bachelor degree	Master degree	Doctoral degree	Prof. degree	Certificate
Public, 2	31,780	17,926					13,854
Public, < 2	364						364
Public 4+	53,970	148	37,508	11,967	1,627	1,623	1,097
<b>Total Public</b>	<b>86,114</b>	<b>18,074</b>	<b>37,508</b>	<b>11,967</b>	<b>1,627</b>	<b>1,623</b>	<b>15,315</b>
Total Postsecondary Degrees and Certificates awarded by Virginia Private, not-for-profit Institutions							
Not-for-profit 2	510	0					510
Not-for-profit <2	170						170
Not-for-profit 4+	26,034	813	14,485	7,727	428	1,586	995
<b>Total non-profit</b>	<b>26,714</b>	<b>813</b>	<b>14,485</b>	<b>7,727</b>	<b>428</b>	<b>1,586</b>	<b>1,675</b>
Total Postsecondary Degrees and Certificates awarded by Virginia private, for-profit institutions							
For-profit 2	5,787	1,304					4,483
For-profit <2	1,656						1,656
For-profit 4+	13,310	6,041	4,011	1,855	41	89	1,273
<b>Total</b>	<b>20,753</b>	<b>7,345</b>	<b>4,011</b>	<b>1,855</b>	<b>41</b>	<b>89</b>	<b>7,412</b>
Total Postsecondary Degrees and Certificates awarded by all postsecondary institutions in Virginia							
<b>Total Public</b>	<b>86,114</b>	<b>18,074</b>	<b>37,508</b>	<b>11,967</b>	<b>1,627</b>	<b>1,623</b>	<b>15,315</b>
<b>Total non-profit</b>	<b>26,714</b>	<b>813</b>	<b>14,485</b>	<b>7,727</b>	<b>428</b>	<b>1,586</b>	<b>1,675</b>
<b>Total for-profit</b>	<b>20,753</b>	<b>7,345</b>	<b>4,011</b>	<b>1,855</b>	<b>41</b>	<b>89</b>	<b>7,412</b>
<b>Total</b>	<b>133,581</b>	<b>26,232</b>	<b>56,004</b>	<b>21,549</b>	<b>2,096</b>	<b>3,298</b>	<b>24,402</b>

Source: IPEDS data with calculations by JBL Associates

Overall, the number of associate degrees and certificates together exceed the number of bachelor degrees awarded to students by postsecondary institutions in Virginia.

The following table is long and complicated, but it provides an overview of the enrollment and degrees awarded to students from different ethnic/racial backgrounds in Virginia postsecondary education institutions. It provides several comparisons that provide information about the success of institutions in meeting the needs of students from different ethnic/racial backgrounds.

- The first row is a reference that indicates the distribution of the college age population in Virginia. Fifty-nine percent are White, non-Hispanic, 22 percent Black/African American, 5 percent Asian, 10 percent Hispanic/Latino, and 3 percent other.
- For each group of postsecondary institutions in the state, there are two types of information. The first is the distribution of enrollment as full-time or part-time student by level of enrollment

across ethnic/racial groups. The second is percent of the degrees awarded to students in each ethnic/racial group.

- The results for Black/African American students is that they are less likely to be enrolled in a public research university (15.7 percent) compared with their share of population (22.3 percent) and compared with their enrollment, they are less likely to receive a bachelor degree (13.7 percent) but more likely to have been awarded an associate degree (23.2 percent). Roughly the same pattern exists for Black/African American students enrolling in other four-year public institutions. The enrollment of Black/African American students is in close approximation of the 18-24 year old population in public community colleges and not-for-profit colleges and the award of degrees to these students lags their enrollment in some cases. The enrollment of Black/African American students in for-profit institutions exceeds population and the degree and certificate production is consistent with enrollment.
- Hispanic/Latino students represent 9.7 percent of the college age population, but just over 6 percent of the full-time undergraduates in public research universities. They comprise almost half of the associate degrees awarded by these universities, but fall below their share of enrollment in the share of other degrees. A similar pattern exists for Hispanic/Latino students in other four-year public institutions with the exception of the associate degree. Hispanic/Latino enrollment in public two-year colleges falls below the population and the percent of degrees awarded fall below the enrollment percent. The non-profit institutions enrollment of Hispanic/Latino students does not reach the level of the population and with the exception of the associate degree, the share of degrees going to Hispanic/Latino students in the sector falls below their share of enrollment.

**Table 22. Distribution of degrees awarded by Virginia institutions to students by ethnic/racial categories**

	White	Black or African American	Asian	Hispanic or Latino	Other <sup>6</sup>	Total
<b>Virginia population 18-24<sup>1</sup></b>	59.1%	22.3%	5.2%	9.7%	3.3%	100.0%
<b>Fall enrollment and degrees/certificates - 2011</b>						
<b>Public Research<sup>2</sup></b>						
undergraduate ft	58.1%	15.7%	10.1%	6.2%	9.2%	100%
graduate ft	69.0%	8.6%	8.7%	3.9%	9.4%	100%
undergraduate pt	68.8%	11.6%	5.5%	4.2%	9.6%	100%
graduate pt	51.0%	15.1%	8.4%	6.7%	18.1%	100%
associate's <sup>*</sup>	27.5%	23.2%	0.0%	0.0%	49.3%	100%
bachelor's	61.0%	13.7%	9.9%	5.4%	9.4%	100%
master's	65.8%	9.0%	6.0%	4.1%	14.7%	100%
doctor's	69.5%	6.6%	10.3%	3.0%	9.9%	100%
Postbac	59.3%	11.0%	8.8%	3.4%	17.2%	100%
<b>Public 4-year<sup>3</sup></b>						
undergraduate-ft	62.1%	15.6%	7.9%	5.4%	8.4%	100%
graduate-ft	69.4%	9.8%	7.6%	3.8%	9.1%	100%
undergraduate-pt	69.1%	12.1%	4.9%	3.9%	9.6%	100%
graduate-pt	52.3%	18.6%	7.3%	5.7%	15.3%	100%
associate's <sup>*</sup>	16.4%	50.0%	1.4%	0.7%	31.5%	100%
bachelor's	65.0%	13.0%	8.0%	4.7%	8.8%	100%
master's	67.3%	9.8%	5.0%	3.7%	13.8%	100%
doctor's	69.7%	6.7%	9.9%	3.1%	9.9%	100%
postbac	61.4%	10.2%	8.4%	3.5%	16.1%	100%
<b>Public 2-year<sup>4</sup></b>						
undergraduate-ft	57.5%	22.6%	6.4%	7.9%	4.6%	100%
undergraduate-pt	61.0%	22.2%	4.8%	7.1%	4.2%	100%
certificate <sup>5</sup>	66.2%	19.3%	5.1%	5.4%	1.2%	100%
associate's	65.1%	15.9%	7.3%	6.6%	1.3%	100%
<b>NFP- 4yr, 2yr, &lt;2yr</b>						
undergraduate-ft	61.8%	22.8%	1.6%	4.0%	9.2%	100%
graduate-ft	58.3%	24.3%	3.3%	3.0%	10.5%	100%
undergraduate-pt	53.8%	23.8%	1.7%	3.0%	17.2%	100%
graduate-pt	53.7%	27.6%	1.1%	3.8%	13.1%	100%
certificate	65.0%	23.5%	2.0%	2.8%	6.1%	100%
associate's	58.5%	19.4%	1.0%	6.8%	14.0%	100%
bachelor's	66.7%	18.4%	1.5%	3.8%	9.0%	100%
master's	59.9%	22.2%	1.7%	3.7%	12.0%	100%

	White	Black or African American	Asian	Hispanic or Latino	Other <sup>6</sup>	Total
<i>doctor's</i>	68.5%	13.3%	5.6%	2.5%	9.3%	100%
<i>postbac</i>	57.8%	24.2%	3.9%	3.6%	9.7%	100%
<b>FP 4-year</b>						
undergraduate-ft	34.9%	39.9%	3.8%	7.3%	13.4%	100%
graduate-ft	22.8%	32.7%	25.4%	4.2%	14.4%	100%
undergraduate-pt	17.6%	35.4%	5.4%	2.9%	38.4%	100%
graduate-pt	32.8%	54.2%	3.4%	5.9%	3.1%	100%
<i>associate's</i>	36.0%	37.6%	2.4%	6.9%	16.6%	100%
<i>bachelor's</i>	35.2%	33.1%	12.0%	6.2%	13.1%	100%
<i>master's</i>	20.2%	33.1%	30.0%	3.9%	12.4%	100%
<i>doctor's *</i>	46.9%	34.6%	13.1%	0.8%	4.6%	100%
<i>postbac*</i>	21.1%	54.4%	5.3%	8.8%	8.8%	100%
<b>FP 2yr, &lt;2yr</b>						
undergraduate-ft	24.8%	51.8%	4.0%	13.2%	5.8%	100%
undergraduate-pt	30.4%	53.2%	3.5%	6.1%	6.1%	100%
<i>certificate</i>	28.1%	45.4%	6.0%	15.8%	4.1%	100%
<i>associate's</i>	30.9%	59.6%	1.3%	4.1%	4.0%	100%

**Note:**

Enrollment and degree: IPEDS data center; group statistics for VA institutions by sector and degree level

Population data: US Census Bureau American Fact Finder, Population Division

Note: Enrollment and Degree data are from AY 2011-12 and Population data is from 2012

American Indian and Alaska Native and Native Hawaiian and Other Pacific Islander have been excluded from table due to small population size

\*n count is below 500 interpret with caution

1. Annual Estimates of the Resident Population by Sex, Age, Race, and Hispanic Origin for the United States and States: April 1, 2010 to July 1, 2012. Source: U.S. Census Bureau, Population Division Release Date: June 2013

2. Includes Eastern Virginian Medical School

3. Includes research universities, does not include Eastern VA Med. Source: IPEDS data center

4. Includes Richard Bland College  
Source: IPEDS Data Center. (2011-12).

The SCHEV data below show the distributions of degrees for different ethnic/racial groups. The table shows that foreign students account for one-fifth of doctoral degrees, African American students account for over one-quarter of the certificates of less than a year, and Hispanics account for less than 5 percent of all degrees and certificates awarded. Caution should be used because the share of each column assigned to unknown/unreported race/ethnicity varies by degree level from 1.4 percent for awards less than a year to 18 percent for master's degree.

**Table 23. Distribution of degrees awarded by public and private, not-for-profit colleges and universities in Virginia by race/ethnicity, 2012-13**

Ethnicity	Awards Less Than A Year	Awards >= 1yr & <2 yrs	Assoc.	Awards >2r & < 4 yr*	Bach.	Post Bach.	First Prof.	Masters	Post Masters	Doc.	Total Deg.
Unknown/Unreported	1.4%	2.6%	4.3%	0.0%	11.6%	15.1%	10.0%	17.9%	13.2%	12.3%	10.3%
Foreign Student	0.6%	0.8%	1.6%	3.3%	2.2%	1.3%	1.4%	6.7%	0.7%	20.1%	3.2%
African American or Black	26.5%	14.9%	16.4%	10.0%	13.0%	11.8%	11.2%	12.1%	19.3%	10.2%	14.2%
Native American*	0.3%	0.5%	0.5%	0.0%	0.3%	0.4%	0.3%	0.3%	0.0%	0.5%	0.3%
Asian and Pacific Islander	2.6%	5.2%	7.1%	3.3%	6.4%	8.4%	10.6%	3.9%	1.1%	3.8%	5.8%
Hispanic	4.2%	6.2%	7.1%	30.0%	4.7%	3.5%	3.0%	3.2%	3.6%	2.0%	4.8%
White, Caucasian American	63.2%	68.5%	61.9%	53.3%	60.0%	57.8%	61.9%	55.0%	61.4%	50.7%	59.9%
Multi-Race	1.4%	1.3%	1.2%	0.0%	1.9%	1.6%	1.6%	1.1%	0.7%	0.4%	1.5%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

Source: SCHEV data with JBLA calculations

\*Small cell sizes

The next table shows the bachelor’s degrees produced per 1,000 individuals age 19-24 in the state. Virginia shows a climb from being close to the national average to exceeding the national average starting in 2008.

**Table 24. Bachelor’s degrees conferred per 1,000 individuals 18–24 years old, 1990–2011**

	1990	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
<b>United States</b>	38.9	45.3	44.4	45.4	46.6	47.8	48.9	50.2	51.1	51.8	52.5	53.6	55.2
<b>Virginia</b>	37.3	49	46.4	45.8	47.1	47.3	48.1	49.6	50.5	52	53.1	56.2	60.2

Sources: National Science Foundation. <http://www.nsf.gov/statistics/seind14/index.cfm/state-data/table.htm?table=17>, IPEDS, (various years); Census Bureau, 2000 and 2010 Decennial Censuses and Population Estimates Program (various years).

**Conclusion: Virginia does better than average in getting students graduated, but there are significant differences in the level of degree awarded by ethnic/racial group. Improving equity may be more challenging than increasing the number of degrees and certificates awarded.**

**Summary of section**

Degree production for students differs among sectors and levels of degrees. For-profit schools in the state enroll and graduate much higher shares of Black/African American students than other sectors. That fact raises the question as to what could be done in other sectors of higher education to achieve the same levels of success. The data also suggest that non-profit colleges in the state enroll a larger share of Black/African American students than do the public four-year colleges and universities. This speaks to the value of private education in Virginia in expanding opportunity.

## Completion rates

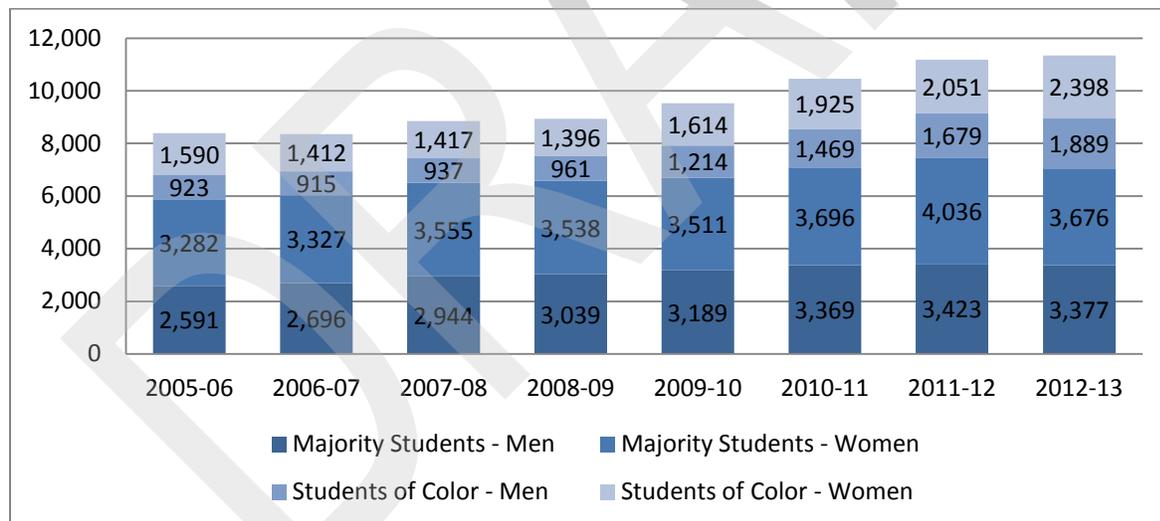
### First year persistence rates

In order to graduate, students must first complete the initial year of college. This early indicator does not definitively predict later success, but it is a necessary step toward eventual graduation. First-year persistence rates available from SREB indicate that at 83 percent persistence, Virginia’s public four-year institutions have the highest first year persistence in the region and Virginia’s two-year colleges are near the top with a 67 percent first-year persistence rate

### Transfer rates

The 150% normal time graduation rates for two-year institutions do not include students who successfully transfer from a two-year college to four-year institutions to complete their degrees. Figure K, below, shows the growth in the number of students transferring from public two-year institutions to public four-year institutions within Virginia. In all years, more women transfer than men do. That holds true for both students of color and majority students. Since 2005, the number of men of color transferring to a four-year college in Virginia has doubled.

**Figure K. Students transferring from all public two-year institutions into all public four-year institutions in the fall and spring**



Source: adapted from chart created by SCHEV, <http://research.schev.edu/feedback/transfer/TR01.asp>

SCHEV data show that the four-year completion rate for students who transfer to four-year institutions in Virginia hovers around 60 percent. Students who transfer with 31 credits or more or who earn an associate’s degree before transferring have the greatest success.

**Table 25. Four-year completion rates of all students transferring to all public four-year institutions in fall and spring**

<b>Degree Completion</b>	<b>2009-10</b>
<b>Summary Totals</b>	
New Transfer (All)	60%
<b>Student Demographics</b>	
New Transfers, Age 17 to 19	62%
New Transfers, Age 25 and Older	55%
New Transfers, Age 20 to 24	62%
<b>Financial Aid Programs at Entry</b>	
New Transfer with Pell	57%
<b>Student Effort and Progress</b>	
Students earning 6 credits or fewer in First Year	7%
<b>Transfer-specific Characteristics</b>	
CC Transfer Students with 15 CC credits or Fewer	47%
CC Transfer Students with between 16 and 30 CC credits	58%
CC Transfer Students with 31 CC credits or Greater (No AA)	72%
AA/AS Awarded Prior to Transfer	68%
AA/AS Awarded Prior to Transfer, 2 or fewer years prior to Transfer	69%
AA/AS Awarded Prior to Transfer, 2.01 to 5 years prior to Transfer	52%
AA/AS Awarded Prior to Transfer, 5 or more years prior to Transfer	52%

Source: SCHEV. (2009-10). <http://research.schev.edu/apps/info/Reports.Guide-to-the-Degrees-Awarded-Reports.ashx>

**Conclusion: Successful community college transfer is an important step in increasing the number of students with a baccalaureate degree in Virginia. If a student finishes at least 31 units in community colleges, the chances of completing a bachelor degree improves significantly.**

**Graduation rates**

In general, Virginia’s graduation rates by type and control are equal or higher for two- and four-year public institutions compared with the Bordering States group and the JBLA Identified Peer Group, and ahead of the SREB group for four-year institutions, but lag the SREB group’s two-year institutions.

**Table 26. One hundred and fifty percent normal time graduation rates for all undergraduate degree-seeking students, by level and control**

	Institutions (#)	Private for-profit, 2	Private for-profit, 4+	Private not-for-profit 2	Private not-for-profit 4+	Public 2	Public 4+
Virginia	107	63%	38%	80%	50%	20%	68%
Bordering States Peer Group	456	55%	26%	56%	51%	19%	53%
SREB Peer Group	1332	64%	45%	61%	52%	19%	51%
JBLA Identified Peer Group	1003	62%	28%	49%	58%	19%	54%

Note: Number of institutions varies based on availability of data elements used to calculate metrics.

Source: IPEDS Spring 2013 Graduation Rates survey; Spring 2013 Fall Enrollments survey

The next table shows the same report for underserved minority students. The success rate for minority students is not appreciably different than average in private, for-profit and not-for-profit two-year programs and in public-4 universities in Virginia. There was a drop-off in graduation rates for minority students among the peer groups. The biggest discrepancy between graduation rates for all students and underserved minority students in Virginia is in the private, not-for-profit four-year sector, where there is a 10-percentage point difference. This differential is found across the comparison groups.

**Table 27. One hundred and fifty percent normal time graduation rates for degree seeking underserved minority students, by level and control**

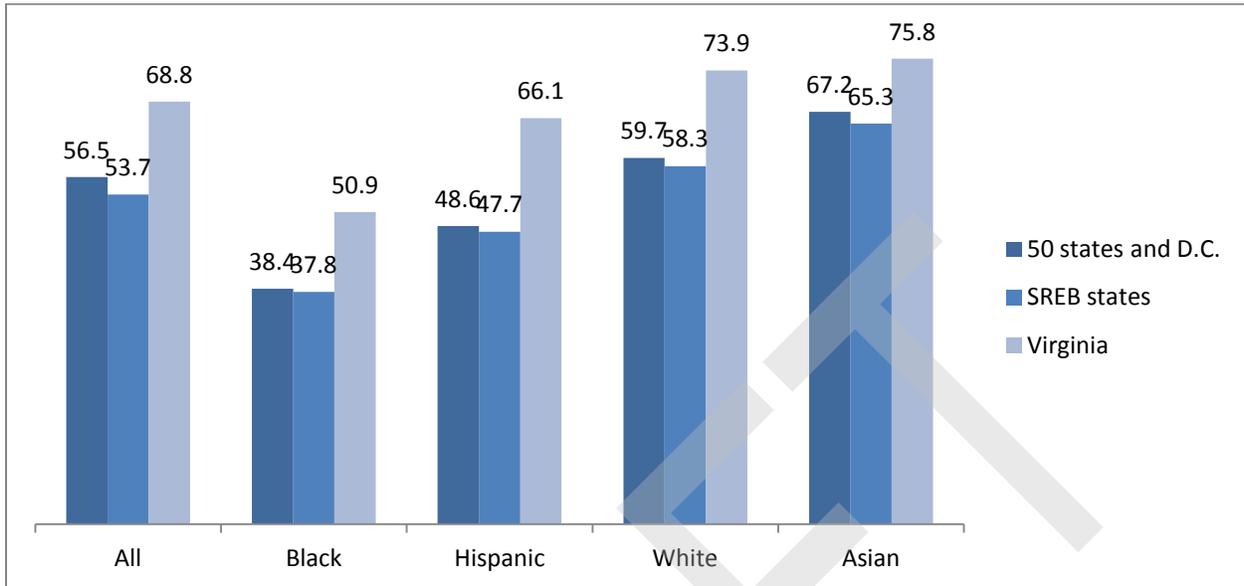
	Institutions (#)	Private for-profit 2	Private for-profit 4+	Private not-for-profit 2	Private not-for-profit 4+	Public 2	Public 4+
Virginia	107	63%	24%	80%	40%	14%	67%
Bordering States Peer Group	456	53%	27%	53%	41%	13%	46%
SREB Peer Group	1332	62%	46%	60%	45%	16%	46%
JBLA Identified Peer Group	1003	58%	25%	45%	46%	13%	44%

Note: Number of institutions varies based on availability of data elements used to calculate metrics.

Source: IPEDS Spring 2013 Graduation Rates survey; Spring 2013 Fall Enrollments survey

The following chart provides more detail on graduation rates for students from different racial/ethnic backgrounds in public four-year colleges and universities in Virginia compared with peers. Virginia has better results for all groups than do the SREB states or the nation. The good news is tempered by the fact that African American/Black students have a lower graduation rate than do students from other ethnic/racial groups.

**Figure L. 150 percent of normal time graduation rates in public four-year institutions, by racial/ethnic group**



Note: The rates are based on the first-time, full-time, bachelor’s-seeking students who enrolled in public four-year institutions and on the first-time, full-time, degree- or certificate-seeking students who enrolled in public two-year colleges in the fall term.

Source: SREB, [http://info.sreb.org/DataLibrary/tables/FB13\\_45\\_46\\_47.xlsx](http://info.sreb.org/DataLibrary/tables/FB13_45_46_47.xlsx)

Graduation rates are harder to interpret in community colleges than they are in four-year institutions. Understanding the limitation, two-year graduation rates provide a relative measure of outcomes, but understate the absolute successful completion rates. By this measure, Virginia does not demonstrate the same success as shown in the four-year graduation rates with a reported graduation rate of 18.4% compared with 19.8% for the national average (SREB).

**Conclusion: Graduation rates in Virginia are competitive with peers, but Black/African American students are less likely to finish than are students from other ethnic/racial groups in Virginia.**

**Section summary**

The path from enrolling to graduating is often complicated. Many students start in one college and finish in another. Students fit enrollment into needs of family and jobs; going part-time in some semesters and full-time in another. Helping students find a way to graduate while taking all their personal needs into consideration means providing a clear curricular path with the advising that will help them stay on that path. Access needs to lead to success.

## Affordability

Affordability has three components.

- First is the tuition and fees charged by the institution, which is the *published price*.
- Second is student grants and scholarship that are awarded to students to reduce the price of attendance to the *net price*.
- Third is the *family ability to pay* the net price, often expressed as a percent of income to send a student to college after all aid is provided.

Table 28 shows the tuition and fees for in-state students by each public college and university in Virginia. The net price calculations are for all students and include the additional costs of room, board and other costs such as books and material. Net price is the total estimated price of attending college that the student needs to pay after all grants aid is awarded. The table includes two estimates of net price; the first is for students who received any grant aid and the second is for students from low-income families who received Title IV student aid (defined as family income between \$0 and \$30,000).

The net price for low-income students is a more important measure of access for those who have the least discretionary income. Low-income students and their families generally have little or no expected family contribution toward paying the costs associated with going to college full-time, so price is a larger barrier for a family already living close to not being able to pay for basic needs than it is for a family with more discretionary income.

These numbers are the ones used in federal reports and guides to students as they select colleges. If a student did not receive any grant aid, the price of attendance would be the published price, which is tuition and fees plus the direct costs associated with attending college. The price of attendance used here is for in-state students attending full-time and living on campus. Some students may live off campus or at home and would have a lower cost of attendance. Fees include mandatory fees students must pay to attend. Fees may vary by program. Classes that require special material or equipment such as photography or engineering may charge higher fees than a social science program.

The range in published tuition and fees among the institutions varies from \$6,860 to \$13,670. The range in net price paid by low-income students is much greater, ranging from \$14,370 at the top to \$3,528 at the bottom. Net price is affected by available grant aid from federal, state, institutional and private sources. The two universities with the lowest percent of students receiving a Pell grant, which is a marker for low-income, have the lowest net price for low-income students. It appears that a college or university with more resources and a smaller share of low-income students are able to use grants to reduce the price of attendance for low-income students more than is possible for an institution with fewer resources and more high-need students.

**Table 28. Price of attendance for in-state students attending public four-year colleges and universities in Virginia, 2012-2013**

Institution	Published in-state tuition 2012-13	Published in-state fees 2012-13	Published in-state tuition and fees 2012-13	% of students paying in-state tuition rates	% of undergraduate students receiving Pell grants	Average Pell grant aid received by undergraduates	Price of attendance, In-state, on campus	Average net price-students receiving grant or scholarship aid	Average net price (income 0-30,000)-students receiving Title IV financial aid
College of William and Mary <sup>1</sup>	\$8,677	\$4,893	\$13,570	62	12	\$3,982	\$28,808	\$13,246	\$3,528
Christopher Newport U	\$6,210	\$4,362	\$10,572	96	18	\$3,666	\$25,808	\$19,812	\$14,370
George Mason U <sup>1</sup>	\$7,010	\$2,610	\$9,620	75	28	\$3,904	\$25,335	\$14,709	\$12,120
James Madison U <sup>1</sup>	\$4,862	\$3,946	\$8,808	70	14	\$3,751	\$22,740	\$14,029	\$9,727
Longwood U	\$6,120	\$4,770	\$10,890	96	22	\$3,872	\$23,724	\$16,883	\$12,984
U of Mary Washington	\$4,686	\$4,620	\$9,306	86	16	\$3,703	\$24,076	\$15,218	\$10,957
Norfolk State U* <sup>1</sup>	\$3,540	\$3,320	\$6,860	80	67	\$4,357	\$20,700	\$11,354	\$10,513
Old Dominion U <sup>1</sup>	\$5,203	\$2,987	\$8,190	68	32	\$4,019	\$22,267	\$11,775	\$9,244
Radford U	\$5,702	\$2,888	\$8,590	94	28	\$4,022	\$20,700	\$12,159	\$10,023
The U of VA College at Wise	\$4,454	\$3,653	\$8,107	94	41	\$3,969	\$21,567	\$10,537	\$6,687
VA Polytechnic Institute and State U <sup>1</sup>	\$9,187	\$1,736	\$10,923	70	18	\$3,977	\$26,165	\$17,375	\$11,775
VA Commonwealth U <sup>1</sup>	\$7,860	\$2,026	\$9,886	88	29	\$3,917	\$28,297	\$15,838	\$13,672
U of VA-Main Campus <sup>1</sup>	\$9,622	\$2,594	\$12,216	67	12	\$3,958	\$26,075	\$12,672	\$4,405
Virginia Military Institute	\$6,880	\$6,880	\$13,760	57	17	\$3,806	\$25,642	\$13,133	\$5,137
VA State University* <sup>1</sup>	\$4,550	\$2,870	\$7,420	63	67	\$4,195	\$28,297	\$13,028	\$10,812
<b>Average</b>	<b>\$6,304</b>	<b>\$3,610</b>	<b>\$9,915</b>	<b>78</b>	<b>28</b>	<b>\$3,940</b>	<b>\$24,385</b>	<b>\$14,118</b>	<b>\$9,730</b>

Source: IPEDS, JBLA analysis. Eastern Virginia Med. School has no undergraduate program

Table 29 shows the net price of attendance at four-year public colleges and universities as a percent of disposable personal income compared with the national average. This calculation shows how much of families' disposable income would need to be used to pay college costs after all grant aid is taken into consideration. This provides a relative measure of affordability and indicates that on average, a family in Virginia would have to pay roughly 45 percent of their income remaining after they had paid for necessities. In 2011, that was higher than national averages after a decade of being equal to, or lower than, the average.

**Table 29. Average undergraduate charge at public four-year institutions as a percentage of disposable personal income: 2000–2011**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
<b>United States</b>	31.8	32.3	33.1	34.1	35.2	36.5	36.5	37	37.1	40.9	41.8	42.9
<b>Virginia</b>	32.2	30.9	30.5	30.9	33.5	34.2	34.2	35	35.6	38.8	39.7	44.6

NOTES: The national average for the United States is from the *Digest of Education Statistics*. Average charges are for full-time equivalent students but are not adjusted for student residency. Average charges include tuition, fees, room, and board.

SOURCE: National Science Foundation, <http://www.nsf.gov/statistics/seind14/index.cfm/state-data/table.htm?table=27> IPEDS (various years); Bureau of Economic Analysis, State and Local Personal Income data.

**Conclusion: the net price of attendance for low-income students varies a great deal among public four-year universities in Virginia. The two most selective institutions with the smallest share of Pell Grant recipients offers low-income students the lowest net price. This raises questions of affordability for low-income students attending the universities that are most likely to accept them.**

## Student Aid

State provided student aid per full-time undergraduate has varied between \$391 and \$839 in the period shown. In 2011, the state provided \$661 per student, well below the national average of \$858.

**Table 30. State expenditures on student aid/undergraduate enrollment at four-year institutions (\$)**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
<b>United States</b>	55.3	61.3	64.8	64.4	69.2	75.8	78.5	81.8	83.9	82.8	83.8	85.8
<b>Virginia</b>	39.2	63.9	59.4	57	54.6	58.8	60.6	65.2	72.7	71.3	69.7	66.1

SOURCE: National Science Foundation, <http://www.nsf.gov/statistics/seind14/index.cfm/state-data/table.htm?table=29>, National Association of State Student Grant and Aid Programs, Annual Survey Report (various years); National Center for Education Statistics, Integrated Postsecondary Education Data System (various years).

NASSGAP reports that Virginia awarded a total of \$224.2 million to students in 2011-12, \$206 million of that went to undergraduates. The purpose of the *Virginia Commonwealth Award* is to assist undergraduate students with financial need and graduate students to pay part of their college costs. The funds are appropriated directly to each state-supported institution. Institutions may use funds for need-based grants to Virginia resident undergraduates or for grants or assistantships to graduate students (both in state and out-of-state). The law requires that the awards to undergraduates be proportional to need so that the students with the greatest need receive the largest awards.

The *Virginia Guaranteed Assistance Program (VGAP)* is awarded to financially needy students currently attending elementary and secondary schools in Virginia to raise their expectations and their academic performance and to consider higher education an achievable objective. The law requires that the awards to undergraduates be proportional to need so that the students with the greatest need receive

the largest awards. The public institution makes the award. Public institutions in the state also provided another \$197.5 million in tuition waivers.

The state provides support to Virginia citizens attending private, not-for-profit colleges in the state through the Tuition Assistance Grant (TAG) program. TAG provided \$56.6 million to students last year. This is not a need-based program. All eligible students receive the award. Taken all together, the state provided \$426.5 million in student aid of different types in 2011.

NASSGAP ranks Virginia 21<sup>st</sup> in total state grant dollars/population 18 to 24, 23<sup>rd</sup> by undergraduate grant dollars/undergraduate FTE, and 21<sup>st</sup> by number of awards/FTE. This puts the state just above the national midpoint on these measures.

**Conclusion: Public institutions award state student aid to needy students with few state requirements. All students who are Virginia citizens in private, not-for-profit colleges and universities receive a state grant regardless of need. Student aid is an important tool in providing affordability, but the current process makes it difficult to assure that state residents with the most need will always get an award appropriate to their need.**

### Debt burden of graduates

Student loans, mostly provided by the federal government, have become an increasingly important part of the college finance picture. The issue of debt burden is an important consideration for students and it has implications in students' lives long after they graduate. Simply put, debt burden is the amount of income that a borrower will have to pay as a percent of their income. Generally, the burden is greatest when a young graduate is just starting out after college. The burden may be even greater for a student who borrows but does not graduate.

Seven in 10 college seniors nationally (71 percent) who graduated in 2012 had student loan debt, with an average of \$29,400 per borrower. The average debt of students graduating from either a public or a non-profit institution with a bachelor degree in Virginia was \$25,017. It is estimated that 60 percent of the graduates in Virginia leave college needing to repay a loan ([http://projectonstudentdebt.org/state\\_by\\_state-data.php](http://projectonstudentdebt.org/state_by_state-data.php)). The average debt of borrowers at graduation in Virginia's public four-year colleges ranges from \$38,600 at Longwood University to a low of \$21,900 for students graduating from UVA-Wise.

Students in community colleges borrow less frequently and borrow less, given the shorter enrollment period, lower price of attendance and loan maximum limits that are imposed on lower-division students. The following tables report the amount owed at graduation for students who have prepared for a vocation and those who plan to continue their education. Those continuing will probably continue to borrow as upper-division students, so the amount shown here will only be part of their debt.

**Table 31. Mean debt of student borrowers at public four-year institutions 2011-12**

<b>Public 4-years</b>	<b>Mean Debt of Student Borrowers at Graduation 2011-12</b>
Christopher Newport University	\$ 31,690
College of William and Mary	\$ 32,423
George Mason University	\$ 26,940
James Madison University	\$ 36,496
Longwood University	\$ 38,608
Norfolk State University	\$ 35,662
Old Dominion University	\$ 28,481
Radford University	\$ 27,880
University of Mary Washington	\$ 28,368
University of Virginia	\$ 26,979
University of Virginia's College at Wise	\$ 21,937
Virginia Commonwealth University	\$ 31,948
Virginia Military Institute	\$ 28,551
Virginia Poly Tech. Institute & State University	\$ 31,994
Virginia State University	\$ 36,061

Sources: Net Price: College Scorecard. (2011-12).

<http://collegecost.ed.gov/scorecard/SearchResult.aspx?nr=75>) Mean Debt: SCHEV. (2011-12).

<http://research.schev.edu/apps/info/Reports.Guide-to-the-Graduate-Debt-Reports.ashx>.

**Table 32. Mean debt of student borrowers at public two-year institutions 2011-12**

<b>Public 2-year</b>	<b>Mean Debt of Student Borrowers at Graduation (Bachelor Credit)</b>	<b>Mean Debt of Student Borrowers at Graduation (Occupational/Technical Credit)</b>
Rappahannock Community College	\$ 15,202	\$ -
Richard Bland College	?	?
Northern Virginia Community College	\$ 12,041	\$ 15,840
Southside Virginia Community College	\$ 11,331	\$ -
Blue Ridge Community College	\$ 12,876	\$ 13,872
Southwest Virginia Community College	\$ -	\$ -
Piedmont Virginia Community College	\$ 8,648	\$ 17,600
Paul D Camp Community College	\$ -	\$ -
Germanna Community College	\$ 9,160	\$ 11,871
John Tyler Community College	\$ 13,432	\$ 15,687
Thomas Nelson Community College	\$ 11,727	\$ 12,477
J Sargeant Reynolds Community College	\$ 12,744	\$ 17,301
Virginia Western Community College	\$ 11,909	\$ 17,276
Virginia Highlands Community College	\$ -	\$ -
Lord Fairfax Community College	\$ 8,344	\$ 7,398
Danville Community College	\$ 7,943	\$ 5,923
Patrick Henry Community College	\$ 8,891	\$ 8,953
Tidewater Community College	\$ 11,057	\$ 12,823
New River Community College	\$ 11,465	\$ 12,348
Eastern Shore Community College	\$ -	\$ -
Mountain Empire Community College	\$ -	\$ -
Dabney S. Lancaster Community College	\$ 11,754	\$ 14,666
Central Virginia Community College	\$ 9,933	\$ -
Wytheville Community College	\$ 6,575	\$ 6,390

Sources: Net Price: College Scorecard. (2011-12).

<http://collegecost.ed.gov/scorecard/SearchResult.aspx?nr=75> Mean Debt: SCHEV. (2011-12).

<http://research.schev.edu/apps/info/Reports.Guide-to-the-Graduate-Debt-Reports.ashx>.

**Conclusion: Increasing student debt is a reflection of price of attendance increasing faster than family ability to pay. Loan debt of graduates in Virginia is lower on average than is the national debt.**

### Section summary

Assuring that the average family from the Southwest part of the state with an average income of \$36,000 could send his or her daughter to a public four-year university in the state would, at best take nearly 15 percent of their income or at worst over a third. The only option available to that family would

be loans. That would mean that student would graduate with a debt of at least \$21,000 while the student of the Northern Virginia family with an income over \$100,000 would probably be able to graduate debt free. It should not be the goal of public higher education finance to burden the future income of the lowest income students in the state.

## Sustainability

Over the last five years, state funding per FTE student has slipped 28.3 percent in constant dollars. In 2008, the state provided \$6,341 per FTE and by 2013 that was \$4,545.<sup>6</sup> This period includes the recession; however, Virginia’s large federal government employment base sheltered the state from experiencing as deep a cut as other states.<sup>7</sup>

The following table shows the decline in state funds going to higher education in Virginia. The national average of appropriations of state tax funds for operating expenses as a percent of GDP has slipped from .57 to .46, but Virginia has dropped to .36, with the biggest drop coming in two periods, 2003 and 2010. Virginia has fallen behind the nation.

**Table 33. Appropriations of state tax funds for operating expenses of higher education as a percentage of gross domestic product, by state: 2000–2012**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
<b>United States</b>	57	61	60	57	53	52	53	54	57	56	51	50	45
<b>Virginia</b>	57	58	58	46	41	42	43	48	47	47	41	39	35

SOURCES: National Science Foundation, <http://www.nsf.gov/statistics/seind14/index.cfm/state-data/table.htm?table=28>, State Higher Education Executive Officers College Board, State Higher Education Finance (various years); Bureau of Economic Analysis, Gross Domestic Product data (June 2013).

Not only is state support for higher education sinking, but it is also below average on key measures. According to SCHEV, Virginia support for higher education lags national averages on every important measure of support for higher education.

- Higher education support per capita VA= .85 to U.S.=1
- Higher education support per \$1,000 personal income VA=.76 to U.S.=1
- Allocation of state tax returns and lottery profit to higher education VA=5.8% to U.S.=6.8%

Maryland, on the other hand, is at or above national averages on all of these measures.

<sup>6</sup> SHEEO, State Higher Education Finance, FY2012

<sup>7</sup> A Tale of Two Labor Markets: Government Spending’s Impact on Virginia By Keith Hall and Robert Greene, September 2013, Mercatus Center at George Mason University

**Conclusion: The state support for higher education in Virginia lags national averages in every category and support has been declining at a relatively sharp rate. This decline took place as enrollment increased. Having adequate and predictable funding is important to the orderly operation of universities and colleges.**

## Salaries

Nationally, salaries in four-year public colleges that offer a master's degree, but no doctorate were \$66,037 in 2012-13. The national average for doctoral granting universities was \$81,902. Salaries can change over time due to retirement and hiring. In several Virginia public colleges and universities, salaries of full-time faculty have declined in this last year.

**Table 34. Faculty salaries of full-time faculty in Virginia public four-year institutions (9-10 month contract)**

Rank	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	% change 2005-06 to 2012-13
U of Virginia-Main Campus	\$91,935	\$95,908	\$100,308	\$101,656	\$104,497	\$107,528	\$112,185	\$106,017	15.32%
George Mason U	\$79,247	\$84,993	\$88,587	\$88,055	\$88,645	\$89,225	\$91,883	\$91,117	14.98%
College of William and Mary	\$82,107	\$83,058	\$88,037	\$88,583	\$86,133	\$85,764	\$90,659	\$87,786	6.92%
Virginia Polytechnic Institute and State U	\$77,509	\$80,714	\$83,626	\$84,624	\$83,333	\$82,068	\$84,432	\$83,171	7.3%
Old Dominion U	\$64,543	\$67,586	\$69,373	\$71,359	\$71,668	\$71,940	\$74,404	\$76,040	17.81%
Virginia Military Institute	\$67,841	\$70,226	\$72,708	\$73,569	\$73,618	\$72,409	\$73,891	\$74,559	9.9%
James Madison U	\$59,224	\$61,925	\$66,729	\$66,235	\$66,765	\$66,188	\$67,090	\$68,821	16.2%
Radford U	\$58,872	\$60,944	\$61,496	\$64,146	\$63,681	\$63,270	\$65,551	\$67,980	15.47%
U of Mary Washington	\$57,527	\$61,105	\$65,193	\$65,917	\$67,426	\$66,867	\$67,243	\$67,458	17.26%
Christopher Newport U	\$63,845	\$66,531	\$69,236	\$68,129	\$68,137	\$66,856	\$66,599	\$66,009	3.39%
Virginia State U	\$58,575	\$59,353	\$62,430	\$62,942	\$64,678	\$64,153	\$64,117	\$65,669	12.11%
Norfolk State U	\$57,254	\$58,308	\$60,646	\$63,783	\$64,655	\$65,094	\$66,520	\$65,668	14.7%
Longwood U	\$52,199	\$55,097	\$57,433	\$59,421	\$59,295	\$60,401	\$59,778	\$61,510	17.84%
Virginia Commonwealth U	\$68,779	\$71,512	\$73,039	\$73,394	\$73,056	\$71,427	\$72,638	\$61,361	-10.79%
The U of Virginia's College at Wise	\$52,251	\$54,226	\$56,638	\$57,640	\$56,791	\$57,735	\$57,941	\$58,421	11.81%
<b>Average</b>	<b>\$71,601</b>	<b>\$74,722</b>	<b>\$77,935</b>	<b>\$78,739</b>	<b>\$79,044</b>	<b>\$78,942</b>	<b>\$81,096</b>	<b>\$80,398</b>	<b>12.29%</b>

Source: National Education Association's College and University Data Analysis System (CUDAS):  
<http://cudas.nea.org/reports/reportselection.aspx>

Northern Virginia Community college salaries dominate the average salary in the state given the size of their faculty. Northern Virginia CC faculty also has the highest average salary among the community colleges in the state. Nationally, full-time community college faculty members were paid an average of

\$62,443 in 2012-13. With the exception of Northern Virginia, average community college salaries in the Commonwealth are below the national average.

**Table 35. Faculty salaries of full-time faculty in Virginia Community Colleges (9-10 month contract)**

Rank	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	% Change 2005-06 to 2012-13
Northern Virginia CC	\$52,107	\$55,410	\$59,601	\$62,494	\$61,852	\$61,016	\$62,823	\$63,546	22.0%
New River CC	\$49,516	\$53,142	\$57,066	\$59,277	\$58,858	\$59,170	\$61,490	\$61,252	23.7%
Piedmont Virginia CC	\$50,366	\$51,286	\$55,200	\$58,014	\$57,924	\$57,949	\$58,834	\$58,409	16.0%
Tidewater CC	\$46,600	\$49,637	\$53,532	\$56,994	\$57,042	\$56,940	\$58,104	\$57,949	24.4%
Thomas Nelson CC	\$45,925	\$49,520	\$52,275	\$54,478	\$54,760	\$53,549	\$53,889	\$57,851	26.0%
John Tyler CC	\$46,280	\$49,697	\$53,172	\$57,472	\$57,387	\$56,826	\$58,259	\$57,656	24.6%
Richard Bland College	\$52,879	\$52,729	\$53,591	\$56,461	\$55,425	\$54,434	\$55,960	\$57,446	8.6%
Virginia Highlands CC	\$48,614	\$51,535	\$54,842	\$56,848	\$56,400	\$56,209	\$56,874	\$57,374	18.0%
J Sargeant Reynolds CC	\$49,177	\$51,385	\$54,151	\$57,278	\$56,663	\$56,740	\$57,483	\$57,161	16.2%
Dabney S Lancaster CC	\$46,107	\$49,280	\$52,589	\$55,984	\$55,896	\$56,578	\$56,787	\$56,825	23.3%
Lord Fairfax CC	\$46,028	\$49,066	\$52,712	\$54,756	\$55,398	\$54,483	\$56,489	\$56,770	23.3%
Paul D Camp CC	\$49,005	\$50,711	\$53,484	\$56,163	\$56,022	\$55,258	\$57,680	\$56,553	15.4%
Danville CC	\$47,841	\$50,137	\$51,635	\$53,920	\$53,596	\$54,108	\$55,769	\$56,173	17.4%
Southside Virginia CC	\$47,241	\$50,577	\$52,651	\$55,470	\$55,089	\$55,713	\$57,155	\$56,030	18.6%
Germanna CC	\$46,010	\$47,830	\$50,260	\$54,344	\$54,352	\$54,968	\$56,560	\$55,605	20.9%
Blue Ridge CC	\$48,303	\$50,756	\$52,836	\$55,107	\$55,634	\$54,897	\$55,633	\$55,068	14.0%
Wytheville CC	\$45,959	\$48,424	\$51,235	\$54,834	\$54,033	\$53,911	\$56,603	\$55,009	19.7%
Central Virginia CC	\$48,938	\$51,912	\$54,186	\$55,638	\$55,621	\$55,137	\$55,914	\$54,776	11.9%
Virginia Western CC	\$46,386	\$49,464	\$51,220	\$53,905	\$54,108	\$54,345	\$55,288	\$54,689	17.9%
Mountain Empire CC	\$46,970	\$50,449	\$53,357	\$56,684	\$55,526	\$55,226	\$53,904	\$53,593	14.1%
Eastern Shore CC	\$45,725	\$48,336	\$49,684	\$52,228	\$52,619	\$51,893	\$54,771	\$53,315	16.6%
Southwest Virginia CC	\$48,079	\$50,318	\$52,883	\$54,884	\$53,901	\$52,458	\$53,853	\$53,221	10.7%
Rappahannock CC	\$44,829	\$46,894	\$49,039	\$51,763	\$51,609	\$51,550	\$52,502	\$52,759	17.7%
Patrick Henry CC	\$46,287	\$48,963	\$51,842	\$54,834	\$53,626	\$52,497	\$52,579	\$52,360	13.1%
<b>Average</b>	<b>\$48,659</b>	<b>\$51,509</b>	<b>\$54,764</b>	<b>\$57,742</b>	<b>\$57,503</b>	<b>\$57,158</b>	<b>\$58,443</b>	<b>\$58,644</b>	<b>20.5%</b>

Source: National Education Association's College and University Data Analysis System (CUDAS).  
<http://cudas.nea.org/reports/reportselection.aspx>.

## Section summary

Salaries comprise the majority share of the cost of higher education. JLARC studies suggest that instruction has not been the main cost driver of increasing cost. Increased regulation, fund raising and developing alternative revenue streams for colleges and universities to compensate for declining state support all add to increased costs.

## Economic impact of Higher Education

It may help to think of Virginia higher education in terms of a state investment instead of as an expenditure. The economic activity related to Virginia public higher education stems from the expenditures made by the institutions, foundations, students, and visitors as well as human capital improvements measured by increased productivity and earnings of graduates who enter and stay in the state workforce. In 2009, the *Study of the Economic Impact of Virginia Public Higher Education* for The Virginia Business Higher Education Council, found that the total economic footprint attributable to one year of higher education operations in Virginia was \$24 billion in Virginia gross domestic product expressed as 2007 dollars. Public higher education operations accounted for 144,550 total Virginia jobs.

**Conclusion: Higher education in Virginia makes a positive impact on the economy as an employer and purchaser of local goods, by improving the human capital of the state, and supporting research necessary for progress.**

## Research

Virginia is ranked first in the number of high tech jobs per 1,000 private sector workers and first in the number of scientists and engineers as a percent of the workforce, but it is 41st in academic R&D per \$1,000 of gross domestic product. By every measure, academic research lags in the state relative to the needs of the economy.

Public universities have two missions. The first is to produce research that contributes to the discipline and the world. Along with this is responsibility to train the next generation of scholars and researchers. Success at these efforts results in prestige of the university.

The second mission is to serve the interests of the state and community in which the university is located. This mission has to do more with undergraduate programs and providing opportunity to a wide range of students. These two missions are hard to balance. The following table using data from NSF and the U.S. Department of Education provides indicators of how well public research universities in Virginia are accomplishing both missions. Standard measures of prestige among research universities include research dollars, admission selectivity, degrees conferred, faculty awards, academy members and post-docs.

In addition, the table shows the degree to which the universities serve broader equity goals as measured by access to a broad range of applicants, number of degrees conferred to minority students, low-income student net price and number of Pell recipients.

**Table 36. Leading Virginia research university characteristics**

Institution	Total Research 2010 x 1000	Federal Research 2010 x 1000	Admission Rate Fall 2012-13	Bachelor Degree 2011-12	Masters 2011-12	Doctorates 2011-12	Minority BA Degree 2011-12	Low Income Students' Net Price 2011-12	Pell Recipients 2011-12	Graduation Rate 150% normal time 4 year institutions 2012	Faculty Awards 2011	Academy Members 2011	Postdocs 2010
Virginia Polytechnic Institute and State U	\$ 393,888	\$ 161,636	70%	5,825	1,603	560	860	11,775	4,168	4,202	13	14	200
U of VA-Main Campus	\$ 271,843	\$ 224,607	30%	3,726	1,742	904	922	4,405	1,955	2,872	16	29	396
Virginia Commonwealth University	\$ 176,422	\$ 125,713	65%	4,625	1,740	748	1,580	13,672	6,767	1,934	11	4	242
George Mason U	\$ 77,966	\$ 59,591	55%	4,718	2,899	428	1,637	12,120	5,853	1,576	2	2	28
Old Dominion U	\$ 76,710	\$ 30,534	74%	3,715	1,143	208	1,066	9,244	6,189	1,010	2	0	32
College of William and Mary	\$ 51,453	\$ 22,478	32%	1,460	578	260	323	3,528	713	1,205	4	0	31
Eastern Virginia Medical School*	\$ 44,420	\$ 29,291	N/R	N/A	164	116	N/A	N/R	N/R	N/R	0	0	19
Virginia State U	\$ 6,907	\$ 5,080	84%	836	135	3	774	10,812	3,888	364	0	0	0
Virginia Military Institute	\$ 825	\$ 451	46%	305	N/A	N/A	54	5,137	276	276	0	0	0

Note: \*Included because institution receives federal research funding  
Sources: IPEDS datacenter and NSF MUP Center

Table 37 shows the results of our analysis of research funding per faculty member. These are un-weighted averages calculated by dividing each state’s total research and development expenditures by the total number of nonmedical faculty in the state. On this metric, Virginia lags behind all of the peer groups by a sizable margin.

**Table 37. Total expenditures on research and development per nonmedical faculty member**

State(s)	R&D expenditures per faculty member
Virginia	\$75.89
Bordering States Peer Group	\$114.26
Bordering States Peer Group (excl. MD)	\$82.79
SREB Peer Group	\$93.96
JBLA Identified Peer Group	\$99.16

Note: Faculty members defined as the number of full-time, non-medical, instructional staff - total as of November 1, on 9, 10, 11 or 12-month contracts.  
Source: National Science Foundation, National Center for Science and Engineering Statistics, Higher Education Research and Development Survey, FY 2012; IPEDS, Spring 2013, Human Resource survey, Salaries section

Virginia lags in funding research universities in the state compared with the national average. This has been true for the decade. According the National Science Foundation, state funding per full-time equivalent student lagged national averages by \$5,000 a student in 2010. That gap has been increasing over the decade.

**Table 38. State funding for public research universities per FTE student by state: 2000-2010**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
<b>United States</b>	10,567	11,131	12,431	11,932	11,576	11,926	12,432	13,195	14,042	13,514	12,810
<b>Virginia</b>	8,663	9,249	9,809	8,714	7,715	8,279	8,766	9,855	9,752	8,941	7,752

SOURCE: National Science Foundation, <http://www.nsf.gov/statistics/seind14/index.cfm/state-data/table.htm?table=30>, IPEDS Analytics; Delta Cost Project Database: 2000-2010.

### Research university faculty salaries

The following table shows the average salaries paid to full-time instructional faculty in research universities who work on a 9-10 month contract. This is the standard for full-time faculty. The trend from 2005-06 until 2012-13 is reported in current dollars, so part of the increase reflects inflation over the years. The peer group is the standard used by SCHEV. The average faculty salary for the peer group was \$107,024 in 2012-13. None of the Virginia university salaries were at the average. Salaries in three of the Virginia universities were below the lowest salary paid in any of the peer institutions.

**Table 39. Faculty salaries in peer group universities and in Virginia research universities**

SCHEV PEER GROUP	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	% Change 2005-06 to 2012-13
Buffalo State SUNY	\$60,893	\$63,143	\$64,027	\$68,011	\$70,948	\$74,260	\$75,242	\$73,815	21.22%
U of Nebraska-Lincoln	\$75,506	\$77,707	\$80,441	\$84,283	\$86,667	\$85,928	\$86,943	\$83,484	10.57%
U of Pittsburgh- Pittsburgh Campus	\$79,335	\$81,472	\$82,114	\$85,411	\$85,182	\$87,290	\$89,756	\$88,014	10.94%
U of Arizona	\$79,149	\$82,667	\$86,003	\$86,732	\$87,613	\$88,979	\$89,791	\$90,375	14.18%
U of Colorado Boulder	\$79,298	\$81,809	\$86,388	\$86,058	\$86,199	\$84,988	\$89,908	\$91,044	14.81%
U of Florida	\$82,440	\$82,163	\$82,470	\$84,898	\$85,596	\$90,568	\$91,756	\$91,729	11.27%
Tulane U of Louisiana	\$70,934	\$64,393	\$61,336	\$82,083	\$84,608	\$86,917	\$91,605	\$92,210	29.99%
U of Washington-Seattle Campus	\$103,835	\$109,043	\$88,846	\$93,022	\$93,669	\$94,068	\$94,643	\$92,454	-10.96%
U of Wisconsin-Madison	\$85,082	\$86,774	\$89,151	\$93,036	\$93,988	\$96,710	\$97,596	\$92,973	9.27%
U of Iowa	\$77,372	\$82,295	\$88,130	\$92,021	\$91,882	\$92,203	\$92,785	\$93,702	21.11%
U of Maryland-College Park	\$86,054	\$89,253	\$92,696	\$97,364	\$98,620	\$97,254	\$97,897	\$97,589	13.40%
U of Illinois at Urbana- Champaign	\$87,126	\$89,970	\$92,619	\$94,616	\$94,280	\$97,439	\$100,681	\$102,229	17.33%
The U of Texas at Austin	\$84,090	\$87,822	\$92,258	\$96,056	\$96,332	\$99,973	\$102,251	\$103,522	23.11%
U of North Carolina at Chapel Hill	\$86,720	\$94,688	\$101,982	\$106,399	\$105,655	\$105,278	\$104,672	\$106,859	23.22%
Emory U	\$105,754	\$110,212	\$97,318	\$105,001	\$107,584	\$108,099	\$111,238	\$109,378	3.43%
Rutgers U-New Brunswick	\$89,741	\$94,496	\$98,156	\$104,273	\$108,235	\$109,708	\$110,938	\$113,014	25.93%
U of Michigan-Ann Arbor	\$94,009	\$96,599	\$100,820	\$105,120	\$107,365	\$109,430	\$111,554	\$113,639	20.88%
Vanderbilt U	\$91,628	\$98,153	\$101,327	\$103,389	\$101,276	\$106,880	\$109,587	\$118,186	28.98%
U of Southern California	\$98,078	\$101,985	\$105,628	\$109,213	\$109,952	\$114,536	\$118,152	\$118,216	20.53%
Duke U	\$97,755	\$103,732	\$106,836	\$112,135	\$112,715	\$114,671	\$118,251	\$119,173	21.91%
Washington U in St Louis	\$94,867	\$100,239	\$105,235	\$112,533	\$112,159	\$115,897	\$119,998	\$120,977	27.52%
Cornell U	\$106,417	\$108,185	\$112,578	\$117,831	\$118,550	\$121,018	\$124,858	\$121,895	14.54%
U of California-Los Angeles	\$106,216	\$110,085	\$114,545	\$119,733	\$125,634	\$127,667	\$133,447	\$134,281	26.42%
U of Pennsylvania	\$124,167	\$129,632	\$134,707	\$124,239	\$124,679	\$128,502	\$132,785	\$135,879	9.43%
<b>Average</b>	<b>\$91,297</b>	<b>\$94,760</b>	<b>\$97,032</b>	<b>\$100,604</b>	<b>\$101,745</b>	<b>\$103,882</b>	<b>\$106,474</b>	<b>\$107,024</b>	<b>17.23%</b>
<b>4 Year Public Research Institutions VA</b>									
Virginia Polytechnic Institute and State U	\$77,509	\$80,714	\$83,626	\$84,624	\$83,333	\$82,068	\$84,432	\$83,171	7.30%
U of Virginia-Main Campus	\$91,935	\$95,908	\$100,308	\$101,656	\$104,497	\$107,528	\$112,185	\$106,017	15.32%
Virginia Commonwealth U	\$68,779	\$71,512	\$73,039	\$73,394	\$73,056	\$71,427	\$72,638	\$61,361	-10.79%
Note: The U.S. Department of Education did not collect Benefits data for the 2011-12 academic year.									
Source: National Education Association's College and University Data Analysis System (CUDAS): <a href="http://cudas.nea.org/reports/reportsselection.aspx">http://cudas.nea.org/reports/reportsselection.aspx</a>									

**Conclusion: By every measure, Virginia academic research lags its peers in support and state funding for research universities lags national averages. It is difficult to believe that university research in Virginia will reach top 10 levels unless adequate resources are available and salaries are adequate to attract and keep the best candidates to develop and lead new research.**

### Faculty racial/ethnic characteristics

Commitment to equity is part of the core beliefs of most colleges and universities. Not all of the public institutions in Virginia report faculty by race/ethnicity, but of those institutions that did in Virginia the range was between 69 percent and 5 percent.

**Table 40. Percent of full-time faculty at public four-year colleges and universities that identifies as American Indian or Native Alaskan, Asian, Black/African American, Hispanic or Latino, Native Hawaiian or Pacific Islander, or two or more races**

Institution	FT instructional faculty	# Minority	%
College of William and Mary <sup>1</sup>	.		Not reported
Christopher Newport U	258	25	9.7%
Eastern VA Medical School <sup>1</sup>	.		Not reported
George Mason U <sup>1</sup>	1226	190	15.5%
James Madison U <sup>1</sup>	940	78	8.3%
Longwood U	221	15	6.8%
U of Mary Washington	244	35	14.3%
Norfolk State U* <sup>1</sup>	.		Not reported
Old Dominion U	761	145	19.1%
Radford U	411	40	9.7%
The U of VA College at Wise	.		Not reported
VA Polytechnic Institute and State U	1710	275	16.1%
VA Commonwealth U	.		Not reported
U of VA-Main Campus <sup>1</sup>	1807	242	13.4%
VA Military Institute	122	6	4.9%
VA State U	284	196	69.0%
<b>Average</b>	<b>726</b>	<b>113</b>	<b>17%</b>

\* Historically Black College or University <sup>1</sup> Classified as a research university

Source: IPEDS Data Center. (2012-13). JBL analysis.

**Conclusion: There is significant variance among public colleges and universities in the racial/ethnic composition of the faculty, even putting aside the HBCUs. A faculty that is sensitive to the life experiences of an increasingly diverse student body should be a consideration in preparing for the future.**

Community colleges in Virginia have a higher proportion of minority students than is found in public four-year institutions. The ethnic/racial diversity of the full-time faculty varies among the colleges, but the average for the state is 12 percent, which is below the average for the public four-year institutions.

**Table 41. Percent of full-time faculty at public two-year colleges and universities that identifies as American Indian or Native Alaskan, Asian, Black/African American, Hispanic or Latino, Native Hawaiian or Pacific Islander, American or two or more races.**

Institution Name	%
Blue Ridge CC	4.1%
Central Virginia CC	11.5%
Dabney S Lancaster CC	4.5%
Danville CC	7.9%
Eastern Shore CC	9.5%
Germanna CC	14.3%
J Sargeant Reynolds CC	19.1%
John Tyler CC	19.2%
Lord Fairfax CC	1.4%
Mountain Empire CC	4.5%
New River CC	8.8%
Northern Virginia CC	27.4%
Patrick Henry CC	9.4%
Paul D Camp CC	38.9%
Piedmont Virginia CC	9.5%
Rappahannock CC	11.5%
Richard Bland College	Not reported
Southside Virginia CC	13.0%
Southwest Virginia CC	2.0%
Thomas Nelson CC	18.3%
Tidewater CC	13.9%
Virginia Highlands CC	3.5%
Virginia Western CC	3.5%
Wytheville CC	2.2%
<b>Average</b>	<b>12.0%</b>

Source: IPEDS Data Center. (2012-13). JBLA analysis.

## Partnerships with business and communities

The private business community is an important partner with higher education in Virginia. The following summary of a Lumina study represents what respondents to a national survey of business leaders said about higher education. The results suggest that not many business leaders are involved with higher education institutions, but would welcome closer ties. They do not have much confidence in the skills of graduates, but are even more suspect of online education graduates. Initial hires of college graduates are made based on work skills.

- Seven in 10 leaders say they would consider hiring someone without a degree or credential over someone with one.
- Just 13% of business leaders say higher education institutions collaborate with business a great deal.
- Most leaders (88%) favor an increased level of collaboration with higher education institutions
- About one in ten business leaders strongly agree that higher education institutions in this country are graduating students with the skills and competencies their business needs.
- Just (14%) of executives say they are very likely to hire a candidate who has a degree from an online higher education over a candidate with a traditional higher education.
- Business leaders were most likely to indicate the amount of knowledge a candidate has in the field is a very important factor to managers making hiring decisions for organizations.
- For business leaders, work skills top the list of factors that should drive immigration policy decisions.<sup>8</sup>

### Examples of employer/higher education partnerships in Virginia

Goodwill of Greater Washington (GGW) works closely with local employers to develop in-depth programs that prepare people for jobs in specific industries, such as banking, building maintenance and environmental services, retail and construction. In addition to formal classroom training, GGW often prepares clients for permanent jobs through a combination of supported, temporary or transitional employment at a Goodwill facility or in the community. Completion of Goodwill training can earn students up to 5 credits at Northern Virginia Community College.

Center for Innovative Technology (CIT)—The Commonwealth Research Commercialization Fund (CRCF) advances science- and technology-based research, development, and commercialization to drive economic growth in Virginia. In support of these goals, former Governor McDonnell and the General Assembly appropriated \$4.8 million to the Fund each for FY2013 and for FY2014. - See more at: <http://www.cit.org/initiatives/crcf/#sthash.UlfOssuS.dpuf>

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<sup>8</sup> The 2013 Lumina Study of the American Public's Opinion on Higher Education and U.S. Business Leaders Poll on Higher Education What America Needs to Know About Higher Education Redesign, February 25, 2014

A more extensive list of research and education centers along with research parks associated with Virginia universities is included in the appendix.

CIT has devised a measure of Virginia’s progress in developing and finding talent for an expanding high tech employment market. The measures include the net gain in college educated knowledge workers, graduates in STEM fields, entrepreneurship degree programs, the degree to which the high-tech industry is concentrated or specialized in Virginia relative to the nation, and FIRST participation. FIRST is an organization that creates programs to motivate students aged six to 18 to pursue STEM education and career opportunities. Figure M shows the most recent scores on these measures.

**Figure M. Virginia’s talent pipeline**

Indicator	1-Year Trend
Knowledge Worker Migration (2012)	↓
STEM Degrees (2012)	↑
Entrepreneurship Training	—
High-Tech Employment Concentration (LQ) (2012)	→
FIRST Participation (2012)	↑

This indicator has not been updated since 2012, so it may not be a helpful tool for planners and managers who are concerned with tracking progress on these trends.

**Conclusion: Business leaders are interested in partnerships with higher education institutions and there are structures in place where that can happen, but it will need to take place at the local level to be most meaningful.**

## Conclusion and summary

Higher education in Virginia will operate in a changing environment. More minority students will be coming to the doors of the colleges, many of whom have not had the same level of education success or the same life experiences as better-off White students. This change will take place in a period of little increase in the state's college age population.

The regional diversity of Virginia provides a different context defined in terms of what is needed from colleges and universities. The headquarter companies and federal agencies in Northern Virginia need a different mix of trained employees than the smaller towns and rural areas of Virginia. College leaders will need to continue to be sensitive to local needs as well as larger state needs.

Technology will continue to change how education is delivered. Distance education has the potential to make education available to more students who need the flexibility to fit their education with work and family. On campus, technology has the potential to allow students to finish course work more quickly than traditional classes while maintaining the same educational standards.

State support of higher education in Virginia has been declining with associated increases in tuition and fees. This raises two issues. One is finding a way to keep college affordable. The price of education at a four-year public college or university is beyond the ability of the average family to pay, even with student grants to help. There is an upper limit to how much students can borrow to close the gap between the price of attendance and what families can pay.

Second, the erosion of state support over the last several years threatens the capacity of public colleges and universities to attract and maintain the talent necessary to remain competitive with universities in other states. Human resources are the main expense in colleges and universities and having the talent necessary for breakthrough research and effective teaching is an important issue for Virginia's colleges and universities.

There is little argument that higher education is important to Virginia. Universities and colleges need to continue to develop meaningful partnerships with high schools to help improve the preparation of incoming students and, at the same time, forge working relationships with employers to make sure graduates at all levels have the skills necessary to succeed. Meeting the needs of the community and the students should be an important goal of higher education in the state.

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## **Appendix A. List of accredited postsecondary institutions operating in Virginia, JBLA**

It is difficult to agree on a standardized list of postsecondary institutions in any given state.

Organizations may use different criteria to determine which institutions are included or excluded from the final count. For the purposes of this report, we use IPEDS' list of postsecondary institutions in Virginia. In most cases, the list is used throughout the report to define institutional characteristics and measures such as sector and tuition and fees. Please note the following characteristics of the IPEDS list:

- IPEDS includes all separately accredited campuses in a multi campus system rather than reporting the single main institution.
- IPEDS does not include institutions ineligible for Title IV federal funding.
- IPEDS does not include branch campuses of out-of-state institutions that provide programs in Virginia.
- There is lag between institutional information collected by the state and data presented by the federal government , therefore ,the status of select institutions may not be current in the IPEDS version.

The summaries and averages JBLA derived from IPEDS may differ from the same calculations if JBLA used the another institutional list. JBLA believes that the direction and magnitude of results would be generally the same, but readers should understand that these are estimates and may differ from calculations created from another list. For clarity, JBLA has provided a list of postsecondary institutions operating in Virginia derived from IPEDS' count .

**JBLA/IPEDS List of Institutions Operating in Virginia**

UNITID	Institution (entity) name	Sector	Control
<b>Private for-profit, 2-year</b>			
419022	ACT College	Private for-profit, 2-year	Proprietary
231411	Advanced Technology Institute	Private for-profit, 2-year	Proprietary
427973	Aviation Institute of Maintenance-Chesapeake	Private for-profit, 2-year	Proprietary
445762	Aviation Institute of Maintenance-Manassas	Private for-profit, 2-year	Proprietary
441858	Career Training Solutions	Private for-profit, 2-year	Proprietary
420024	Centura College-Chesapeake	Private for-profit, 2-year	Proprietary
377449	Centura College-Newport News	Private for-profit, 2-year	Proprietary
377458	Centura College-Norfolk	Private for-profit, 2-year	Proprietary
427982	Centura College-Richmond Main	Private for-profit, 2-year	Proprietary
440378	Centura College-Richmond Westend	Private for-profit, 2-year	Proprietary
455983	Columbia College	Private for-profit, 2-year	Proprietary
480505	Court Reporting Institute of Arlington	Private for-profit, 2-year	Proprietary
232724	Danville Regional Medical Center School of Health Professions	Private for-profit, 2-year	Proprietary
442310	Everest College-Arlington	Private for-profit, 2-year	Proprietary
438647	Everest College-Chesapeake	Private for-profit, 2-year	Proprietary
445470	Everest College-McLean	Private for-profit, 2-year	Proprietary
232502	Everest College-Newport News	Private for-profit, 2-year	Proprietary
233329	Fortis College-Norfolk	Private for-profit, 2-year	Proprietary
382957	Fortis College-Richmond	Private for-profit, 2-year	Proprietary
455390	Global Health College	Private for-profit, 2-year	Proprietary
475246	Kaplan College-Chesapeake	Private for-profit, 2-year	Proprietary
131742	Medtech Institute	Private for-profit, 2-year	Proprietary
475194	Miller-Motte Technical College	Private for-profit, 2-year	Proprietary
233091	Miller-Motte Technical College-Lynchburg	Private for-profit, 2-year	Proprietary
437769	Richmond School of Health and Technology	Private for-profit, 2-year	Proprietary
451608	Southeast Culinary & Hospitality College	Private for-profit, 2-year	Proprietary
233082	Southside Regional Medical Center Professional Schools	Private for-profit, 2-year	Proprietary
460923	Virginia College-Richmond	Private for-profit, 2-year	Proprietary
<b>Private for-profit, less-than 2-year</b>			
448257	Avi Career Training	Private for-profit, less-than 2-year	Proprietary
231280	Bar Palma Beauty Careers Academy	Private for-profit, less-than 2-year	Proprietary
451592	Centura College-Alexandria	Private for-profit, less-than 2-year	Proprietary
479248	Columbia College	Private for-profit, less-than 2-year	Proprietary
461449	Cosmopolitan Beauty & Tech School	Private for-profit, less-than 2-year	Proprietary

451617	Dominion School of Hair Design	Private for-profit, less-than 2-year	Proprietary
444282	Empire Beauty School-Midlothian	Private for-profit, less-than 2-year	Proprietary
450599	Empire Beauty School-Richmond	Private for-profit, less-than 2-year	Proprietary
476179	Empire Beauty School-Virginia Beach	Private for-profit, less-than 2-year	Proprietary
480329	Everest College-Woodbridge	Private for-profit, less-than 2-year	Proprietary
406495	Graham Webb International Academy of Hair	Private for-profit, less-than 2-year	Proprietary
458122	Institute of Advanced Medical Esthetics	Private for-profit, less-than 2-year	Proprietary
461412	Northern Virginia School of Therapeutic Massage	Private for-profit, less-than 2-year	Proprietary
449995	Paul Mitchell the School-Mclean	Private for-profit, less-than 2-year	Proprietary
467605	Regency Beauty Institute-Manassas	Private for-profit, less-than 2-year	Proprietary
476133	Regency Beauty Institute-Newport News	Private for-profit, less-than 2-year	Proprietary
467650	Regency Beauty Institute-Roanoke	Private for-profit, less-than 2-year	Proprietary
441876	Rudy & Kelly Academy of Hair and Nails	Private for-profit, less-than 2-year	Proprietary
233657	Springfield Beauty Academy	Private for-profit, less-than 2-year	Proprietary
233666	Staunton School of Cosmetology	Private for-profit, less-than 2-year	Proprietary
231721	Suffolk Beauty Academy	Private for-profit, less-than 2-year	Proprietary
233286	Sylvain Melloul International Hair Academy	Private for-profit, less-than 2-year	Proprietary
232919	Tidewater Tech-Trades	Private for-profit, less-than 2-year	Proprietary
476568	Tomorrow's Image Barber Academy of Virginia	Private for-profit, less-than 2-year	Proprietary
234119	Virginia School of Hair Design	Private for-profit, less-than 2-year	Proprietary
430254	Virginia School of Massage	Private for-profit, less-than 2-year	Proprietary
234191	Wards Corner Beauty Academy-Norfolk	Private for-profit, less-than 2-year	Proprietary
445683	Wards Corner Beauty Academy-Virginia Beach	Private for-profit, less-than 2-year	Proprietary
<b>Private for-profit, Public, 2-year or above</b>			
419457	Argosy University-Washington D.C.	Private for-profit, Public, 2-year or above	Proprietary
459107	Bryant & Stratton College-Hampton	Private for-profit, Public, 2-year or above	Proprietary
231828	Bryant & Stratton College-Richmond	Private for-profit, Public, 2-year or above	Proprietary
231785	Bryant & Stratton College-Virginia Beach	Private for-profit, Public, 2-year or above	Proprietary
232016	Centura College-Virginia Beach	Private for-profit, Public, 2-year or above	Proprietary
460871	Chamberlain College of Nursing-Virginia	Private for-profit, Public, 2-year or above	Proprietary
437343	DeVry University's Keller Graduate School of Management-Virginia	Private for-profit, Public, 2-year or above	Proprietary
440536	DeVry University-Virginia	Private for-profit, Public, 2-year or above	Proprietary
248934	ECPI University	Private for-profit, Public, 2-year or above	Proprietary
441964	ITT Technical Institute-Chantilly	Private for-profit, Public, 2-year or	Proprietary

		above	
368601	ITT Technical Institute-Norfolk	Private for-profit, Public, 2-year or above	Proprietary
437051	ITT Technical Institute-Richmond	Private for-profit, Public, 2-year or above	Proprietary
459602	ITT Technical Institute-Salem	Private for-profit, Public, 2-year or above	Proprietary
441955	ITT Technical Institute-Springfield	Private for-profit, Public, 2-year or above	Proprietary
232797	National College-Salem	Private for-profit, Public, 2-year or above	Proprietary
442639	Potomac College-VA Campus	Private for-profit, Public, 2-year or above	Proprietary
234216	Sanford-Brown College-Tysons Corner	Private for-profit, Public, 2-year or above	Proprietary
261931	Skyline College-Roanoke	Private for-profit, Public, 2-year or above	Proprietary
459259	South University-Richmond	Private for-profit, Public, 2-year or above	Proprietary
459268	South University-Virginia Beach	Private for-profit, Public, 2-year or above	Proprietary
438498	Stratford University	Private for-profit, Public, 2-year or above	Proprietary
233684	Strayer University-Virginia	Private for-profit, Public, 2-year or above	Proprietary
458496	The Art Institute of Virginia Beach	Private for-profit, Public, 2-year or above	Proprietary
440341	The Art Institute of Washington	Private for-profit, Public, 2-year or above	Proprietary
456010	The Art Institute of Washington-Dulles	Private for-profit, Public, 2-year or above	Proprietary
437097	University of Management and Technology (The)	Private for-profit, Public, 2-year or above	Proprietary
442189	University of Phoenix-Northern Virginia Campus	Private for-profit, Public, 2-year or above	Proprietary
446756	University of Phoenix-Richmond Campus	Private for-profit, Public, 2-year or above	Proprietary
448628	Westwood College-Annandale	Private for-profit, Public, 2-year or above	Proprietary
447069	Westwood College-Arlington Ballston	Private for-profit, Public, 2-year or above	Proprietary
233480	Bon Secours St Mary's Hospital School of Medical Imaging	Private for-profit, Public, 2-year or above	Private, nfp
232618	Lynchburg General Hospital School of Nursing	Private for-profit, Public, 2-year or above	Private, nfp
233408	Riverside School of Health Careers	Private for-profit, Public, 2-year or above	Private, nfp
430306	Cayce Reilly School of Massotherapy	Private for-profit, Public, 2-year or above	Private, nfp
427894	CET-Alexandria	Private for-profit, Public, 2-year or	Private, nfp

		above	
		Private for-profit, Public, 2-year or above	
449922	Appalachian College of Pharmacy	Private for-profit, Public, 2-year or above	Private, nfp
432348	Appalachian School of Law	Private for-profit, Public, 2-year or above	Private, nfp
231420	Averett University	Private for-profit, Public, 2-year or above	Private, nfp
449931	Averett University-Non-Traditional Programs	Private for-profit, Public, 2-year or above	Private, nfp
366793	Baptist Theological Seminary at Richmond	Private for-profit, Public, 2-year or above	Private, nfp
458113	Bethel College	Private for-profit, Public, 2-year or above	Private, nfp
231554	Bluefield College	Private for-profit, Public, 2-year or above	Private, nfp
233356	Bon Secours Memorial College of Nursing	Private for-profit, Public, 2-year or above	Private, nfp
231581	Bridgewater College	Private for-profit, Public, 2-year or above	Private, nfp
232043	Eastern Mennonite University	Private for-profit, Public, 2-year or above	Private, nfp
442806	Edward Via College of Osteopathic Medicine	Private for-profit, Public, 2-year or above	Private, nfp
232025	Emory & Henry College	Private for-profit, Public, 2-year or above	Private, nfp
232089	Ferrum College	Private for-profit, Public, 2-year or above	Private, nfp
232256	Hampden-Sydney College	Private for-profit, Public, 2-year or above	Private, nfp
232265	Hampton University	Private for-profit, Public, 2-year or above	Private, nfp
232308	Hollins University	Private for-profit, Public, 2-year or above	Private, nfp
445869	Institute for the Psychological Sciences	Private for-profit, Public, 2-year or above	Private, nfp
231837	Jefferson College of Health Sciences	Private for-profit, Public, 2-year or above	Private, nfp
232557	Liberty University	Private for-profit, Public, 2-year or above	Private, nfp
232609	Lynchburg College	Private for-profit, Public, 2-year or above	Private, nfp
232672	Mary Baldwin College	Private for-profit, Public, 2-year or above	Private, nfp
232706	Marymount University	Private for-profit, Public, 2-year or above	Private, nfp
233301	Randolph College	Private for-profit, Public, 2-year or above	Private, nfp
233295	Randolph-Macon College	Private for-profit, Public, 2-year or	Private, nfp

		above	
231651	Regent University	Private for-profit, Public, 2-year or above	Private, nfp
233426	Roanoke College	Private for-profit, Public, 2-year or above	Private, nfp
233499	Saint Pauls College	Private for-profit, Public, 2-year or above	Private, nfp
232885	Sentara College of Health Sciences	Private for-profit, Public, 2-year or above	Private, nfp
233541	Shenandoah University	Private for-profit, Public, 2-year or above	Private, nfp
233611	Southern Virginia University	Private for-profit, Public, 2-year or above	Private, nfp
233718	Sweet Briar College	Private for-profit, Public, 2-year or above	Private, nfp
233842	Union Presbyterian Seminary	Private for-profit, Public, 2-year or above	Private, nfp
233374	University of Richmond	Private for-profit, Public, 2-year or above	Private, nfp
233912	Virginia Intermont College	Private for-profit, Public, 2-year or above	Private, nfp
234164	Virginia Union University	Private for-profit, Public, 2-year or above	Private, nfp
234137	Virginia University of Lynchburg	Private for-profit, Public, 2-year or above	Private, nfp
234173	Virginia Wesleyan College	Private for-profit, Public, 2-year or above	Private, nfp
234207	Washington and Lee University	Private for-profit, Public, 2-year or above	Private, nfp
<b>Public, 2-year</b>			
231536	Blue Ridge Community College	Public, 2-year	Public
231697	Central Virginia Community College	Public, 2-year	Public
231873	Dabney S Lancaster Community College	Public, 2-year	Public
231882	Danville Community College	Public, 2-year	Public
232052	Eastern Shore Community College	Public, 2-year	Public
232195	Germanna Community College	Public, 2-year	Public
232414	J Sargeant Reynolds Community College	Public, 2-year	Public
232450	John Tyler Community College	Public, 2-year	Public
232575	Lord Fairfax Community College	Public, 2-year	Public
232788	Mountain Empire Community College	Public, 2-year	Public
232867	New River Community College	Public, 2-year	Public
232946	Northern Virginia Community College	Public, 2-year	Public
233019	Patrick Henry Community College	Public, 2-year	Public
233037	Paul D Camp Community College	Public, 2-year	Public
233116	Piedmont Virginia Community College	Public, 2-year	Public

233310	Rappahannock Community College	Public, 2-year	Public
233338	Richard Bland College of the College of William and Mary	Public, 2-year	Public
233639	Southside Virginia Community College	Public, 2-year	Public
233648	Southwest Virginia Community College	Public, 2-year	Public
233754	Thomas Nelson Community College	Public, 2-year	Public
233772	Tidewater Community College	Public, 2-year	Public
233903	Virginia Highlands Community College	Public, 2-year	Public
233949	Virginia Western Community College	Public, 2-year	Public
234377	Wytheville Community College	Public, 2-year	Public
<b>Public, less-than 2-year</b>			
231688	Central School of Practical Nursing	Public, less-than 2-year	Public
446206	Culpeper Cosmetology Training Center	Public, less-than 2-year	Public
431266	Henrico County-Saint Marys Hospital School of Practical Nursing	Public, less-than 2-year	Public
232593	Suffolk Public Schools-Sentara Obici Hospital School of Practical Nursing	Public, less-than 2-year	Public
137713	Suwannee-Hamilton Technical Center	Public, less-than 2-year	Public
377485	Virginia Beach City Public Schools School of Practical Nursing	Public, less-than 2-year	Public
234225	Washington County Skill Center	Public, less-than 2-year	Public
234359	Woodrow Wilson Rehabilitation Center	Public, less-than 2-year	Public
<b>Public, 2-year or above</b>			
231712	Christopher Newport University	Public, 2-year or above	Public
231624	College of William and Mary	Public, 2-year or above	Public
231970	Eastern Virginia Medical School	Public, 2-year or above	Public
232186	George Mason University	Public, 2-year or above	Public
232423	James Madison University	Public, 2-year or above	Public
232566	Longwood University	Public, 2-year or above	Public
232937	Norfolk State University	Public, 2-year or above	Public
232982	Old Dominion University	Public, 2-year or above	Public
233277	Radford University	Public, 2-year or above	Public
233897	The University of Virginia's College at Wise	Public, 2-year or above	Public
232681	University of Mary Washington	Public, 2-year or above	Public
234076	University of Virginia-Main Campus	Public, 2-year or above	Public
234030	Virginia Commonwealth University	Public, 2-year or above	Public
234085	Virginia Military Institute	Public, 2-year or above	Public
233921	Virginia Polytechnic Institute and State University	Public, 2-year or above	Public
234155	Virginia State University	Public, 2-year or above	Public

Source: IPEDS

## Appendix B. University research parks and off-campus centers

University research parks offer private companies opportunities for co-location and cooperative relationships with major Virginia universities. In addition, there are two campus centers in the state where multiple colleges can provide courses. Finally, university related research centers have become hubs for research relevant to a number of businesses.

**Innovation Research Park at ODU** is located in the University Village on the campus of Old Dominion University in Norfolk, Virginia. IRP was designed to leverage the access, proximity, and infrastructure of ODU, the surrounding federal labs, and military centers to aid companies at every point in their lifecycle. The Park currently consists of two 100,000 sq. ft. Class A/wet/dry lab.

**INNOVATION at Prince William** is a 1,500-acre business and technology park that provides excellent opportunities for collaborative research, data centers, bio-manufacturing, and corporate and governmental campus locations. Anchored by George Mason University's life science campus, Innovation Technology Park has grown since its inception in 1992 to become home to biotech industry leaders. This unique public-private partnership has evolved into a unique "university-centered" model for economic development within Prince William County, resulting in the creation of nearly 2,700 new jobs and a total investment in the county of over \$830 million.

**The Institute for Advance Learning and Research (IALR)** is driving regional economic growth through strategic research, advanced learning programs, and advanced networking and technology in Southside Virginia. IALR serves as a regional catalyst for economic transformation. Core focus areas include research that provides a clear path to commercialization, advanced learning opportunities with academic partners Averett University and Danville Community College, and economic development through conferencing and a partnership with the Southern Virginia Regional Alliance. At the IALR research centers, Virginia Tech faculty conduct research in the fields of advanced polymers, unmanned systems, sustainable horticulture and forestry, and motorsports/vehicle engineering. IALR research centers include small and mid-sized companies.

**Thomas Jefferson National Accelerator Facility (Jefferson Lab)** is a world-class research facility and a valued partner with the local, regional and national education community. Jefferson Lab's long-term commitment to science education focuses on increasing the number and quality of undergraduate and graduate students who complete degrees in science; strengthening the motivation and preparation of all students, especially minorities and females; and addressing the under representation of minorities and females in science, math, engineering and technology careers.

**University of Virginia Research Park** is a 562-acre, 3-million-square-foot, mixed-use development zoned for office, light industry, hotel/conference center,

laboratory/medical/pharmaceutical, and retail/support commercial uses. UVA promotes the park as providing businesses access to cutting-edge University research and technology programs, a highly educated and market-ready workforce, and undergraduate and graduate interns. Association with the University also creates consulting and joint research opportunities with faculty and credibility with investors and clients.

**Virginia Advanced Shipbuilding and Carrier Integration Center (VASCIC)** was established in 1998 by the Commonwealth of Virginia's General Assembly. The purpose of VASCIC is to enhance and promote the quality and competitiveness of Virginia's shipbuilding industry and to promote the general welfare of Virginia citizens. In this state-of-the-art facility, Newport News along with electronic system suppliers, software suppliers, U.S. Navy laboratories and program representatives, and Virginia institutions of higher learning, develop new technologies for aircraft carriers and advanced shipbuilding.

**Virginia BioTechnology Research Park** is a biosciences community headquartered in downtown Richmond, Va., in the heart of the nation's East Coast pharmaceutical and biotechnology corridor. Originally created as a partnership of Virginia Commonwealth University, the City of Richmond and the Commonwealth of Virginia, the Park is home to more than 50 biosciences companies, research institutes affiliated with the VCU Medical Center and major state and national medical laboratories and organizations involved with forensics, testing of biotoxins and management of the nation's organ transplantation process. The Park works with VCU, other academic institutions, business, government and not-for-profit organizations to facilitate technology transfer and business development. Its business accelerator — the Virginia Biosciences Development Center — assists biosciences startups in the Park's incubator with everything from legal and financial services to business planning.

**Virginia Modeling, Analysis and Simulation Center (VMASC)** are one of the world's leading research centers for computer modeling, simulation, and visualization. This program supports the development and applications of modeling, simulation and visualization as enterprise decision-making tools to promote economic, business, and academic development. It is an important resource for students in the Colleges of Engineering and Technology, Sciences, Education, and Business. Annually, the Center conducts approximately \$10M in funded research. The Center works with more than one hundred industry, government, and academic members.

**The Virginia Tech Carilion Research Institute** is managed by Virginia Tech in close collaboration with Carilion Clinic and the Virginia Tech Carilion School of Medicine. Research conducted at the Virginia Tech Carilion Research Institute. VTCRI creates a bridge between basic science research at Virginia Tech and clinical expertise at Carilion Clinic and increases translational research opportunities for both partners. Research conducted by scientists at the institute is aimed at understanding the molecular basis for health and disease, and

development of diagnostic tools, treatments, and therapies that will contribute to the prevention and solution of existing and emerging problems in contemporary medicine.

**Virginia Tech Corporate Research Park:** The Virginia Tech Corporate Research Center is home to over 100 companies engaged in leading-edge research in diverse areas of technology. Its mission is to develop a research park for high-technology companies in collaboration with Virginia Tech (VT). In collaboration with VT, the Park promotes the research, educational and technology transfer missions of the university. The VTCRC creates research relationships between companies at the VTCRC and VT; it works with the faculty to identify student projects that can be done at the VTCRC; it provides an incubator program called VT KnowledgeWorks that helps to create companies based on technology licensed by Virginia Tech.

**Wallops Research Park** consists of 202 acres adjacent to the NASA Wallops Flight Facility (WFF) and minutes away from the Mid-Atlantic Regional Spaceport. Park tenants have access to the NASA aerospace research facilities. The Research Park is a project of Accomack County, NASA WFF, and the Marine Science Consortium. Academic partners include Chincoteague Bay Field Station member universities, Eastern Shore Community College, Old Dominion University Department of Mechanical & Aerospace Engineering, and the Virginia Space Flight Academy.

The **Center for Innovative Technology (CIT)** creates technology-based economic development strategies to accelerate innovation, imagination and the next generation of technology and technology companies. Created in 1985, CIT, a non-profit corporation, plugs gaps at the earliest stages of the Innovation Continuum – commercialization and seed funding – as it helps entrepreneurs launch and grow high-growth technology companies and create high-paying jobs for the future. To facilitate national innovation leadership and accelerate the rate of technology adoption, CIT creates partnerships between innovative technology start-up companies and advanced technology consumers. Lastly, CIT builds the infrastructure for new-innovation economies with expert broadband strategies. The Center includes higher education institutions as members, but it is not part of any specific campus.

**New College Institute** is a state-funded educational entity that provides access to bachelor's degree completion programs, master's degrees, teacher endorsement programs, teacher recertification courses, and more through partnerships with colleges and universities. NCI strives to be accessible and convenient for students of all ages. Our staff, faculty, and board members are committed to making NCI a premier educational facility for students, businesses, and the community at large. In addition to college level degree and certification programs, NCI offers experiential learning opportunities such as the NCI Internship Program and NCI's Academy for Engineering & Technology. Additional programs such as NCI's summer camps, non-credit lecture series, and financial aid resource events encourage and promote continued education throughout the Martinsville-Henry County region.

**Commonwealth Center for Advanced Manufacturing (CCAM)** is an applied research center that provides production-ready advanced manufacturing solutions to member companies across the globe. Members guide the research, leveraging talent and resources within CCAM and at Virginia's top universities, through a collaborative model that enables them to pool R&D efforts to increase efficiencies. Results can then be applied directly to the factory floor, turning ideas into profit faster and more affordably than ever before. CCAM is located in a state-of-the-art research facility in Prince George County, Virginia.

The mission of the **Southern Virginia Higher Education Center (SVHEC)** is to advance southern Virginia's economic potential through education, innovation, and collaboration. Located on the service area SVHEC of the closest community colleges and more than 75 minutes from the nearest state supported four-year institution, the SVHEC provides vital educational access and workforce training to an under-served rural population. By serving as an incubator, broker, and developer of innovative educational and applied research pathways, the SVHEC is focused on re-tooling southern Virginia's rural workforce for jobs in the New Economy.

**Stafford Technology and Research Center at Quantico** is just getting started with the inclusion of George Mason University, Germanna Community College and the University of Mary Washington. The new educational center will offer classes in Informatics, Data Science and Bio Sciences, particularly as they relate to homeland security, defense and intelligence efforts.

## Appendix C. JBLA regional crosswalk

### Explanation of JBLA’s regional analysis

For the regional analysis portion of this study, JBLA divided the state of Virginia into eight regions: Central, Eastern, Hampton Roads, Northern, Southside, Southwest, Valley and West Central region. These eight regions are strongly based on the regional divisions developed by the Council on Virginia’s Future as featured on the Virginia Performs website: <http://vaperforms.virginia.gov/extras/regions.php>. Counties and major metropolitan areas were collected from the United States Census Bureau.

Below JBLA has provided a crosswalk of counties and major cities and their respective region.

County or Major City	Region
Albemarle County	Central
Amelia County	Central
Buckingham County	Central
Caroline County	Central
Charles City County	Central
Chesterfield County	Central
Culpeper County	Central
Cumberland County	Central
Dinwiddie County	Central
Fluvanna County	Central
Goochland County	Central
Greene County	Central
Hanover County	Central
Henrico County	Central
King and Queen County	Central
King William County	Central
Louisa County	Central
Madison County	Central
Nelson County	Central
New Kent County	Central
Orange County	Central
Powhatan County	Central
Prince George County	Central
Rappahannock County	Central
Sussex County	Central
Charlottesville City	Central
Colonial Heights City	Central
Hopewell City	Central
Petersburg City	Central
Richmond City	Central

Greensville County	Southside
Halifax County	Southside
Henry County	Southside
Lunenburg County	Southside
Mecklenburg County	Southside
Nottoway County	Southside
Patrick County	Southside
Pittsylvania County	Southside
Prince Edward County	Southside
Southampton County	Southside
Danville City	Southside
Emporia City	Southside
Franklin City	Southside
Martinsville City	Southside
Bland County	Southwest
Buchanan County	Southwest
Carroll County	Southwest
Dickenson County	Southwest
Floyd County	Southwest
Grayson County	Southwest
Lee County	Southwest
Russell County	Southwest
Scott County	Southwest
Smyth County	Southwest
Tazewell County	Southwest
Washington County	Southwest
Wise County	Southwest
Wythe County	Southwest
Bristol City	Southwest
Galax City	Southwest
Norton City	Southwest

Accomack County	Eastern
Essex County	Eastern
King George County	Eastern
Lancaster County	Eastern
Middlesex County	Eastern
Northampton County	Eastern
Northumberland County	Eastern
Richmond County	Eastern
Westmoreland County	Eastern
Gloucester County	Hampton Roads
Isle of Wight County	Hampton Roads
James City County	Hampton Roads
Mathews County	Hampton Roads
Surry County	Hampton Roads
York County	Hampton Roads
Chesapeake City	Hampton Roads
Hampton City	Hampton Roads
Newport News City	Hampton Roads
Norfolk City	Hampton Roads
Poquoson City	Hampton Roads
Portsmouth City	Hampton Roads
Suffolk City	Hampton Roads
Virginia Beach City	Hampton Roads
Williamsburg City	Hampton Roads
Arlington County	Northern
Clarke County	Northern
Fairfax County	Northern
Fauquier County	Northern
Loudoun County	Northern
Prince William County	Northern
Spotsylvania County	Northern
Stafford County	Northern
Warren County	Northern
Alexandria City	Northern
Fairfax City	Northern
Falls Church City	Northern
Fredericksburg City	Northern
Manassas City	Northern
Manassas Park City	Northern
Brunswick County	Southside
Charlotte County	Southside

Alleghany County	Valley
Augusta County	Valley
Bath County	Valley
Frederick County	Valley
Highland County	Valley
Page County	Valley
Rockbridge County	Valley
Rockingham County	Valley
Shenandoah County	Valley
Buena Vista City	Valley
Covington City	Valley
Harrisonburg City	Valley
Lexington City	Valley
Staunton City	Valley
Waynesboro City	Valley
Winchester City	Valley
Amherst County	West Central
Appomattox County	West Central
Bedford County	West Central
Botetourt County	West Central
Campbell County	West Central
Craig County	West Central
Franklin County	West Central
Giles County	West Central
Montgomery County	West Central
Pulaski County	West Central
Roanoke County	West Central
Bedford City	West Central
Lynchburg City	West Central
Radford City	West Central
Roanoke City	West Central
Salem City	West Central

Source: Counties and Major Cities gathered from US Census Data.

Regions derived from Council on Virginia's Future: <http://vaperforms.virginia.gov/extras/regions.php>