

**Guided Pathway Study Series: 3 of 8**

**Labor Market and Completion Data:  
Information Technology, Computer Science,  
and Mathematics Programs**



**Research Report No. 66-16**

Office of Institutional Effectiveness and Student Success Initiatives

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## **NORTHERN VIRGINIA COMMUNITY COLLEGE**

### **OFFICE OF INSTITUTIONAL EFFECTIVENESS AND STUDENT SUCCESS INITIATIVES**

The purpose of the Office of Institutional Effectiveness and Student Success Initiatives is to conduct analytical studies and provide information in support of institutional planning, policy formulation, and decision making. In addition, the office provides leadership and support in research related activities to members of the NOVA community engaged in planning and evaluating the institution's success in accomplishing its mission.

When citing data from this report, the Northern Virginia Community College (NOVA) Office of Institutional Effectiveness and Student Success Initiatives must be cited as the source.

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# **Information Technology, Computer Science, and Mathematics Programs**

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# **Information Technology, Computer Science, and Mathematics Programs**

## **Introduction**

This Report presents NOVA, regional, and national academic program and occupational data related to Information Technology, Computer Science, and Mathematics programs at NOVA. Regional data includes the following nine locations: Arlington County, Fairfax County, Loudoun County, Prince William County, Stafford County, Alexandria City, Fairfax City, Falls Church City, Manassas City, and Manassas Park City.

Every postsecondary degree/certificate program in the U.S. falls under a six-digit Classification of Instructional Programs (CIP) Code as developed by the U.S. Department of Education's National Center for Education Statistics (NCES). The purpose of the CIP Code is to provide a taxonomic scheme that will support the accurate tracking, assessment, and reporting of fields of study and program completions activity.<sup>1</sup> A list of NOVA programs and their corresponding CIP codes is provided in the Appendix of this report.

All NOVA degree and certificate programs have been grouped into the following eight Guided Pathways: Biology and Biotechnology; Business; Health Sciences; Information Technology, Computer Science, and Mathematics; Liberal Arts and Social Science; Physical Science, Engineering, and Applied Technologies; Public Service, Social Service, and Education; and Visual and Performing Arts, Digital Media, and Design Programs. A list of the programs included in each Guided Pathway is included in the Appendix of this report.

Within this report on the Information Technology, Computer Science, and Guided Pathway, there are seven sections in two parts. Six tables are presented for each section in this report. The first table of each section presents data on NOVA completions. The second through sixth tables present data related to the CIP Code that corresponds to the program(s) in that section.

### **NOVA Program Data**

- **Table 1. Five-Year Completion Trends by NOVA Program: 2011 through 2015**
  - Table 1 presents five-year trends in degree or certificate completion at NOVA by NOVA program and specialization.

### **Data by Program (CIP) Code**

- **Table 2. Five-Year Completion Trends: 2011 through 2015**
  - Table 2 presents five-year trends in degree or certificate completion at NOVA, in the Northern Virginia region, and at the state and national levels.

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<sup>1</sup><https://nces.ed.gov/pubs2002/cip2000/>

- **Table 3. Regional Completions by Award: 2015**
  - Table 3 presents the number and percentage of completions in the Northern Virginia region by award level (Associate’s degree, Bachelor’s degree, Master’s degree, etc.) in 2015.
  
- **Table 4. Regional Completions by Institution and Award: 2015**
  - Table 4 presents all completions in the Northern Virginia region by institution and award level in 2015.
  
- **Table 5. Five-Year Projections for Target Occupations: 2016 through 2021**
  - Table 5 presents workforce data and five-year projections for occupations related to the academic program and includes the number of jobs in each occupation in 2016, annual openings, median hourly earnings, projected growth from 2016 to 2021, and the Location Quotient of each occupation.
  - The **Location Quotient** is the ratio of an occupation’s share of employment in a given area to that occupation’s share of employment in the U.S. as a whole. For example, an occupation that makes up 10 percent of employment in a specific metropolitan area compared with 2 percent of U.S. employment would have a location quotient of 5 for the area in question.
  
- **Table 6. National Educational Attainment of Target Occupations: 2016**
  - Table 6 breaks down each target occupation by the highest degree attained by workers in that occupation in 2016.

**Data Note**

Data were extracted utilizing the Economic Modeling Specialists International (EMSI) product EMSI Analyst, which compiles data from over 90 sources, including the Integrated Postsecondary Education Data System (IPEDS), the U.S. Census Bureau, the Bureau of Labor Statistics, and the Internal Revenue Service. The data were pulled between November 1<sup>st</sup> and November 8<sup>th</sup>, 2016. More information on EMSI can be found at [www.economicmodeling.com/data](http://www.economicmodeling.com/data).

**Part 1. Information Technology and Computer Science Programs**

**Program: Computer Science, A.S.**

**Table 1. Five-Year Completion Trends by NOVA Program: 2011 through 2015**

NOVA Program	2011 Completions	2015 Completions	% Change
Computer Science, A.S.	61	135	121.3%
<b>NOVA Completions</b>	<b>61</b>	<b>135</b>	<b>121.3%</b>

**Trends for CIP Code: Computer Science (11.0701)**

**Table 2. Five-Year Completion Trends: 2011 through 2015**

Location	2011 Completions	2015 Completions	% Change
NOVA	61	135	121.3%
Region	107	181	69.2%
State	260	444	70.8%
Nation	16,806	28,188	67.7%

**Table 3. Regional Completions by Award: 2015**

Award Level	Completions	
	#	%
Associate's Degree	141	77.9%
Bachelor's Degree	39	21.5%
Master's Degree	1	0.6%
<b>Total</b>	<b>181</b>	<b>100.0%</b>

**Table 4. Regional Completions by Institution and Award: 2015**

Institution	Associate's Degree		Bachelor's Degree		Master's Degree		Total	
	#	%	#	%	#	%	#	%
NOVA	135	95.7%	0	0.0%	0	0.0%	135	74.6%
University of Management and Technology	6	4.3%	17	43.6%	1	100.0%	24	13.3%
George Mason University	0	0.0%	22	56.4%	0	0.0%	22	12.2%
<b>Total</b>	<b>141</b>	<b>100.0%</b>	<b>39</b>	<b>100.0%</b>	<b>1</b>	<b>100.0%</b>	<b>181</b>	<b>100.0%</b>

**Table 5. Five-Year Projections for Target Occupations: 2016 through 2021**

Occupation	2016 Jobs	Annual Openings	Median Hourly Earnings	Projected Growth (2016–2021)	Location Quotient (2016)*
Software Developers, Applications	22,969	1,031	\$54.39	14.6%	3.43
Software Developers, Systems Software	18,308	664	\$56.56	10.3%	5.26
Computer User Support Specialists	9,874	437	\$28.71	15.1%	1.92
Computer and Information Systems Managers	8,805	338	\$76.61	12.7%	2.90
Information Security Analysts	7,946	260	\$53.40	9.4%	9.99
Computer Occupations, All Other	6,490	142	\$53.63	4.3%	3.22
Computer Programmers	6,232	165	\$55.64	6.5%	4.81
Computer Network Architects	5,023	153	\$48.28	1.5%	2.00

Information Technology and Computer Science Programs

Occupation	2016 Jobs	Annual Openings	Median Hourly Earnings	Projected Growth (2016–2021)	Location Quotient (2016)*
Web Developers	4,481	119	\$37.41	6.5%	2.76
Computer Network Support Specialists	2,427	135	\$42.61	20.5%	2.10
Computer and Information Research Scientists	1,303	31	\$62.18	5.3%	5.50
<b>Regional</b>	<b>93,858</b>	<b>3,475</b>	<b>\$52.81</b>	<b>10.9%</b>	<b>4.10**</b>
<b>National</b>	<b>3,283,810</b>	<b>106,139</b>	<b>\$42.73</b>	<b>8.5%</b>	<b>1.00</b>

\*See Introduction for explanation of Location Quotient

\*\*Weighted average of the Location Quotients for all Target Occupations

**Table 6. National Educational Attainment of Target Occupations: 2016**

Occupation	< High School Diploma	High School Diploma or Equivalent	Some College, No Degree	Associate's Degree	Bachelor's Degree	Master's Degree	Doctoral Degree
Software Developers, Applications	0.4%	2.2%	8.3%	4.8%	49.8%	30.6%	4.0%
Software Developers, Systems Software	0.4%	2.2%	8.3%	4.8%	49.8%	30.6%	4.0%
Computer User Support Specialists	0.7%	11.1%	28.0%	17.2%	34.2%	8.0%	0.8%
Computer and Information Systems Managers	0.4%	4.1%	14.8%	7.8%	46.6%	24.1%	2.2%
Information Security Analysts	0.8%	5.5%	18.7%	8.9%	44.6%	20.2%	1.4%
Computer Occupations, All Other	0.7%	8.1%	22.4%	14.5%	38.8%	14.4%	1.2%
Computer Programmers	0.7%	4.7%	13.1%	9.7%	49.7%	19.6%	2.5%
Computer Network Architects	0.2%	5.4%	23.3%	13.7%	40.4%	15.8%	1.2%
Web Developers	0.5%	4.3%	17.3%	9.9%	52.2%	14.6%	1.2%
Computer Network Support Specialists	0.7%	11.1%	28.0%	17.2%	34.2%	8.0%	0.8%
Computer and Information Research Scientists	0.0%	1.1%	4.7%	2.1%	38.3%	28.0%	25.9%

**Program: Cybersecurity, A.A.S.**

**Table 1. Five-Year Completion Trends by NOVA Program: 2011 through 2015**

NOVA Program	2011 Completions	2015 Completions	% Change
Cybersecurity, A.A.S.	-	4	-
<b>NOVA Completions</b>	-	<b>4</b>	-

**Trends for CIP Code: Computer and Information Systems Security/Information Assurance (11.1003)**

**Table 2. Five-Year Completion Trends: 2011 through 2015**

Location	2011 Completions	2015 Completions	% Change
NOVA	0	4	-
Region	92	171	85.9%
State	349	535	53.3%
Nation	5,945	10,479	76.3%

**Table 3. Regional Completions by Award: 2015**

Award Level	Completions	
	#	%
Associate's Degree	13	7.6%
Bachelor's Degree	103	60.2%
Master's Degree	55	32.2%
<b>Total</b>	<b>171</b>	<b>100.0%</b>

**Table 4. Regional Completions by Institution and Award: 2015**

Institution	Associate's Degree		Bachelor's Degree		Master's Degree		Total	
	#	%	#	%	#	%	#	%
NOVA	4	30.8%	0	0.0%	0	0.0%	4	2.3%
ITT Technical Institute-Chantilly	0	0.0%	57	55.3%	0	0.0%	57	33.3%
ITT Technical Institute-Springfield	0	0.0%	34	33.0%	0	0.0%	34	19.9%
George Mason University	0	0.0%	0	0.0%	32	58.2%	32	18.7%
Stratford University	9	69.2%	0	0.0%	16	29.1%	25	14.6%
Westwood College-Annandale	0	0.0%	12	11.7%	0	0.0%	12	7.0%
Marymount University	0	0.0%	0	0.0%	7	12.7%	7	4.1%
<b>Total</b>	<b>13</b>	<b>100.0%</b>	<b>103</b>	<b>100.0%</b>	<b>55</b>	<b>100.0%</b>	<b>171</b>	<b>100.0%</b>



Information Technology and Computer Science Programs

**Table 5. Five-Year Projections for Target Occupations: 2016 through 2021**

Occupation	2016 Jobs	Annual Openings	Median Hourly Earnings	Projected Growth (2016–2021)	Location Quotient (2016)*
Network and Computer Systems Administrators	11,580	334	\$48.26	7.6%	3.54
Computer User Support Specialists	9,874	437	\$28.71	15.1%	1.92
Information Security Analysts	7,946	260	\$53.40	9.4%	9.99
Computer Network Architects	6,232	165	\$55.64	6.5%	4.81
Computer Network Support Specialists	4,481	119	\$37.41	6.5%	2.76
Database Administrators	3,139	128	\$51.09	9.0%	3.13
Web Developers	2,427	135	\$42.61	20.5%	2.10
<b>Regional</b>	<b>45,679</b>	<b>1,578</b>	<b>\$44.82</b>	<b>10.1%</b>	<b>4.30**</b>
<b>National</b>	<b>1,675,530</b>	<b>51,379</b>	<b>\$33.06</b>	<b>8.2%</b>	<b>1.00</b>

\*See Introduction for explanation of Location Quotient

\*\*Weighted average of the Location Quotients for all Target Occupations

**Table 6. National Educational Attainment of Target Occupations: 2016**

Occupation	< High School Diploma	High School Diploma or Equivalent	Some College, No Degree	Associate's Degree	Bachelor's Degree	Master's Degree	Doctoral Degree
Network and Computer Systems Administrators	0.7%	7.5%	23.2%	16.3%	40.0%	11.1%	1.2%
Computer User Support Specialists	0.7%	11.1%	28.0%	17.2%	34.2%	8.0%	0.8%
Information Security Analysts	0.8%	5.5%	18.7%	8.9%	44.6%	20.2%	1.4%
Computer Network Architects	0.2%	5.4%	23.3%	13.7%	40.4%	15.8%	1.2%
Computer Network Support Specialists	0.7%	11.1%	28.0%	17.2%	34.2%	8.0%	0.8%
Database Administrators	1.0%	5.3%	13.8%	8.8%	47.3%	21.5%	2.4%
Web Developers	0.5%	4.3%	17.3%	9.9%	52.2%	14.6%	1.2%

**Programs: Cybersecurity, Career Studies Certificate  
 Network Administration, Career Studies Certificate  
 Network Engineering (Specialist), Career Studies Certificate**

**Table 1. Five-Year Completion Trends by NOVA Program: 2011 through 2015**

NOVA Program	2011 Completions	2015 Completions	% Change
Cybersecurity, Career Studies Certificate	5	35	600.0%
Network Administration, Career Studies Certificate	7	15	114.3%
Network Engineering (Specialist), Career Studies Certificate	8	26	225.0%
<b>NOVA Completions</b>	<b>20</b>	<b>76</b>	<b>280.0%</b>

**Trends for CIP Code: Electrical, Electronic and Communications Engineering Technology/Technician (15.0303)**

**Table 2. Five-Year Completion Trends: 2011 through 2015**

Location	2011 Completions	2015 Completions	% Change
NOVA	28	76	171.4%
Region	131	155	18.3%
State	558	476	-14.7%
Nation	13,308	10,562	-20.6%

NOTE: This CIP Code encompasses discontinued NOVA programs not included in this Guided Pathway, such as Computer and Electronics Technology, A.A.S. and Electronics Technician, Certificate

**Table 3. Regional Completions by Award: 2015**

Award Level	Completions	
	#	%
Certificate	76	49.0%
Associate's Degree	74	47.7%
Bachelor's Degree	5	3.2%
<b>Total</b>	<b>155</b>	<b>100.0%</b>

**Table 4. Regional Completions by Institution and Award: 2015**

Institution	Certificate		Associate's Degree		Bachelor's Degree		Total	
	#	%	#	%	#	%	#	%
NOVA	76	100.0%	0	0.0%	0	0.0%	76	49.0%
ITT Technical Institute-Springfield	0	0.0%	40	54.1%	0	0.0%	40	25.8%
ITT Technical Institute-Chantilly	0	0.0%	31	41.9%	1	20.0%	32	20.6%
DeVry University-Virginia	0	0.0%	3	4.1%	4	80.0%	7	4.5%
<b>Total</b>	<b>76</b>	<b>100.0%</b>	<b>74</b>	<b>100.0%</b>	<b>5</b>	<b>100.0%</b>	<b>155</b>	<b>100.0%</b>

Information Technology and Computer Science Programs

**Table 5. Five-Year Projections for Target Occupations: 2016 through 2021**

Occupation	2016 Jobs	Annual Openings	Median Hourly Earnings	Projected Growth (2016–2021)	Location Quotient (2016)*
Electrical and Electronics Engineering Technician	2,030	62	\$35.03	-0.9%	1.69
<b>Regional</b>	<b>2,030</b>	<b>62</b>	<b>\$35.03</b>	<b>-0.9%</b>	<b>1.69</b>
<b>National</b>	<b>141,118</b>	<b>3,931</b>	<b>\$29.40</b>	<b>1.6%</b>	<b>1.00</b>

\*See Introduction for explanation of Location Quotient

**Table 6. National Educational Attainment of Target Occupations: 2016**

Occupation	< High School Diploma	High School Diploma or Equivalent	Some College, No Degree	Associate's Degree	Bachelor's Degree	Master's Degree	Doctoral Degree
Electrical and Electronics Engineering Technician	4.0%	22.6%	33.5%	21.6%	15.2%	2.6%	0.5%

**Programs: Information Systems Technology, A.A.S.  
Application Programming, Career Studies Certificate  
Database Specialist, Career Studies Certificate  
IT Technical Support, Career Studies Certificate**

**Table 1. Five-Year Completion Trends by NOVA Program: 2011 through 2015**

NOVA Program	2011 Completions	2015 Completions	% Change
Information Systems Technology, A.A.S.	49	69	40.8%
Application Programming, Career Studies Certificate	1	12	1,100.0%
Database Specialist, Career Studies Certificate	2	22	1,000.0%
IT Technical Support, Career Studies Certificate	7	23	228.6%
<b>NOVA Completions</b>	<b>59</b>	<b>126</b>	<b>113.6%</b>

**Trends for CIP Code: Computer and Information Sciences, General (11.0101)**

**Table 2. Five-Year Completion Trends: 2011 through 2015**

Location	2011 Completions	2015 Completions	% Change
NOVA	64	126	96.9%
Region	188	282	50.0%
State	1,202	1,659	38.0%
Nation	23,478	32,724	39.4%

NOTE: This CIP Code encompasses discontinued NOVA programs not included in this Guided Pathway, such as Desktop Publishing, Career Studies Certificate and Linux Administration, Career Studies Certificate

**Table 3. Regional Completions by Award: 2015**

Award Level	Completions	
	#	%
Certificate	57	20.2%
Associate's Degree	69	24.5%
Bachelor's Degree	86	30.5%
Post-Baccalaureate Certificate	1	0.4%
Master's Degree	53	18.8%
Doctoral Degree	16	5.7%
<b>Total</b>	<b>282</b>	<b>100.0%</b>

**Table 4. Regional Completions by Institution and Award: 2015**

Institution	Certificate		Associate's Degree		Bachelor's Degree		Post-Baccalaureate Certificate		Master's Degree		Doctoral Degree		Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
NOVA	57	100.0%	69	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	126	44.7%
George Mason University	0	0.0%	0	0.0%	86	100.0%	1	100.0%	53	100.0%	16	100.0%	156	55.3%
<b>Total</b>	<b>57</b>	<b>100.0%</b>	<b>69</b>	<b>100.0%</b>	<b>86</b>	<b>100.0%</b>	<b>1</b>	<b>100.0%</b>	<b>53</b>	<b>100.0%</b>	<b>16</b>	<b>100.0%</b>	<b>282</b>	<b>100.0%</b>

Information Technology and Computer Science Programs

**Table 5. Five-Year Projections for Target Occupations: 2016 through 2021**

Occupation	2016 Jobs	Annual Openings	Median Hourly Earnings	Projected Growth (2016 - 2021)	Location Quotient (2016)*
Computer Systems Analysts	15,443	716	\$50.32	16.1%	3.11
Network and Computer Systems Administrators	11,580	334	\$48.26	7.6%	3.54
Computer and Information Systems Managers	8,805	338	\$76.61	12.7%	2.90
Information Security Analysts	7,946	260	\$53.40	9.4%	9.99
Computer Occupations, All Other	6,490	142	\$53.63	4.3%	3.22
Computer Network Architects	6,232	165	\$55.64	6.5%	4.81
Database Administrators	3,139	128	\$51.09	9.0%	3.13
Web Developers	2,427	135	\$42.61	20.5%	2.10
Computer and Information Research Scientists	1,303	31	\$62.18	5.3%	5.50
<b>Regional</b>	<b>63,365</b>	<b>2,249</b>	<b>\$54.83</b>	<b>10.7%</b>	<b>4.21**</b>
<b>National</b>	<b>2,084,423</b>	<b>68,216</b>	<b>\$44.88</b>	<b>9.4%</b>	<b>1.00</b>

\*See Introduction for explanation of Location Quotient

\*\*Weighted average of the Location Quotients for all Target Occupations

**Table 6. National Educational Attainment of Target Occupations: 2016**

Occupation	< High School Diploma	High School Diploma or Equivalent	Some College, No Degree	Associate's Degree	Bachelor's Degree	Master's Degree	Doctoral Degree
Computer Systems Analysts	0.5%	4.1%	14.5%	8.2%	48.1%	22.1%	2.5%
Network and Computer Systems Administrators	0.7%	7.5%	23.2%	16.3%	40.0%	11.1%	1.2%
Computer and Information Systems Managers	0.4%	4.1%	14.8%	7.8%	46.6%	24.1%	2.2%
Information Security Analysts	0.8%	5.5%	18.7%	8.9%	44.6%	20.2%	1.4%
Computer Occupations, All Other	0.7%	8.1%	22.4%	14.5%	38.8%	14.4%	1.2%
Computer Network Architects	0.2%	5.4%	23.3%	13.7%	40.4%	15.8%	1.2%
Database Administrators	1.0%	5.3%	13.8%	8.8%	47.3%	21.5%	2.4%
Web Developers	0.5%	4.3%	17.3%	9.9%	52.2%	14.6%	1.2%
Computer and Information Research Scientists	0.0%	1.1%	4.7%	2.1%	38.3%	28.0%	25.9%

Information Technology and Computer Science Programs

**Program: Information Technology, A.S.**

**Table 1. Five-Year Completion Trends by NOVA Program: 2011 through 2015**

NOVA Program	2011 Completions	2015 Completions	% Change
Information Technology, A.S.	278	362	30.2%
<b>NOVA Completions</b>	<b>278</b>	<b>362</b>	<b>30.2%</b>

**Trends for CIP Code: Information Technology (11.0103)**

**Table 2. Five-Year Completion Trends: 2011 through 2015**

Location	2011 Completions	2015 Completions	% Change
NOVA	278	362	30.2%
Region	695	920	32.4%
State	868	977	12.6%
Nation	14,416	19,959	38.5%

**Table 3. Regional Completions by Award: 2015**

Award Level	Completions	
	#	%
Certificate	2	0.2%
Associate's Degree	393	42.7%
Bachelor's Degree	393	42.7%
Post-Baccalaureate Certificate	22	2.4%
Master's Degree	102	11.1%
Doctoral Degree	8	0.9%
<b>Total</b>	<b>920</b>	<b>100.0%</b>

**Table 4. Regional Completions by Institution and Award: 2015**

Institution	Certificate		Associate's Degree		Bachelor's Degree		Post-Baccalaureate Certificate		Master's Degree		Doctoral Degree		Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
NOVA	0	0.0%	362	92.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	362	39.3%
George Mason University	0	0.0%	0	0.0%	264	67.2%	19	86.4%	69	67.6%	8	100.0%	360	39.1%
Marymount University	2	100.0%	0	0.0%	24	6.1%	3	13.6%	24	23.5%	0	0.0%	53	5.8%
Strayer University-Virginia	0	0.0%	0	0.0%	49	12.5%	0	0.0%	0	0.0%	0	0.0%	49	5.3%
University of Management and Technology	0	0.0%	9	2.3%	30	7.6%	0	0.0%	9	8.8%	0	0.0%	48	5.2%
Stratford University	0	0.0%	0	0.0%	19	4.8%	0	0.0%	0	0.0%	0	0.0%	19	2.1%
Westwood College-Arlington Ballston	0	0.0%	12	3.1%	7	1.8%	0	0.0%	0	0.0%	0	0.0%	19	2.1%
Westwood College-Annandale	0	0.0%	10	2.5%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	10	1.1%
<b>Total</b>	<b>2</b>	<b>100.0%</b>	<b>393</b>	<b>100.0%</b>	<b>393</b>	<b>100.0%</b>	<b>22</b>	<b>100.0%</b>	<b>102</b>	<b>100.0%</b>	<b>8</b>	<b>100.0%</b>	<b>920</b>	<b>100.0%</b>

Information Technology and Computer Science Programs

**Table 5. Five-Year Projections for Target Occupations: 2016 through 2021**

Occupation	2016 Jobs	Annual Openings	Median Hourly Earnings	Projected Growth (2016–2021)	Location Quotient (2016)*
Software Developers, Applications	22,969	1,031	\$54.39	14.6%	3.43
Software Developers, Systems Software	18,308	664	\$56.56	10.3%	5.26
Computer Systems Analysts	15,443	716	\$50.32	16.1%	3.11
Information Security Analysts	7,946	260	\$53.40	9.4%	9.99
Computer Network Architects	6,232	165	\$55.64	6.5%	4.81
Web Developers	2,427	135	\$42.61	20.5%	2.10
Computer and Information Research Scientists	1,303	31	\$62.18	5.3%	5.50
<b>Regional</b>	<b>74,628</b>	<b>3,002</b>	<b>\$53.85</b>	<b>12.6%</b>	<b>4.62**</b>
<b>National</b>	<b>2,183,720</b>	<b>81,308</b>	<b>\$45.99</b>	<b>11.3%</b>	<b>1.00</b>

\*See Introduction for explanation of Location Quotient

\*\*Weighted average of the Location Quotients for all Target Occupations

**Table 6. National Educational Attainment of Target Occupations: 2016**

Occupation	< High School Diploma	High School Diploma or Equivalent	Some College, No Degree	Associate's Degree	Bachelor's Degree	Master's Degree	Doctoral Degree
Software Developers, Applications	0.4%	2.2%	8.3%	4.8%	49.8%	30.6%	4.0%
Software Developers, Systems Software	0.4%	2.2%	8.3%	4.8%	49.8%	30.6%	4.0%
Computer Systems Analysts	0.5%	4.1%	14.5%	8.2%	48.1%	22.1%	2.5%
Information Security Analysts	0.8%	5.5%	18.7%	8.9%	44.6%	20.2%	1.4%
Computer Network Architects	0.2%	5.4%	23.3%	13.7%	40.4%	15.8%	1.2%
Web Developers	0.5%	4.3%	17.3%	9.9%	52.2%	14.6%	1.2%
Computer and Information Research Scientists	0.0%	1.1%	4.7%	2.1%	38.3%	28.0%	25.9%

**Programs: Web Design and Development, Career Studies Certificate  
Web Design Specialist, Career Studies Certificate**

**Table 1. Five-Year Completion Trends by NOVA Program: 2011 through 2015**

NOVA Program	2011 Completions	2015 Completions	% Change
Web Design and Development, Career Studies Certificate	2	13	550.0%
Web Design Specialist, Career Studies Certificate	12	9	-25.0%
<b>NOVA Completions</b>	<b>14</b>	<b>22</b>	<b>57.1%</b>

**Trends for CIP Code: Web Page, Digital/Multimedia and Information Resources Design (11.0801)**

**Table 2. Five-Year Completion Trends: 2011 through 2015**

Location	2011 Completions	2015 Completions	% Change
NOVA	19	22	15.8%
Region	40	84	110.0%
State	98	139	41.8%
Nation	6,181	5,972	-3.4%

NOTE: This CIP Code encompasses discontinued NOVA programs not included in this Guided Pathway.

**Table 3. Regional Completions by Award: 2015**

Award Level	Completions	
	#	%
Certificate	23	27.4%
Associate's Degree	18	21.4%
Bachelor's Degree	43	51.2%
<b>Total</b>	<b>84</b>	<b>100.0%</b>

**Table 4. Regional Completions by Institution and Award: 2015**

Institution	Certificate		Associate's Degree		Bachelor's Degree		Total	
	#	%	#	%	#	%	#	%
NOVA	22	95.7%	0	0.0%	0	0.0%	22	26.2%
The Art Institute of Washington	1	4.3%	13	72.2%	11	25.6%	25	29.8%
DeVry University-Virginia	0	0.0%	2	11.1%	17	39.5%	19	22.6%
The Art Institute of Washington-Dulles	0	0.0%	3	16.7%	15	34.9%	18	21.4%
<b>Total</b>	<b>23</b>	<b>100.0%</b>	<b>18</b>	<b>100.0%</b>	<b>43</b>	<b>100.0%</b>	<b>84</b>	<b>100.0%</b>

**Table 5. Five-Year Projections for Target Occupations: 2016 through 2021**

Occupation	2016 Jobs	Annual Openings	Median Hourly Earnings	Projected Growth (2016–2021)	Location Quotient (2016)*
Information Security Analysts	7,946	260	\$53.40	9.4%	9.99
Computer Network Architects	6,232	165	\$55.64	6.5%	4.81
Graphic Designers	2,637	94	\$32.23	4.6%	1.47
Web Developers	2,427	135	\$42.61	20.5%	2.10
Multimedia Artists and Animators	203	10	\$34.59	14.8%	0.74



Information Technology and Computer Science Programs

Occupation	2016 Jobs	Annual Openings	Median Hourly Earnings	Projected Growth (2016–2021)	Location Quotient (2016)*
<b>Regional</b>	<b>19,445</b>	<b>664</b>	<b>\$49.79</b>	<b>9.3%</b>	<b>6.09**</b>
<b>National</b>	<b>623,091</b>	<b>20,052</b>	<b>\$34.89</b>	<b>7.3%</b>	<b>1.00</b>

\*See Introduction for explanation of Location Quotient

\*\*Weighted average of the Location Quotients for all Target Occupations

**Table 6. National Educational Attainment of Target Occupations: 2016**

Occupation	< High School Diploma	High School Diploma or Equivalent	Some College, No Degree	Associate's Degree	Bachelor's Degree	Master's Degree	Doctoral Degree
Information Security Analysts	0.8%	5.5%	18.7%	8.9%	44.6%	20.2%	1.4%
Computer Network Architects	0.2%	5.4%	23.3%	13.7%	40.4%	15.8%	1.2%
Graphic Designers	2.3%	9.8%	17.6%	12.7%	47.4%	8.7%	1.4%
Web Developers	0.5%	4.3%	17.3%	9.9%	52.2%	14.6%	1.2%
Multimedia Artists and Animators	3.0%	10.7%	18.4%	9.0%	45.0%	12.0%	1.9%

**Part 2. Mathematics Programs**

**Program: Science/Mathematics Specialization, A.S.**

**Table 1. Five-Year Completion Trends by NOVA Program: 2011 through 2015**

NOVA Program	2011 Completions	2015 Completions	% Change
Science/Mathematics Specialization, A.S.	31	45	45.2%
<b>NOVA Completions</b>	<b>31</b>	<b>45</b>	<b>45.2%</b>

**Trends for CIP Code: Biological and Physical Sciences (30.0101)**

**Table 2. Five-Year Completion Trends: 2011 through 2015**

Location	2011 Completions	2015 Completions	% Change
NOVA	269	372	38.3%
Region	275	375	36.4%
State	913	1,274	39.5%
Nation	16,211	24,658	52.1%

NOTE: This CIP code encompasses other NOVA programs not included in this Guided Pathway.

**Table 3. Regional Completions by Award: 2015**

Award Level	Completions	
	#	%
Associate's Degree	372	99.2%
Doctoral Degree	3	0.8%
<b>Total</b>	<b>375</b>	<b>100.0%</b>

**Table 4. Regional Completions by Institution and Award: 2015**

Institution	Associate's Degree		Doctoral Degree		Total	
	#	%	#	%	#	%
NOVA	372	100.0%	0	0.0%	372	99.2%
George Mason University	0	0.0%	3	100.0%	3	0.8%
<b>Total</b>	<b>45</b>	<b>100.0%</b>	<b>3</b>	<b>100.0%</b>	<b>48</b>	<b>100.0%</b>

**Table 5. Five-Year Projections for Target Occupations: 2016 through 2021**

Occupation	2016 Jobs	Annual Openings	Median Hourly Earnings	Projected Growth (2016–2021)	Location Quotient (2016)*
Natural Sciences Managers	790	24	\$63.03	4.3%	1.65
<b>Regional</b>	<b>790</b>	<b>24</b>	<b>\$63.03</b>	<b>4.3%</b>	<b>1.65</b>
<b>National</b>	<b>56,107</b>	<b>1,689</b>	<b>\$60.00</b>	<b>4.4%</b>	<b>1.00</b>

\*See Introduction for explanation of Location Quotient

Mathematics Programs

**Table 6. National Educational Attainment of Target Occupations: 2016**

<b>Occupation</b>	<b>&lt; High School Diploma</b>	<b>High School Diploma or Equivalent</b>	<b>Some College, No Degree</b>	<b>Associate's Degree</b>	<b>Bachelor's Degree</b>	<b>Master's Degree</b>	<b>Doctoral Degree</b>
Natural Science Managers	0.6%	1.4%	4.0%	2.3%	33.2%	31.4%	27.2%

## Appendix

**Appendix Table 1. CIP Codes, NOVA Programs, and NOVA Completions: 2011 and 2015**

CIP Code		NOVA		
CIP Code	Description	NOVA Program	2011 Completions	2015 Completions
01.0601	Applied Horticulture/Horticulture Operations, General	Horticulture Technology, A.A.S.	0	5
		Horticulture Technology/Landscape Design Specialization, A.A.S.	5	1
04.0901	Architectural Technology/Technician	Architecture Technology, A.A.S.	15	25
10.0299	Audiovisual Communications Technologies/Technicians, Other	Music Recording Technology, Certificate	4	6
11.0101	Computer and Information Sciences, General	Information Systems Technology, A.A.S.	49	69
		Application Programming, CSC	1	12
		Database Specialist, CSC	2	22
		IT Technical Support, CSC	7	23
11.0103	Information Technology	Information Technology, A.S.	278	362
11.0701	Computer Science	Computer Science, A.S.	61	135
11.0801	Web Page, Digital/Multimedia and Information Resources Design	Web Design and Development, CSC	2	13
		Web Design Specialist, CSC	12	9
11.1003	Computer and Information Systems Security/Information Assurance	CyberSecurity, A.A.S.	--	4
12.0500	Cooking and Related Culinary Arts, General	Culinary Arts, Certificate	8	10
13.1501	Teacher Assistant/Aide	Paraprofessional Teacher Assistant, CSC <sup>†</sup>	9	8
14.0101	Engineering, General	Engineering, A.S.	68	86
		Engineering/Electrical Engineering Specialization, A.S.	47	71
14.3801	Surveying Engineering	Geographic Information Systems (GIS), CSC	8	10
15.0000	Engineering Technology, General	Engineering Technology, A.A.S.	0	1
		Engineering Technology/Civil Engineering Technology Specialization, A.A.S.	3	5

<sup>†</sup>Discontinued in Fall 2016.

CIP Code		NOVA		
CIP Code	Description	NOVA Program	2011 Completions	2015 Completions
		Engineering Technology/Drafting Specialization, A.A.S.	1	1
		Engineering Technology/Mechanical Engineering Technology Specialization, A.A.S.	2	3
15.0201	Civil Engineering Technology/Technician	Site Development, CSC (formerly Land Planning, Survey, and Development)	1	0
15.0303	Electrical, Electronic and Communications Engineering Technology/Technician	Cybersecurity, CSC (formerly Network Security)	5	35
		Network Administration, CSC	7	15
		Network Engineering (Specialist), CSC	8	26
15.1302	CAD/CADD Drafting and/or Design Technology/Technician	Computer Aided Drafting and Design, CSC	23	21
15.1303	Architectural Drafting and Architectural CAD/CADD	Architectural Drafting, Certificate	9	9
16.1603	Sign Language Interpretation and Translation	American Sign Language to English Interpretation, A.A.S.	8	8
		American Sign Language, CSC	10	10
19.0709	Child Care Provider/Assistant	Early Childhood Development, A.A.S.	28	57
		Early Childhood Development/School-Age Child Specialization, A.A.S.†	1	5
		Early Childhood Development, Certificate	35	35
		Early Childhood Development, CSC	20	71
		Infant and Toddler Care, CSC	9	12
22.0302	Legal Assistant/Paralegal	Paralegal Studies, A.A.S.	40	41
23.1303	Professional, Technical, Business, and Scientific Writing	Professional Writing, Certificate	3	2
24.0102	General Studies	General Studies, A.S.	1,131	1,468
		General Studies/Recreation, Parks, and Leisure Studies Specialization, A.S.	6	8
24.0103	Humanities/Humanistic Studies	Liberal Arts, A.A.	367	321
		Liberal Arts/Art History Specialization, A.A.	3	2
		Liberal Arts/Communication Studies Specialization, A.A.	19	22
		Liberal Arts/English Specialization, A.A.	--	3
		Liberal Arts/International Studies Specialization, A.A.	47	33

CIP Code		NOVA		
CIP Code	Description	NOVA Program	2011 Completions	2015 Completions
		Liberal Arts/Psychology Specialization, A.A.	39	34
		African-American Studies, CSC <sup>†</sup>	0	0
		Chinese Studies, CSC <sup>†</sup>	2	0
		Japanese Studies, CSC <sup>†</sup>	2	2
		Latin American Studies, CSC <sup>†</sup>	2	6
		Public History and Historic Preservation, CSC (formerly Historic Preservation)	7	2
24.0199	Liberal Arts and Sciences, General Studies and Humanities, Other	General Education, Certificate	1,142	890
30.0101	Biological and Physical Sciences	Science, A.S.	237	327
		Science/Mathematics Specialization, A.S.	31	45
31.0301	Parks, Recreation and Leisure Facilities Management, General	Fitness, CSC	7	18
		Outdoor Recreation and Resource Management, CSC	0	0
		Recreation Programming and Administration, CSC	1	0
41.0101	Biology Technician/Biotechnology Laboratory Technician	Biotechnology, A.A.S.	1	9
		Biotechnology Lab Technician, CSC	0	5
43.0103	Criminal Justice/Law Enforcement Administration	Administration of Justice, A.A.S.	61	89
		Administration of Justice, Certificate	22	20
		National Security, CSC	0	7
		Security Management, CSC	1	1
43.0106	Forensic Science and Technology	Forensic Investigation (Advanced), CSC	1	2
		Forensic Investigation (General), CSC	7	3
43.0203	Fire Science/Fire-fighting	Fire Science Technology, A.A.S.	1	2
45.0101	Social Sciences, General	Social Sciences, A.S.	323	391
		Social Sciences/Deaf Studies Specialization, A.S.	3	2
		Social Sciences/Geospatial Specialization, A.S.	--	2
		Social Sciences/Political Science Specialization, A.S.	3	31
		Social Sciences/Psychology Specialization, A.S.	102	138

CIP Code		NOVA		
CIP Code	Description	NOVA Program	2011 Completions	2015 Completions
		Social Sciences/Teacher Education Specialization, A.S.	59	99
		Drivers Education, CSC	3	1
46.0000	Construction Trades, General	Construction Management Technology, A.A.S.	7	14
		Construction Supervision, CSC	3	11
47.0201	Heating, Air Conditioning, Ventilation and Refrigeration Maintenance Technology/Technician.	Air Conditioning and Refrigeration, A.A.S.	17	33
		Air Conditioning and Refrigeration, Certificate	17	18
		HVAC-R and Facilities Services Technology, CSC	11	29
47.0604	Automobile/Automotive Mechanics Technology/Technician	Automotive Technology, A.A.S.	23	26
		Automotive Technology/Emissions Specialization, A.A.S.	6	5
		Automotive Maintenance and Light Repair, CSC	10	12
		Collision Repair Technology, CSC	3	6
47.0605	Diesel Mechanics Technology/Technician	Diesel Mechanics Technology, CSC	1	0
48.0508	Welding Technology/Welder	Welding: Basic Techniques, CSC	1	13
50.0101	Visual and Performing Arts, General	Fine Arts, A.A.	50	35
		Music, A.A.	4	6
		Music, A.A.A.	9	7
		Music/Jazz/Popular Music Specialization, A.A.A.	2	0
		Theatre, CSC	4	2
50.0401	Design and Visual Communications, General	Communication Design, A.A.S.	23	26
		Communication Design/Interactive Design Specialization, A.A.S.	7	17
		Multimedia Design, Certificate	2	1
		Electronic Media in Design, Rendering, and Animation, CSC†	0	1
50.0408	Interior Design	Interior Design, A.A.S.	25	21
50.0605	Photography	Photography and Media, A.A.S.	13	13
50.9999	Visual and Performing Arts, Other	Fine Arts, A.A.A.	11	12
		Fine Arts/Photography Specialization, A.A.A.	4	2

†Discontinued in Fall 2016.

CIP Code		NOVA		
CIP Code	Description	NOVA Program	2011 Completions	2015 Completions
51.0601	Dental Assisting/Assistant	Dental Assisting, Certificate	--	0
51.0602	Dental Hygiene/Hygienist	Dental Hygiene, A.A.S.	38	37
51.0707	Health Information/Medical Records Technology/Technician	Health Information Management, A.A.S.	24	7
		Clinical Data Coding, CSC	15	16
		Health Information Technology, CSC	--	3
51.0799	Health and Medical Administrative Services, Other	Medical Transcription, CSC†	0	0
51.0803	Occupational Therapist Assistant	Occupational Therapy Assistant, A.A.S.	--	12
51.0806	Physical Therapy Technician/Assistant	Physical Therapist Assistant, A.A.S.	30	29
51.0808	Veterinary/Animal Health Technology/Technician and Veterinary Assistant	Veterinary Technology, A.A.S.	34	46
51.0904	Emergency Medical Technology/Technician (EMT Paramedic)	Emergency Medical Services, A.A.S.	19	29
		Emergency Medical Technician–Basic, CSC	0	16
		Emergency Medical Technician–Intermediate, CSC	0	36
		Paramedic, CSC	0	24
51.0907	Medical Radiologic Technology/Science – Radiation Therapist	Radiation Oncology, A.A.S. (Distance degree program offered through Virginia Western Community College)	--	--
51.0908	Respiratory Care Therapy/Therapist	Respiratory Therapy, A.A.S.	15	21
51.0910	Diagnostic Medical Sonography/Sonographer and Ultrasound Technician	Diagnostic Medical Sonography, A.A.S.	7	8
51.0911	Radiologic Technology/Science - Radiographer	Radiography, A.A.S.	39	30
51.0999	Allied Health Diagnostic, Intervention, and Treatment Professions, Other	Health Science, CSC	--	18
51.1004	Clinical/Medical Laboratory Technician	Medical Laboratory Technology, A.A.S.	15	16
		Phlebotomy, CSC	23	25



CIP Code		NOVA		
CIP Code	Description	NOVA Program	2011 Completions	2015 Completions
51.1501	Substance Abuse/Addiction Counseling	Substance Abuse Rehabilitation Counselor, Certificate	9	16
51.3501	Massage Therapy/Therapeutic Massage	Massage Therapy, CSC	17	20
51.3801	Registered Nursing/Registered Nurse	Nursing, A.A.S.	210	148
52.0201	Business Administration and Management, General	Business Administration, A.S.	897	1,006
52.0299	Business Administration, Management and Operations, Other	Business Management, A.A.S.	27	35
		Business Management/Finance Specialization, A.A.S.†	2	5
		Business Management/Healthcare Administration Specialization, A.A.S.†	0	4
		Business Management/International Business Specialization, A.A.S.†	5	4
		Business Management/Public Management Specialization, A.A.S.†	0	0
		Contract Management, A.A.S.	4	5
		Marketing, A.A.S.	4	2
		Marketing/Digital Marketing Specialization, A.A.S.† (formerly e-Commerce Specialization)	0	1
		Marketing/International Marketing Specialization, A.A.S.†	1	1
		Marketing/Public Relations Specialization, A.A.S.†	1	4
		Contract Management, Certificate	12	6
		Business Information Technology, CSC	56	158
		Entrepreneurship, CSC	0	2
		Leadership Development, CSC	5	9
		Marketing, CSC	4	6
		Promotion and Public Relations, CSC	3	6
Retail Management, CSC	2	3		
Social Media Marketing, CSC (formerly e-Commerce)	7	9		
52.0399	Accounting and Related Services, Other	Accounting, A.A.S.	32	37
		Bookkeeping, Certificate	34	37

CIP Code		NOVA		
CIP Code	Description	NOVA Program	2011 Completions	2015 Completions
		Accounting, CSC	35	47
52.0901	Hospitality Administration/Management, General	Hospitality Management, A.A.S.	13	18
		Hospitality Management/Food Service Management Specialization, A.A.S.	5	5
		Hospitality Management/Hotel Management Specialization, A.A.S.	4	4
		Hospitality Management/Nutrition Management Specialization, A.A.S.	7	3
		Meeting, Event, and Exhibition Management, Certificate	9	7
52.0903	Tourism and Travel Services Management	Travel and Tourism, A.A.S.	2	1
		Travel and Tourism, Certificate	7	2
		Tour Guiding, CSC	4	3
52.1501	Real Estate	Real Estate Brokerage, Certificate	0	1
		Real Estate Brokerage, CSC	0	1

Source: National Center for Education Statistics (NCES) list of Classification of Instructional Programs (CIP) Codes. <https://nces.ed.gov/ipeds/cipcode/>

**Appendix Table 2. List of NOVA Programs by Guided Pathway**

<b>NOVA Programs by Guided Pathway</b>
<p><b>1. Biology and Biotechnology Programs</b></p> <ul style="list-style-type: none"><li>• Biotechnology, A.A.S.<ul style="list-style-type: none"><li>○ Biotechnology Lab Technician, Career Studies Certificate</li></ul></li><li>• Horticulture Technology, A.A.S.<ul style="list-style-type: none"><li>○ Horticulture Technology, A.A.S./Landscape Design Specialization</li></ul></li><li>• Veterinary Technology, A.A.S.</li></ul>
<p><b>2. Business Programs</b></p> <ul style="list-style-type: none"><li>• Accounting A.A.S.<ul style="list-style-type: none"><li>○ Accounting, Career Studies Certificate</li><li>○ Bookkeeping, Certificate</li></ul></li><li>• Business Administration, A.S.</li><li>• Business Management, A.A.S.<ul style="list-style-type: none"><li>○ Business Management, A.A.S./Finance Specialization<sup>†</sup></li><li>○ Business Management, A.A.S./Healthcare Administration Specialization<sup>†</sup></li><li>○ Business Management, A.A.S./International Business Specialization<sup>†</sup></li><li>○ Business Management, A.A.S./Public Management Specialization<sup>†</sup></li><li>○ Business Information Technology, Career Studies Certificate</li><li>○ Entrepreneurship, Career Studies Certificate</li><li>○ Leadership Development, Career Studies Certificate</li></ul></li><li>• Contract Management, A.A.S.<ul style="list-style-type: none"><li>○ Contract Management, Certificate</li></ul></li><li>• Hospitality Management, A.A.S.<ul style="list-style-type: none"><li>○ Hospitality Management, A.A.S./Food Service Management Specialization</li><li>○ Hospitality Management, A.A.S./Hotel Management Specialization</li><li>○ Hospitality Management, A.A.S. /Nutrition Management Specialization</li><li>○ Meeting, Event, and Exhibition Management, Certificate</li></ul></li><li>• Culinary Arts, Certificate</li><li>• Marketing, A.A.S.<ul style="list-style-type: none"><li>○ Marketing, A.A.S./Digital Marketing Specialization<sup>†</sup> (formerly e-Commerce Specialization)</li><li>○ Marketing, A.A.S./International Marketing Specialization<sup>†</sup></li><li>○ Marketing, A.A.S./Public Relations Specialization<sup>†</sup></li><li>○ Social Media, Career Studies Certificate (formerly e-Commerce)</li><li>○ Marketing, Career Studies Certificate</li><li>○ Promotion &amp; Public Relations, Career Studies Certificate</li><li>○ Retail Management, Career Studies Certificate</li></ul></li></ul>
<p><b>3. Health Sciences Programs</b></p> <ul style="list-style-type: none"><li>• Dental Hygiene, A.A.S.</li><li>• Dental Assisting, Certificate</li><li>• Diagnostic Medical Sonography, A.A.S.</li><li>• Emergency Medical Services, A.A.S.<ul style="list-style-type: none"><li>○ Emergency Medical Technician – Basic, Career Studies Certificate</li><li>○ Emergency Medical Technician – Intermediate, Career Studies Certificate</li></ul></li></ul>

### **NOVA Programs by Guided Pathway**

- Paramedic, Career Studies Certificate
- Fire Science Technology, A.A.S.
- Fitness, Career Studies Certificate
- Health Information Management, A.A.S.
  - Clinical Data Coding, Career Studies Certificate
  - Health Information Technology, Career Studies Certificate
- Health Science, Career Studies Certificate
- Massage Therapy, Career Studies Certificate
- Medical Laboratory Technology, A.A.S.
  - Phlebotomy, Career Studies Certificate
- Medical Transcription, Career Studies Certificate†
- Nursing, A.A.S.
- Occupational Therapy Assistant, A.A.S.
- Physical Therapist Assistant, A.A.S.
- Radiation Oncology, A.A.S. (Distance Learning program offered through VA Western CC)
- Radiography, A.A.S.
- Respiratory Therapy, A.A.S.

#### **4. Information Technology, Computer Science, and Mathematics Programs**

##### *Information Technology and Computer Science Programs*

- Computer Science, A.S.
- Cybersecurity, A.A.S.
- Cybersecurity, Career Studies Certificate (formerly Network Security)
  - Network Administration, Career Studies Certificate
  - Network Engineering (Specialist), Career Studies Certificate
- Information Systems Technology, A.A.S.
  - Application Programming, Career Studies Certificate
  - Database Specialist, Career Studies Certificate
  - IT Technical Support, Career Studies Certificate
- Information Technology, A.S.
- Web Design and Development, Career Studies Certificate
  - Web Design Specialist, Career Studies Certificate

##### *Mathematics Programs*

- Science, A.S./Mathematics Specialization

#### **5. Liberal Arts and Social Science Programs**

##### *Liberal Arts Programs*

- Liberal Arts A.A.
  - Liberal Arts, A.A./Art History Specialization
  - Liberal Arts, A.A./International Studies Specialization
  - Liberal Arts, A.A./Psychology Specialization
  - Liberal Arts, A.A./Communication Studies
  - Liberal Arts, A.A./English Specialization
  - African-American Studies, Career Studies Certificate†
  - Chinese Studies, Career Studies Certificate†
  - Japanese Studies, Career Studies Certificate†

## NOVA Programs by Guided Pathway

- Latin American, Studies Career Studies Certificate<sup>†</sup>
- Professional Writing, Certificate
- American Sign Language to English Interpretation, A.A.S.
  - American Sign Language, Career Studies Certificate
- General Education, Certificate
- General Studies, A.S.
  - General Studies, A.S./Recreation, Parks & Leisure Studies Specialization
- Outdoor Recreation and Resource Management, Career Studies Certificate
  - Recreation Programming and Administration, Career Studies Certificate

### *Social Science Programs*

- Social Sciences, A.S.
  - Social Sciences, A.S./Deaf Studies Specialization
  - Social Sciences, A.S./Political Science Specialization
  - Social Sciences, A.S./Psychology Specialization
  - Social Sciences, A.S./Geospatial Specialization
- Public History and Historic Preservation, Career Studies Certificate (formerly Historic Preservation)

## **6. Physical Science, Engineering, and Applied Technologies Programs**

### *Applied Technology Programs*

- Architecture Technology, A.A.S.
- Architectural Drafting, Certificate
- Air Conditioning and Refrigeration, A.A.S.
  - Air Conditioning and Refrigeration, Certificate
  - HVAC-R and Facilities Services Technology, Career Studies Certificate
- Automotive Technology, A.A.S.
  - Automotive Technology, A.A.S./Emissions Specialization
  - Automotive Maintenance and Light Repair, Career Studies Certificate
  - Collision Repair Technology, Career Studies Certificate
- Diesel Mechanics Technology, Career Studies Certificate
- Construction Management Technology, A.A.S.
  - Construction Supervision, Career Studies Certificate
- Engineering Technology, A.A.S.
  - Engineering Technology, A.A.S./Civil Engineering Technology Specialization
  - Engineering Technology, A.A.S./Drafting Specialization
  - Engineering Technology, A.A.S./Mechanical Engineering Technology Specialization
- Computer Aided Drafting and Design, Career Studies Certificate
- Electronic Media in Design Rendering and Animation, Career Studies Certificate<sup>†</sup>
- Site Development, Career Studies Certificate (formerly Land Planning, Survey, and Development)
- Geographic Information Systems, Career Studies Certificate
- Welding/Basic Techniques, Career Studies Certificate

### *Physical Science and Engineering Programs*

- Engineering, A.S.

## NOVA Programs by Guided Pathway

- Engineering, A.S./Electrical Engineering Specialization
- Science, A.S.

### 7. Public Service, Social Service, and Education Programs

#### *Public and Social Service Programs*

- Administration of Justice, A.A.S.
  - Administration of Justice, A.A.S./Homeland Security Specialization
  - Administration of Justice, Certificate
  - Security Management, Career Studies Certificate
  - National Security Career, Studies Certificate
- General Forensic Investigation, Career Studies Certificate
  - Advanced Forensic Investigation, Career Studies Certificate
- Paralegal Studies, A.A.S.
- Substance Abuse Rehabilitation Counselor, Certificate

#### *Education Programs*

- Early Childhood Development, A.A.S.
  - Early Childhood Development, A.A.S./School-Age Child Specialization<sup>†</sup>
  - Early Childhood Development, Certificate
  - Infant and Toddler Care, Career Studies Certificate
  - Early Childhood Development, Career Studies Certificate
- Paraprofessional Teacher Assistant, Career Studies Certificate<sup>†</sup>
- Social Sciences, A.S./Teacher Education Specialization
  - Driver Education, Career Studies Certificate

### 8. Visual and Performing Arts, Digital Media, and Design Programs

- Communication Design, A.A.S.
  - Communication Design, A.A.S./Interactive Design Specialization
  - Multimedia Design, Certificate
- Web Design Specialist, Career Studies Certificate
- Fine Arts, A.A.
- Fine Arts, A.A.A.
  - Fine Arts, A.A.A./Photography Specialization
- Interior Design, A.A.S.
- Music, A.A.
- Music, A.A.A.
  - Music, A.A.A./Jazz/Popular Music Specialization
  - Theatre, Career Studies Certificate
- Music Recording Technology, Certificate
- Photography and Media, A.A.S.

## ***NOVA Mission and Strategic Goals***

### **Mission**

With commitment to the values of access, opportunity, student success, and excellence, the mission of Northern Virginia Community College is to deliver world-class in-person and online post-secondary teaching, learning, and workforce development to ensure our region and the Commonwealth of Virginia have an educated population and globally competitive workforce.

### **Strategic Goals**

- I. **STUDENT SUCCESS** – Northern Virginia Community College will move into the top tier of community colleges with respect to the college readiness, developmental course completion, retention, graduation, transfer, and career placement of its students.
- II. **ACCESS** – Northern Virginia Community College will increase the number and diversity of students being served to mirror the population growth of the region.
- III. **TEACHING AND LEARNING** – Northern Virginia Community College will focus on student success by creating an environment of world-class teaching and learning.
- IV. **EXCELLENCE** – Northern Virginia Community College will develop ten focal points of excellence in its educational programs and services that will be benchmarked to the best in the nation and strategic to building the College's overall reputation for quality.
- V. **LEADERSHIP** – Northern Virginia Community College will serve as a catalyst and a leader in developing educational and economic opportunities for all Northern Virginians and in maintaining the quality of life and economic competitiveness of the region.
- VI. **PARTNERSHIPS** – Northern Virginia Community College will develop strategic partnerships to create gateways of opportunity and an integrated educational system for Northern Virginians who are pursuing the American Dream.
- VII. **RESOURCES** – Northern Virginia Community College will increase its annual funding by \$100 million and expand its physical facilities by more than one million square feet in new and renovated space. This includes the establishment of two additional campuses at epicenters of the region's population growth, as well as additional education and training facilities in or near established population centers.
- VIII. **EMERGENCY PREPAREDNESS AND CONTINUITY OF OPERATIONS** – Northern Virginia Community College will be recognized as a leader among institutions of higher education in Virginia for its development and testing of emergency response and continuity of operation plans.

# NOVA

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**Northern Virginia  
Community College**

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