WENATCHEE VALLEY COLLEGE

Bachelor of Applied Science Degree in Data Analytics
Statement of Need
July, 2018

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COVER SHEET
STATEMENT OF NEED

Program Information

Institution Name: **Wenatchee Valley College**

Degree Name: **Bachelor of Applied Science – Data Analytics** CIP Code: _____

Name(s) of existing technical associate degree(s) that will serve as the foundation for this program:

Degree: **Associate of Technical Science Degree** CIP Code: **11.0901** Year Began: **2001**

Degree: _____ CIP Code: _____ Year Began: _____

Proposed Start Implementation Date (i.e. Fall 2014): **Fall 2019**

Projected Enrollment (FTE) in Year One: **15** at Full Enrollment by Year: Four

Funding Source: State FTE: ☒ Self-Support: ☐ Other: ☐

Mode of Delivery

Single Campus Delivery: **Yes**

Off-site: **No**

Distance Learning: **Yes, the BAS will be comprised of face-to-face, hybrid and online.**

Statement of Need: *Please see criteria and standard sheet FORM B.*
Page Limit: 20 pages

Contact Information (Academic Department Representative)

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Chief Academic Officer

7/18/18
Date

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Introduction

Wenatchee Valley College (WVC) plays an essential role providing educational and cultural opportunities to the 149,000 residents of North Central Washington in Chelan, Douglas and Okanogan counties, an area covering over 10,000 square miles. North Central Washington has multiple businesses and industries that require advanced computer skills and knowledge including: information technology, networking, software development, applications development, programming and database design/development.

WVC is known throughout North Central Washington for the opportunities it provides for residents of its three-county district. From dual enrollment programs with our K-12 partner institutions to highly sought-after workforce education programs, WVC serves this predominately rural region of Washington State. As the only comprehensive community college for 100 miles in any direction, WVC provides opportunities for people to pursue numerous pathways, needs, and wants, through its basic education, community education, workforce education, and transfer programs. WVC is also well equipped to meet the large geographic reaches of its district. The Omak extension site, located 100 miles north of Wenatchee, provides basic education, workforce education, and transfer programs on a smaller scale to serve the needs of the northern reach of the district. In addition, WVC provides a very strong online education experience through Canvas and the Teaching and Learning Center (which also addresses "beaming classes" through an interactive television network).

WVC is serving an increasingly diverse student body. Approximately one-quarter of the population in WVC's district identifies as Hispanic/Latino, and about five percent is Native American. WVC met the criteria to be designated as a Hispanic-Serving Institution (HSI) in 2012, with Hispanic students exceeding 25% of the degree or certificate-seeking undergraduate enrollment. In fall 2014, 48% of WVC's total enrollment was students of color.

WVC now offers two BAS degrees: BAS-Engineering Technology and BAS–Nursing. Both the BAS-ET and BSN degrees evolved out of a community need to meet external educational credentialing demands of nurses in the workforce, while being place-bound in North Central Washington. Similar to the history of the BAS in Engineering Technology and BSN degree development, the evolution of the BAS-DA grew out of the demand in our district for more educational programs in computer technology.

After consulting with regional industry partners and neighboring higher education partners, surveying employers, and receiving encouragement from WVC President Richardson and our Board of Trustees, the college determined that adding a Baccalaureate in Applied Science in Data Analytics (BAS-DA) was essential to serve the educational and workforce needs of the region. The new degree program will be for students who have completed a related technical associate degree. Through a combination of face-to-face, hybrid, and online classes, this full-time program will take students approximately six quarters to earn the BAS-DA degree.

The degree will focus on Data Analytics. As an emerging field, Data Analytics refers to collecting, identifying and interpreting both qualitative and quantitative data. This data can be used to inform industry related to productivity or other business decisions. This data can also inform researchers to prove or disprove theories and hypotheses. The BAS-DA program at WVC will equip graduates with a broad depth of knowledge. This knowledge will include information systems, applied statistics, management science, data analysis and computer technology.

The BAS-DA degree at WVC has as its program outcomes to produce graduates who, after completing the program will be able to:

- Obtain, process, analyze and interpret data ethically.
- Interpret data findings effectively to various audiences, orally, visually and in written formats.
- Utilize critical thinking skills in order to find solutions to various industry challenges.

- Apply computing theory, languages and algorithms, as well as mathematical and statistical models, and the principles of optimization to appropriately formulate and use data analyses.
- Formulate and use appropriate models of data analysis to explain trends.
- Acquire training and education to seek employment or advance in current employment in computer technology fields.

In preparation for this Statement of Need, WVC utilized Maureen Majury, the Director for the Center of Excellence for Information and Computing Technology at Bellevue College, conducted a program review of the current Computer Technology Program at WVC (see Appendix 6). In preparing her review, Ms. Majury analyzed the program's strengths, challenges and potential for new pathways to meet workforce demand in the college service district. Her findings will be referenced throughout this document.

Criteria One:
Relationship to Institutional Role, Mission, and Program Priorities

The proposed Bachelor of Applied Science in Data Analytics (BAS-DA) aligns with Wenatchee Valley College's (WVC) mission and core themes.

Wenatchee Valley College's mission and core themes state:

Wenatchee Valley College enriches North Central Washington by serving educational and cultural needs of communities and residents throughout the service area. The college provides high-quality transfer, liberal arts, professional/technical, basic skills and continuing education for students of diverse ethnic and economic backgrounds.

This program meets the goal of the college by offering a high-quality local program to the diverse ethnic and socioeconomic student population throughout WVC's service district.

Our Core Themes:

Educational Achievement: Students will achieve their goals for education and employment through preparation for successful transfer to the baccalaureate level, development of the professional/technical expertise for successful entry into the workforce, or proficiency in college readiness skills needed to pursue goals for further education and employment.

Support for Learning: WVC's non-instructional programs and services will support students' attainment of their educational goals and promote access to all of the college's educational opportunities.

Responsiveness to Local Needs: WVC's degrees, programs, courses and services will be responsive to local demand and community needs. WVC will actively seek community input through its foundations, advisory committees, and collaboration with external organizations.

Diversity and Cultural Enrichment: Students and staff will be supported by practices and policies that create an inclusive environment for learning and work. The college community and residents of District 15 will have opportunities to experience diverse and multi-culturally rich perspectives through curriculum, educational programs, and special events.

Every new program considered by the college must tie directly to the mission and core themes. This new degree, in particular, will provide opportunities and pathways for the district that currently do not exist. Graduates of our existing technical associate degree programs have the opportunity to join the workforce upon graduation (often times, students are recruited before they graduate) or transfer to a university to pursue a four-year degree. The closest option for graduates who want to transfer is Central Washington University, which is located 69 miles from Wenatchee Also, current workers who require additional credentials are often forced to travel a great distance, or go online at a great expense to the student.

Because the college's service region is vast and geographically isolated, there are few opportunities for residents to work in high wage jobs. To obtain education beyond an associate degree, students must either enroll in a completely online degree or leave the region to achieve their goal, which for many, is impossible due to financial and family demands.

Therefore with a BAS-DA degree option at WVC, students will be able to gain advanced education in both qualitative and quantitative data management beyond what is currently available in the region. This, in turn, will create a more highly trained workforce who can take on greater levels of responsibility in order to serve students in North Central Washington. This is critical to the region's economy and employability of its citizens for several reasons.

With the start of two new Bachelor of Applied Science programs, WVC has established more educational programs to benefit the North Central Washington region. These new options, along with the BAS-DA will benefit not only students, but also business and industry in North Central Washington. This type of program will allow local employers to find local talent, without having to compete with larger regions such as Seattle or Spokane for qualified applicants.

Criteria Two:
Support of the Statewide Strategic Plan

The State Board for Community and Technical Colleges (SBCTC) Mission Study focused on four areas of need for the state's community and technical colleges:

- Strengthen state and local economies by meeting the demands for a well-educated and skilled workforce.
- Achieve increased educational attainment for all residents across the state.
- Use technology, collaboration and innovation to meet the demands of the economy and improve student success.
- Increase the number of baccalaureate degrees conferred.

In addition to SBCTC, The Washington Student Achievement Council (WSAC), through the Washington Higher Education Coordinating Board implemented a Strategic Master Plan to raise educational attainment in the state through seven steps:

1. Increase capacity of higher education to serve more students.
2. Maintain commitment to access for low-income students.
3. Build on efforts to increase transitions and completion.
4. Provide a simple funding initiative to increase the number of graduates; quality of education.
5. Define and develop K-12 to postsecondary program pathways.
6. Promote accelerated learning programs for high school students and adult learners.
7. Maintain commitment to the original 2008 degree goals.

WVC's proposed BAS-DA program supports SBCTC's Statewide Strategic Plan in all four areas. WVC's proposed BAS-T program also supports WSAC's Strategic Master Plan to raise educational attainment. First, the economy in North Central Washington will be strengthened by increasing the number of qualified job applicants needed to address the teacher shortage in the area. Second, offering more degree programs, especially baccalaureate degrees, increases the educational attainment for students in the area. These place-bound students now have access to baccalaureate-level educational programs that were not possible in the past. Third, the BAS-DA program will focus on technology and give students the tools that they need to be successful. Fourth, by adding this baccalaureate-level program, WVC continues to offer programs that benefit North Central Washington and the entire 10,000 square mile service district. This program will add to the established programs already offered at WVC.

According to the United States Bureau of Labor Statistics, in May 2016, Washington State is one the top employers in computer jobs. Washington State employs 15,260 – 75,750 computer systems analysts, computer programmers and 970-2,640 information security analysts, database administrators, network and computer systems administrators and computer network support specialists. (Retrieved from https://www.bls.gov/oes/current/map_changer.htm 2017 January).

The results of the research done for this Statement of Need - including surveys of local business, industry and students overwhelmingly support the need for WVC offering the BAS-DA degree (the results to the aforementioned survey questions are in the appendices). It is clear that the BAS-DA program is needed at WVC and will help fill the need of multiple business and industry partners in North Central Washington. In addition, the need for data analytics workers is expected to grow.

The BAS-DA degree at WVC has as its program outcomes to produce graduates who, after completing the program will be able to:

- Obtain, process, analyze and interpret data ethically.
- Interpret data findings effectively to various audiences, orally, visually and in written formats.
- Utilize critical thinking skills in order to find solutions to various industry challenges.
- Apply computing theory, languages and algorithms, as well as mathematical and statistical models, and the principles of optimization to appropriately formulate and use data analyses.
- Formulate and use appropriate models of data analysis to explain trends.
- Acquire training and education to seek employment or advance in current employment in computer technology fields.

Students who complete this degree at WVC will help alleviate the needs of local industry throughout out the college service district.

Criteria Three:
Employer/Community Demand for Graduates

The proposed BAS-DA degree program addresses all WVC system goals and mission by serving educational and cultural needs of communities and residents throughout the service district. By creating a baccalaureate-level education program based on technology, WVC will increase the educational attainment and skill levels of the local workforce to in order to help alleviate the shortage of employees with data analytics backgrounds in Washington State.

For the purpose of this Statement of Need, WVC created a Technology Need survey and sent the survey to many local business and industry partners. To preface this survey, a detailed explanation was included to assess the needs in the North Central Washington business community. WVC asked for input on the direction on the program and to garner information that would be most valuable to local business and industry.

The results of this survey support the need and interest in WVC offering the BAS-DA degree (the complete results to the survey questions are in Appendix 2. Of the survey respondents, 64.91% responded "yes" that they would employ or choose to employ persons with a Bachelors of Applied Science in Data Analytics. 50% of survey respondents answered that they have unfilled Data Analytics positions currently, or will in the near future. In addition, 51.85% of survey respondents stated they have current employees they would refer to a BAS in Data Analytics program at WVC. 66.67% of survey respondents answered that when hiring new employees, they prefer to hire those with a Bachelor's degree in Data Analytics. An overwhelming percentage of 83.33% respondents expect the job demand in this field to increase.
It is clear that the BAS-T program is needed at WVC and will help fill the need of multiple business and industry partners in North Central Washington.

In addition to the survey and work with the Center of Excellence for Information and Computing Technology at Bellevue College, economic education and occupation data was obtained through EMSI, an economics modeling company. The EMSI data was needed to supplement data collected from the surveys in relation to WVC's service district job openings, job replacements, etc. for this field. Please note that all discussion surrounding need for the need for this type of program at WVC is oriented around Baccalaureate-level Data Analytics positions.

By the year 2022, WVC's service district expects to have a 13.4% increase for Data Analytics-related occupations. This coincides with an expected increase of 13.3% in Washington State. Expected openings for the district are detailed by each county in the district in Appendix 5.

According to the Washington State Employment Security Department, demand for Computer User Support Specialists in North Central Washington covering Chelan, Douglas and Okanogan Counties is expected to rise (https://fortress.wa.gov/esd/employmentdata/reports-publications/occupational-reports/occupations-in-demand, retrieved December 2017).

In conducting her report (see Appendix 6), Maureen Majury, the Director for the Center of Excellence for Information and Computing Technology at Bellevue College noted the following:

> "In researching IT job demand in WVC's service district and region, the chart below is taken from a data request using EMSI. Trying to assess Wenatchee and neighboring counties' job demand in IT professions, using O*Net or the Occupational Outlook Handbook, both divisions of the National

> Bureau for Labor & Statistics, is not going to show an accurate statewide demand, as the majority of job openings are in King/Snohomish/Pierce counties.
>
> EMSI and Indeed.com present a far better real-time and projected workforce demand data-driven overview. Based upon the chart (found in Appendix 6), projections indicate a relatively low number of job openings for technology workers with annual openings averaging approximately 23, and overall job openings change through 2024 coming in at 133. The Center used Indeed.com to get a real-time overview of actual demand in WVC's service district using a radius of 50 miles, so cities like Quincy and Yakima are included. A comprehensive search was performed in July 2017, with a second search done again in November 2017 (found in Appendix 6).
>
> In researching and analyzing IT- and IT-enabled companies and organizations hiring patterns, the general trend shows the majority of occupations in demand are those in networking and systems. However, there is increasing demand between July 2017 and November 2017 in software development, applications development, programming, and database design/development" (M. Majury, Wenatchee Valley College IT Program Review Report).

Based on the results of the research that Ms. Majury conducted, the local job market needs in North Central Washington, and based on survey results the college conducted, WVC will cater the new Bachelor of Applied Science to focus on Data Analytics.

In February 2018, WVC invited an ad-hoc committee to the campus to discuss the possibility of creating a Bachelor of Applied Science degree focused on technology. This group presented valuable information for the direction of this program:

> "Steve Wright from Chelan Co PUD mentioned (see Appendix 4) the PUD is moving toward hydro power energy and we don't need more of the same, we need data analytics, Randi Pauli mentioned we need employee with a broad grasp of skill set, Cisco network and cyber-security analysis prepared. He also mentioned it is hard to hire local well educated people.
>
> Alex Smith mentioned the PUD is developing a Hydro Analytics Institute and they will be looking to hire two data analytics positions later this year. The PUD will be looking for master's degree oriented, industry and management prepared with a mathematical background. More positions these days require data structure and data management skills.
>
> Rene Hamilton has a standard computer science degree and most of the degrees these days do not include database management skills. It's hard to find a face to face or online degree that offers multiple levels. Everything is web connected. It was recommended that the committee look at what's working such as success of code academy. It was also recommended that the committee specify more one the layers and user interface. Rene has suggested the degree require a completion project with added electives. It was recommended the data analytics degree require statistics or linear algebra. However, more discussion is required on the topic."

An additional population of potential BAS-DA students who need this type of education program are WVC's Computer Technology (ATS) current students and graduates. On average, 13 students graduate WVC's CTS program annually. To gather this data, Ms. Majury surveyed both current and former students, in order to gather their interest in this type of program. The results of this survey indicated that students would be interested in continuing at WVC to obtain their BAS degree.

By utilizing all data sources, including the gap between job demand (current and projected job openings) and annual average supply of qualified teachers in WVC's service district, this research indicates that the BAS-DA program is needed in WVC's service district. WVC estimates an annual demand for 30 graduates

of the potential BAS-DA program, as the demand for data analysts in the district outweigh the current supply. Potential students of the BAS-DA include current and former WVC students and graduates, and students who had initially planned to move to another service district and place-bound students in North Central Washington. Based on this data, WVC is prepared to offer a new BAS-DA program to serve this need and continue to fulfil the mission of the college by serving all those seeking education in North Central Washington.

In conducting this research for this Statement of Need, a survey was conducted of local employers who represent institutions that employ or are likely to employ persons to do data analytics (see Appendix 2). In addition, economic education and occupation data was obtained through EMSI, an economics modeling company, to supplement data collected from the survey in relation to WVC's district job openings, job replacements, educational sourcing for data analytics employees (see Appendix 5). It should be noted that all discussion surrounding need is oriented around Baccalaureate-level data analytic positions.

It should be quickly noted here that economic workforce data for data analytics has not caught up with the labor market. Generally, there are no categories for data analytics in federal program or occupation codes. Deriving economic data around data analytics requires combining likely occupations available to those who receive data analytic degrees. These include a wide range of occupations in computer science, information technology, statistics, operations research, etc. As this is an emergent field of study and employment, economic data collected from government and private sources will undercount the actual demand.

The employer survey on the BAS in Data Analytics indicated that 52% (29 employers) of those surveyed (57 respondents) currently had employees who conducted data analytics research. Of those who currently have employees who do data analytics, about a third of employers have employees with less than a Bachelor's degree. Of those who indicated having persons doing data analytics, only 29% had actual degrees related with data analytics. The majority had a computer science or information technology background. Of all respondents, 83% indicated that they had employees that would benefit from obtaining a BAS in Data Analytics. As for new openings, respondents indicated that they generally have openings for 29 new data analytic positions per year. This matches closely to the EMSI economic data. Also, half of respondents who employ data analytics positions indicated they currently have, or will have in the near future, data analytics positions opening. Positions are generally filled in less than six months (32 days by EMSI data). Those being employed earn approximate $30.25 in hourly wages.

On average, expectations are WVC's service district will have 30 job openings for data analytic-related occupations. Almost all of these openings will be located in Chelan County. All will come from what is traditionally thought of as research or computer-related occupations.

Average Annual Openings for Data Analytic Related Occupations (2018-2023)

Occupation	Description	Chelan County, WA	Douglas County, WA	Okanogan County, WA	District Openings
13-1111	**Management Analyst**	8	0	1	9
15-1121	**Computer Systems Analyst**	4	0	1	5
13-1161	**Market Research Analyst**	7	0	0	7
15-1199	**Computer Occupations, Other**	3	0	0	3
11-3021	**Computer Information System Manager**	2	0	1	3
13-1081	**Logisticians**	2	0	0	2
15-1141	**Database Administrators**	1	0	0	1
Total		**27**	**0**	**3**	**30**

Source: EMSI Analyst Data. Note, there was insufficient data to report for four occupations normally related to Data Analytics for service district.

Usually, employers attempt to fill data analytics open positions by drawing from local or sources outside of the service district. Many employers repurpose current employees with skills related to data analytics.

Generally, new graduates in analytics-related disciplines come from research universities from Washington or nearby states. Less than 7% (6.7%) come from Central Washington University. This means that CWU supplies, on average, no more than two or three graduates for data analytic-related positions in WVC's district. EMSI data estimates that a further 7 openings are filled annually by outside sources, either by graduates from colleges and universities outside of the area or by persons relocating to the district. EMSI data estimates that of these hires, the University of Washington (UW) provides 9.1% and Washington State University (WSU) provides 6.3% (approximately 4 hires combined annually). EMSI estimates that the other 3 openings were filled by WSU graduates in another computer-related degree.

Average Annual CWU Graduates Finding Employment in District, Distributed by Occupation

Occupation	Description	CWU Graduates Employed
13-1111	Management Analyst	0
15-1121	Computer Systems Analyst	1
13-1161	Market Research Analyst	0
15-1199	Computer Occupations, Other	0
11-3021	Computer Information System Manager	1
13-1081	Logisticians	0
15-1141	Database Administrators	0
Total		**2**

Source: EMSI Analyst data

Average Annual Expected In-District Replacements for Open Positions by Occupation

Occupation	Description	Est. CWU Staying in District	Est. Other Colleges & Universities	Relocation	Total Replacements
13-1111	Management Analyst	0	1	1	2
15-1121	Computer Systems Analyst	1	2	1	4
13-1161	Market Research Analyst	0	0	0	0
15-1199	Computer Occupations, Other	0	0	0	0
11-3021	Computer Information System Manager	1	1	1	3
13-1081	Logisticians	0	0	0	0
15-1141	Database Administrators	0	0	0	0
Total		**2**	**4**	**3**	**9**

Source: EMSI Analyst data

This leaves an average annual unmet need for Baccalaureate-level data analytics positions. On average, 21 job openings are available to district members in any given year. This is consistent with data collected from employers. For this reason, surveyed employers were clear they needed help in filling positions. It is estimated that, at the time the employers surveyed this spring had at least 16 openings for data analytics professionals. Although the Wenatchee Valley College district is rural, the college is committed to this program and offering this type of program previously unavailable to students throughout the 10,000 square mile district.

Average Annual Gap In Demand

Occupation	Description	Total Demand	Total Replacements	Gap in Demand
13-1111	Management Analyst	9	2	-7
15-1121	Computer Systems Analyst	5	4	-1
13-1161	Market Research Analyst	7	0	-7
15-1199	Computer Occupations, Other	3	0	-3
11-3021	Computer Information System Manager	3	3	0
13-1081	Logisticians	2	0	-2
15-1141	Database Administrators	1	0	-1
Total		**30**	**9**	-21

Source: EMSI Analyst data

Over this gap in filling positions, 52% of employers stated that they had employees in need of the credentials that would be offered in the BAS in Data Analytics program. With this in mind, an estimate of those desiring an upgrade over their current credential was made. This estimate was based on occupational education distribution data from EMSI, with employer data. It is estimated annually 17 Associate degree holders in WVC's service district would likely seek to move their current educational credential to a Bachelor's degree.

An additional source for students would be WVC's Associates in Science Transfer degree graduates. On average, WVC has 15 of these graduates annually. Also, graduates of the Associates Degree in Arts and Science, especially those who had taken statistics and computer science coursework, could use their degree to move into the BAS in Data Analytics program. Currently, there is no estimate on the number of WVC students who might be interested in the BAS in Data Analytics program, but these students, especially with increasing local demand by employers, offer a potential pool for future recruiting.

Criteria 4:
Applied baccalaureate program builds from existing professional and technical degree program offered by the institution.

The WVC professional and technical curriculum has been part of the college curriculum since 1952 when the agriculture/science building, Batjer Hall, was completed. Many innovative programs were added in the 1960s, especially related to regional commerce and recreation. These programs included: fruit production, snow skiing, forestry, aviation, refrigeration, mountaineering, and automotive repair. In the early 1970s, WVC began offering a nursing program, followed by additional allied health related fields like medical assisting and radiological sciences.

At the present time, WVC offers workforce education certificates and degrees in the following programs: Accounting, Agriculture, Automotive, Business, Business Computer Technology, Chemical Dependency Studies, Computer Technology, Criminal Justice, Early Childhood Education, Environmental Systems and Refrigeration Technology, Industrial Technology (Aerospace, Drafting, Electronics, Machining, Welding and Fabrication), Medical Assistant, Medical Laboratory Technology, Multi-Occupational Trades, Natural Resources, Nursing, Outdoor Recreation Management, and Radiologic Technology.

WVC is well positioned to support this new degree by its history of solid support from the WVC College Foundation (WVCF), strong academic programs as noted above, through the commitment of our various advisory committees, and by the employees on staff. Support for the development of these curricular initiatives stems from federal and state grants, the college's foundation, businesses, and private citizens in the community. Between 2012 and 2016, WVCF reported almost $450,000 in donations of equipment, tools, materials and supplies to these programs. In addition to strong support for all academic programs, WVC also gives each faculty member professional development funds each year to improve their teaching acumen.

CSC FTES

	12-13	13-14	14-15	15-16	16-17	17-18*
State	41.67	36.33	41.33	29.00	31.00	19.33
Total	53.67	49.00	53.67	34.00	40.00	24.67

CTS FTES

	12-13	13-14	14-15	15-16	16-17	17-18*
State	81.67	114.00	107.27	100.33	116.33	79.00
Total	83.67	115.67	116.60	104.00	120.33	83.67

External Funding:

WVC has been a recipient of Carl D. Perkins grant funding since 2006. Perkins funding has supported the development of several professional-technical programs and certificates offered at the college including the industrial technology programs discussed in this document. For 2017-18, WVC has been granted $242,909 from the Perkins grant in support toward WVC's professional-technical programs.

Additional workforce grant funds have been received in 2017-18 to support workforce education student recruitment and retention from:

- Worker Retraining Grant ($787,448)
- Opportunity Grant ($279,412)

- WorkFirst Grant ($240,618)
- Aerospace High Demand ($157,760)

The focus of these grant programs is to provide support for eligible students to increase retention and completion of a two-year workforce program or certificate.

In addition to external support, WVC continues to support professional-technical programs and certificates by expending approximately $3.5M from the general fund on an annual basis.

Faculty/Employee Support:

The college employs several full-time and adjunct (part-time) faculty, all of whom bring their educational background, and training (including certifications and applicable workplace experience in their respective fields). The culture at WVC is collegial and all faculty work together to provide each student with a quality education, regardless academic program. In addition to strong support for all academic programs, WVC also awards each faculty member, both full-time and adjunct, annual professional development funds to improve their teaching acumen.

WVC Computer Technology program information:

WVC prepares students in Computer Technology (CTS) degree program for careers that focuses on preparing students to become computer support technicians, security specialists, network administrators and network engineers. By completing coursework in the computer technology series, graduates are prepared for several industry-recognized certifications including CompTIA A+, CompTIA Network+, Linux and Microsoft Certified Systems Administrator (MCSA). Current computer programming classes are offered in Java, JavaScript, HTML, PHP and MySQL.

The CTS computer labs feature up-to-date equipment that is configured to allow students to perform a variety of programming and networking exercises such as configuring a domain controller, network security, routing or setting up a Web server.

The CTS program is designed to develop skilled professionals who understand and apply the principles of computer technology to a broad spectrum of careers and respond to community and workplace needs. Students and community members will also find the courses useful in helping them to become knowledgeable in various technology components.

Computer Technology ATS Degree Outcomes:

Students who complete the ATS in Computer Technology be able to:

- Work effectively, both independently and in groups, to solve computer hardware issues.
- Work effectively, both independently and in groups, to solve computer software and operating system issues.
- Diagnose and troubleshoot a variety of networking issues, from the physical layer through the application layer.
- Install, configure and troubleshoot a variety of client and server platform operating systems.
- Configure and support networks in a peer to peer network and a client server, domain-based network structure.
- Recognize and work to prevent security issues such as viruses, denial of service attacks, and attacks from both inside and outside a network perimeter.

- Install and configure advanced Network Operating Systems (NOS), including configuration of domain controllers, group policy, replication, file sharing and security.
- Administrate networks: create user accounts and passwords; manage file permissions, user rights and security.
- Set up and configure a variety of roles for network operating systems, including File Server, Domain Controller, Web Server, Mail Server, and FTP Server.
- Learn the fundamentals of open source operating systems such as Linux, including preparing for installation, dual-booting multiple operating systems, software installation fundamentals, configuration of network parameters, and operation of server in various roles (web server, FTP server, file services).
- Acquire training and education to seek employment or advance in current employment in computer technology fields.
- Develop a foundation to continue their studies in computer technology and related fields.

Faculty/Employee Support:

The college employs several full-time and adjunct (part-time) faculty, all of whom bring their educational background, and training (including certifications and applicable workplace experience in their respective fields). The culture at WVC is collegial and all faculty work together to provide each student with a quality education, regardless academic program. In addition to strong support for all academic programs, WVC also awards each faculty member, both full-time and adjunct, annual professional development funds to improve their teaching acumen.

Curriculum Support/Infrastructure:

WVC offers a variety of workforce education programs leading to either an associate of technical science (ATS) degree or a Certificate of Completion. These programs are geared toward students who wish to enter certain technical careers. WVC will help students who have completed the Associate of Technical Science (ATS) degree in Computer Technology, or equivalent, build upon their knowledge to obtain their Bachelor of Applied Science in Data Analytics.

In these programs of study, students receive instruction in theory and applied skills to develop appropriate competencies for the workplace. General education components of communication, computation and human relations are included. Course requirements specific to the program are described below. Some programs also include instruction in computer applications, which industries are embracing to enhance production and efficiency. Today's workplace requires skilled employees with academic, technical, critical thinking and problem-solving abilities, as well as computer literacy.

The WVC Computer Technology department offers training programs for computer support technicians, security specialists, network administrators and network engineers. By completing coursework in the computer technology series, you can prepare for several industry-recognized certifications including CompTIA A+, CompTIA Network+, Linux and Microsoft Certified Systems Administrator (MCSA). Computer programming classes are offered in Java, JavaScript, HTML, PHP and MySQL.

Five Year Annualized FTE & Headcounts- Computer Science

	2013-14	2014-15	2015-16	2016-17	2017-18
Annualized Headcount	36.5	40.25	25.5	30	26.5
Annualized FTE	16.22	17.89	11.33	13.33	11.78

Five Year Annualized FTE & Headcounts- Computer Technology Science

	2013-14	2014-15	2015-16	2016-17	2017-18
Annualized Headcount	87	87	78.25	90.25	88.5
Annualized FTE	38.56	38.44	34.56	40.11	39.04

Five Year Annualized FTE & Headcount s- CSC CTS Combined

	2013-14	2014-15	2015-16	2016-17	2017-18
Annualized Headcount	123.5	127.25	103.75	120.25	115
Annualized FTE	54.78	56.33	45.89	53.44	50.82

WVC is in the process of identifying students who completed either a related ATS degree or the Associate of Science-Transfer degree and have enrolled for and/or completed baccalaureate degrees.

Building on an already existing computer technology program, WVC is well prepared to offer North Central Washington students the opportunity in Chelan, Douglas and Okanogan Counties to receive a baccalaureate degree, previously available only to students in larger communities. Student enrollment in WVC's Computer Technology program in recent years has remained strong. Enrollment numbers should increase with offering the new baccalaureate program, as this is often more attractive to students who want to further their education and become more competitive in the workforce.

Based on the above enrollment numbers, WVC has held steady enrollment numbers in the Computer Technology program in recent years. In 2015, a local factory which employed hundreds of workers shut down. During this time, enrollment in various WVC programs increased. Since then, enrollment numbers have begun to return to normal for this program. In some courses, headcounts have actually increased after the increase from 2014-15, with degrees and certificates remaining the same. The statistics related to WVC's Computer Technology program are encouraging and will progress toward helping students gain access to technology careers by completing this program.

Although other computer technology programs currently exist, the closest program offering these educational pathways is Central Washington University (Ellensburg), 69 miles from Wenatchee, and Eastern Washington University (Cheney), 159 miles from Wenatchee. Due to the great distance from the nearest university, this program is needed for WVC students.

Criteria 5
Student demand for program within the region:

For this Statement of Need, WVC utilized Maureen Majury, the Director for the Center of Excellence for Information and Computing Technology at Bellevue College, who conducted a program review of the current Computer Technology Program at WVC (see Appendix 6). As part of her research, she also surveyed current CTS students and graduates (covering the entire service district) seeking their input on the potential need for the BAS-DA program in North Central Washington.

In doing research for this Statement of Need, WVC through Ms. Majury, wanted to gauge current and former student interest in a future BAS program related to computer science, or similar. Also, the current and former student surveys were intended to gauge students' perception of the current CTS program. From these survey responses, it is clear that students are interested in this program and find WVC's CTS program to be valuable (see Appendix 1 below for full survey data).

Some key findings from current WVC CTS students Ms. Majury noted in her report include:

- "Current students entered the program because they were interested in the IT field, know it's a high-paying occupation, and one specifically indicated they were interested in security."
- "All respondents believe the CT instructors are prepared and able to teach the latest technologies."
- "All respondents indicate that employability skills are embedded in the technology classes they are taking, and the three general education requirements are sufficient."
- "Most respondents want to stay in the Wenatchee region for employment.
- "Respondents believe they could successfully apply for a sample IT job description embedded in the survey. However, one respondent wrote that actual work in the field would enhance the degree."

Ms. Majury's report also included findings from WVC CTS graduates including:

- "All were satisfied with the quality of the CT program."
- "80% thought the quality of instruction was excellent, and 20% thought it was fair."

The BAS-DA degree program will provide access to better employment opportunities within North Central Washington; encourage the growth of four-year degree completions for WVC's district; and should likely increase job satisfaction of our graduates, due to graduates being able to meet their career education requirements. In addition, the introduction of this degree program will extend the education pipeline in North Central Washington and increase the retention of qualified employees for local employers.

The college has established excellent working relationships with school districts throughout the region. Collaboration over articulation of Tech-Prep classes and the Running Start Program has been positive and yielded measureable results with giving more educational opportunities to students and strengthening the partnership between WVC and local school districts. The College in the High School initiative is equally promising. Most recently, as the principal investigator for a Science Technology Engineering and Math (STEM) grant initiative the college will be leading a collaborative effort to develop and submit a planning grant proposal for a regional Science Technology Engineering, and Math (STEM) initiative. This will draw the Wenatchee Valley Community College District and K-12 Districts as well as leaders in business and industry throughout the region even closer together and strengthen the career pathways for our students.

Given WVC's feeder Associate Degree programs and the regional demand, projected enrollment for the BAS-T program is as follows:

	Projected Enrollment:			
Year of Program:	Year One:	Year Two:	Year Three:	Year Four:
2018-19	15	X	X	X
2019-20	15	10	X	X
2020-21	15	15	10	X
2021-22	15	15	10	5

WVC is in the process of identifying students who completed either a related Computer Technology Systems ATS degree or certificate and have enrolled for and/or completed baccalaureate degrees so that these students can be informed of this opportunity in North Central Washington.

Estimated Annual Number of Employed Associates Who Would Seek BAS in Data Analytics

Occupation	Description	Est. Associate Upgrades
13-1111	Management Analyst	5
15-1121	Computer Systems Analyst	4
13-1161	Market Research Analyst	1
15-1199	Computer Occupations, Other	1
11-3021	Computer Information System Manager	3
13-1081	Logisticians	1
15-1141	Database Administrators	2
Total		17

Source: Estimate based on EMSI Analyst data, 2018 Tech Employer Survey

CSC Enrollments

	12-13	13-14	14-15	15-16	16-17	17-18*
10th Day	125	109	124	87	93	58
Total	161	147	161	102	120	74

CTS Enrollments

	12-13	13-14	14-15	15-16	16-17	17-18*
10th Day	245	343	322	303	349	239
Total	251	348	350	314	361	253

WVC is collaborating with several local school districts to determine the potential student pipeline into this degree program. The leaders from the district have been involved with the initial conversations about the program and continue to remain actively engaged with the conversation. Additional collaboration with local school districts will most certainly add students to the pipeline.

Criteria 6
Efforts to maximize state resources to serve place-bound students:

WVC will benefit from having a Bachelor of Applied Science program in Data Analytics to serve students who are place-bound and unable to attend other programs throughout the state and also help fill job positions in the North Central Washington area. The benefit of this program in the WVC service district includes serving an area of North Central Washington that does not have access to this type of program, except through cost-prohibitive online degree programs. In creating this proposal, WVC gave consideration to other post-secondary educational opportunities in our State. As one of 34 Washington community and technical colleges, WVC is actively involved with other higher education transfer institutions throughout the State. While WVC partners with various educational organizations, the nearest Bachelor of Science program in Computer Science, or related program is 69 miles from Wenatchee (Chelan County) in Ellensburg, Washington (Central Washington University). Central Washington University utilizes Data Analytics in their Integrated Energy Management program.

As part of its mission, WVC has always endeavored to provide educational access throughout its 10,000 square mile district to serve the needs of its students. The WVC extension site in Omak (in the middle of Okanogan County) is an example of the commitment to educational access for all students in North Central Washington, not just at WVC's main campus in Wenatchee. Due to the support shown in surveys of current and former students, along with local business and industry, this program is needed in North Central Washington.

WVC is collaborating with the several local school districts – including Wenatchee School District to determine the potential student pipeline into this degree program. The leaders from the district have been involved with the initial conversations about the program and continue to remain actively engaged with the conversation. Additional evolving collaboration with the Eastmont School District in neighboring Douglas County will most certainly add students to the pipeline.

WVC has also had initial conversations concerning additional collaboration opportunities with higher education partners. These potential partners include Washington State University (WSU) and Central Washington University (CWU). Although these conversations are in the early stages, WVC hopes for collaboration with these baccalaureate institutions. A meeting is scheduled with Central Washington University to discuss this program further and to ensure that this program will not negatively impact CWU in any way.

WVC also held a meeting with local business and industry to gauge the need for this type of program in North Central Washington. From this meeting and other conversations, the Chelan County Public Utility District (PUD) has come forth as a strong supporter of this type of program at WVC.

In preparation for this Statement of Need, WVC utilized Center of Excellence for Information and Computing Technology at Bellevue College. Maureen Majury, the Director for the Center of Excellence for Information and Computing Technology, conducted a program review of the current Computer Technology Program at WVC and feasibility of starting this program in North Central Washington. In preparing her review, Ms. Majury analyzed the program's strengths, challenges and potential for new pathways to meet workforce demand in the WVC service district.

WVC also serves a high proportion of students of color and first-generation college students. The college received its first-ever TRiO Student Support Services grant in fall 2015. Bachelor's degree attainment rates

in North Central Washington are low compared to the state average; only 20% of adults in WVC's district are bachelor's degree holders, versus 32% statewide. These rates are even lower in the significant populations of people of color; only 5.6% of Hispanic adults and 11% of Native American adults in WVC's district have earned a bachelor's degree. There is significant unmet need for higher education opportunities among adult learners as well as traditional-age college students throughout North Central Washington. These factors have led WVC to add another BAS program in order to meet students' and local industry needs.

Similar to the BSN and BAS-ET degree programs, the BAS-DA is envisioned as a hybrid program – the instruction will have a significant online component. Face-to-face contact is considered a critical aspect of the program. This will allow working students, regardless of where they live within the region, the ability to arrange their schedules to participate in the program. It is our hope to enroll the employed two-year college graduate population in the BAS-DA degree program that supports their work schedule.

Current technology and library resources at WVC provide a plethora of resources and infrastructure aimed at student success at the baccalaureate level. Traditional texts, academic journals, and core academic collections from ProQuest and Gale make up part of the support network. Articles not covered by WVC databases are easily accessible through the InterLibrary Loan service available to all students.

The library's study rooms can be reserved online, and two computer labs and plentiful wireless access support computer needs. WVC's Virtual Desktop service allows students to access their WVC desktop wherever they have internet access. WVC has numerous services available electronically, including online registration, online tutoring, 24/7 access to librarians, extensive research databases suitable for baccalaureate-level research, degree audits and transcript requests. For face-to-face support, many services have evening and weekend hours available. In addition to research services, Write Labs are available via online tutoring to help students with writing assignments. One-on-one sessions are also available as needed.

Summary

Wenatchee Valley College has a successful history of offering technical associate degrees to the residents of the North Central Washington. With the curricular development of the BAS-DA degree program, WVC is expanding the possible education attainment level in the region thus helping meet the national and state goals of four-year degree completions. The creation of the BAS-DA degree program is a collaborative effort with WVC's college community of faculty and our regional industrial partners. In addition, WVC has the support of its Board of Trustees, President Richardson, its K-12 partners, and its current student body, to develop the BAS-DA degree program. WVC has already been recognized for its capacity to offer and expand its curriculum through its selection and participation in various programs. As the curriculum is developed, standards will be given consideration in the forefront of our planning as well as the criteria established by the SBCTC and by the Northwest Commission on Colleges and Universities (NWCCU).

In preparation for this Statement of Need, WVC utilized Center of Excellence for Information and Computing Technology at Bellevue College. Maureen Majury, the Director for the Center of Excellence for Information and Computing Technology, conducted a program review of the current Computer Technology Program at WVC and feasibility of starting this program in North Central Washington. In preparing her review, Ms. Majury analyzed the program's strengths, challenges and potential for new pathways to meet workforce demand in the WVC service district.

WVC is ready to take the next step in expanding its baccalaureate degree offerings by adding the BAS-DA. We look forward to the next steps in the process and receiving the endorsement of the State Board for Community and Technical Colleges to continue.

Appendix 1: WVC CTS Current Students and CTS Graduates Survey Response Summary

WVC CTS Current Students Survey Responses

Q1

Why did you select computer technology for your academic pathway? (If the reason isn't listed below, please indicate what it was in the comment section.)		
Answer Choices	Responses	
I was interested in the general IT field	75.00%	3
I know that it's a high-paying occupation	75.00%	3
I was specifically interested in programming, software development	0.00%	0
I was specifically interested in networking	0.00%	0
I was specifically interested in security	25.00%	1
I was specifically interested in web design	0.00%	0
Other (please specify)	25.00%	1
	Answered	4
	Skipped	0

Other (please specify)
Retraining

Q2

What do you like best/least about Wenatchee Valley College's Computer Technology program and classes? And, why?	
Answered	**4**
Skipped	**0**

Responses
I like the various introductions to all things computer-related. The program drew me in specifically because of the versatility of the degree and the opportunity to try a little of everything to see what I would like to pursue further.
This quarter's security class has left me feeling less than prepared. It would seem to me that all of the computers should be able to handle the programs that are needed to truly experience the type of situations that may arise in regards to network security. It is hard to perform those tasks when the computers are used SO generally for everything that the proper software / hardware cannot be maintained or used.
Burns is a great teacher but I personally feel a bit lost when he tries to explain things
Instructor is great. Wish class time was longer for labs.

Q3

Are your Computer Technology instructors prepared? For, example, they know the latest technologies and update their curriculum to reflect that, they explore career options with you, they are easy to understand and you master the concepts easily, etc.		
Answer Choices	Responses	
Yes	100.00%	4
Sometimes/Somewhat	0.00%	0
No	0.00%	0
Other (please specify)	0.00%	0

	Answered	**4**				
	Skipped	**0**				

Q4

Do you know what employability skills are? (If you don't, they are soft skills that demonstrate you can function in the work place. For example, can you type an effective email, can you make a group presentation, can you show up to work on time, etc.)		
Answer Choices	Responses	
I am being taught what employability skills are in my technology classes	100.00%	4
I feel the general education requirements (one pre-college math, one English, and one communication) of three classes is enough.	50.00%	2
I think additional general education classes, like history, geography, music, algebra, should be part of the curriculum	0.00%	0
Other (please specify)	25.00%	1
	Answered	**4**
	Skipped	**0**

Q5

Where do you want to work geographically? Wenatchee or somewhere else? Why?											
Answered	**4**										
Skipped	**0**										
Respondents		Responses	Categories								

1		I would initially like to stay in the area for the next few years.
2		Chelan (home area primarily) or some other Eastern Washington location. The quality of life I think is better here rather than on the west side of the state.
3		For the first couple years after I graduate I'd like to stay in the area, but after that I wouldn't mind moving
4		Wenatchee or Spokane both places are home to me.

Q6

Have you looked at any IT job postings while you are taking your classes in preparation for searching for jobs upon graduation/completion? If the job description stated it was looking for the following technical skills, would you feel qualified to apply for the job? Would you have learned all of these skills in your classes? **Proficient in Windows operating systems, Microsoft Office Software Ability to troubleshoot and repair enterprise-level software and hardware A+, Cisco, Dell, and EMC certifications (highly desirable)** **Support DTS and Legacy** **Perform installs, moves, adds and changes as required Securely install and service wireless networks**	
Answered	**3**
Skipped	**1**

Responses
I would feel knowledgeable in those areas, but feel I would need more hands-on training as only working in the field would do. The classes prepare us for taking certs, but additional study would definitely be needed. Opportunities to take the test for CompTIA certs should be available here in Wenatchee and at a discount to those in the program.
Most of these, yes.

Yes

Q7

If Wenatchee Valley College were to offer a new degree option, which would you prefer? If there is an option you'd like but that isn't included, please indicate so. Check all that apply.		
Answer Choices	Responses	
An applied bachelor's degree in programming (software development)	25.00%	1
An applied bachelor's degree in networking and security	75.00%	3
A two-year transfer degree in programming (software development) to a Washington state four-year college/university	50.00%	2
A two-year transfer degree in networking and security	25.00%	1
A computer science two-year or four-year degree	75.00%	3
Other (please specify)	0.00%	0
	Answered	**4**
	Skipped	**0**

Q8

Are you aware of, and interested in, internship or work-based learning experiences in your Computer Technology program?	
Answered	**4**
Skipped	**0**

Responses

Yes. There are few work study positions, however there should be more outreach into the community to see if there are any companies that would be willing to take on student's part- time and work with their school schedule.
I am very aware of the internship program and hope to use it to get a foot in the door of a local company during the spring quarter of 2018
Very much so
Yes

Q9

What is at least one thing Wenatchee Valley College could do to improve the Computer Technology program and/or its IT program overall? Why/Why not?	
Answered	**4**
Skipped	**0**

Responses
I think one thing I feel most strongly about is to offer an option for the two-year degree to be a transfer degree. The other thing that would have helped me immensely is getting a job where on the job activities would serve as a reference point for relating the information we're learning and how to apply it. This would also serve to create more contribution to the conversation in the classroom regarding the material we're learning.
It is hard to share computers with other students when they are wiped every quarter for the new classes. I know it would be hard, but comps should be assigned to individual students through the course of their time at WVC (a real comp, not like the virtual page that is currently used)
Be easier to find on the website as well as promoted more to new students
Longer class time.

WVC CTS Graduate Student Survey Responses

Q1

Which of the following did you earn from Wenatchee Valley College (Check all that apply)		
Answer Choices	**Responses**	
Computer Technology Certificate	20.00%	1
Computer Technology AA (2-year degree)	60.00%	3
A Computer Technology Certificate and AA	60.00%	3
None of the above	0.00%	0
Please indicate the year you were awarded a degree and/or certificate.	80.00%	4
	Answered	**5**
	Skipped	**0**

Q2

Were you satisfied with the quality of the Computer Technology Program?

Answer Choices	**Responses**	
Yes	100.00%	5
Somewhat	0.00%	0
No	0.00%	0
Other (please specify)	0.00%	0

Q3

How was the quality of instruction?		
Answer Choices	Responses	
Excellent	80.00%	4
Fair	20.00%	1
Poor	0.00%	0
Variable	0.00%	0
Other (please specify)	0.00%	0
	Answered	**5**
	Skipped	**0**

Q4

Are there any courses that you wish had been offered when you were attending WVC?		
Answer Choices	Responses	
Cloud Computing	100.00%	5
Software Development	40.00%	2

Advanced Security (Cyber)	40.00%	2
Advanced Programming in a language other than Java	20.00%	1
User Experience (for web design)	20.00%	1
Automation/Scripting	40.00%	2
Virtual Machines	40.00%	2
Embedded Networking	20.00%	1
The Internet of Things (IoT)	40.00%	2
Other (please specify)	20.00%	1
	Answered	**5**

Other (please specify)
It would help to have a class on server hardware/software

Q5

Did your degree/certificate prepare you for working well with people and the organization? (Meaning you developed or learned a reasonable amount of employability skills.)		
Answer Choices	Responses	
Yes	60.00%	3
Somewhat	20.00%	1
No	0.00%	0
Other (please specify)	40.00%	2
	Answered	**5**

Other (please specify)
Needed a customer service class
Yes...to a different group of "people". I am already skilled working well with people and organizations.

Q6

Are you currently employed as an IT-worker?		
Answer Choices	Responses	
If so, did your degree/certificate prepare you to succeed once you began employment?	60.00%	3
Did you have to have a lot of on-the-job training to enable you to perform your job effectively?	60.00%	3
If you are not employed as an IT worker, why is that?	40.00%	2
	Answered	**5**

If so, did your degree/certificate prepare you to succeed once you began employment?	**Did you have to have a lot of on-the-job training to enable you to perform your job effectively?**
Absolutely	Some, but I do everything you can think of.
Yes	No
Yes. It gave me the basic understanding of the hardware needed to begin	Yes

Q7

Is there any content or courses that you believe should have been part of the degree/certificate you earned?

Responses
Cloud and scripting
Customer service
Just those listed in Section 4

Q8

If Wenatchee Valley College had offered further degree options, which would you have been interested in pursuing? If there is an option you'd like but that isn't included, please indicate so. Check all that apply. Check if you when on to earn a four-year degree, and indicate in the comment section what is was in and from where.

Answer Choices	Responses	
An applied bachelor's degree in programming (software development)	40.00%	2
An applied bachelor's degree in networking and security	80.00%	4
A two-year transfer degree in programming (software development) to a Washington state four-year college/university	20.00%	1
A two-year transfer degree in networking and security	60.00%	3
A computer science two-year or four-year degree	60.00%	3
I went on to earn a four-year degree	0.00%	0
Other (please specify)	40.00%	2
	Answered	**5**
	Skipped	**0**

Other (please specify)
I already have a four-year degree in another discipline.
I am currently attending WSU and pursuing a bachelor's degree in Sociology.

Q9

Did you receive adequate career advice from WVC? In the comment section, add in who it was and did you have to seek out that resource yourself?		
Answer Choices	Responses	
Yes	60.00%	3
Somewhat	40.00%	2
No	0.00%	0
Other (please specify)	60.00%	3
	Answered	**5**
	Skipped	**0**

Other (please specify)
Dave Burns was instrumental in helpful advice.
Help from the division of vocational rehab because I'm deaf with cochlear implants
Instructors, counselors, local people in the industry

Q10

Did you have an internship experience while earning your degree/certificate? In the comment section, indicate if you did not, would it have been helpful.		
Answer Choices	Responses	
Yes	20.00%	1
No	60.00%	3
Other (please specify)	60.00%	3
	Answered	**5**
	Skipped	**0**

Other (please specify)
I made my own. I really wanted the Chelan PUD but the opportunity never came up to apply
It would have been helpful
Yes it would have been helpful to intern.

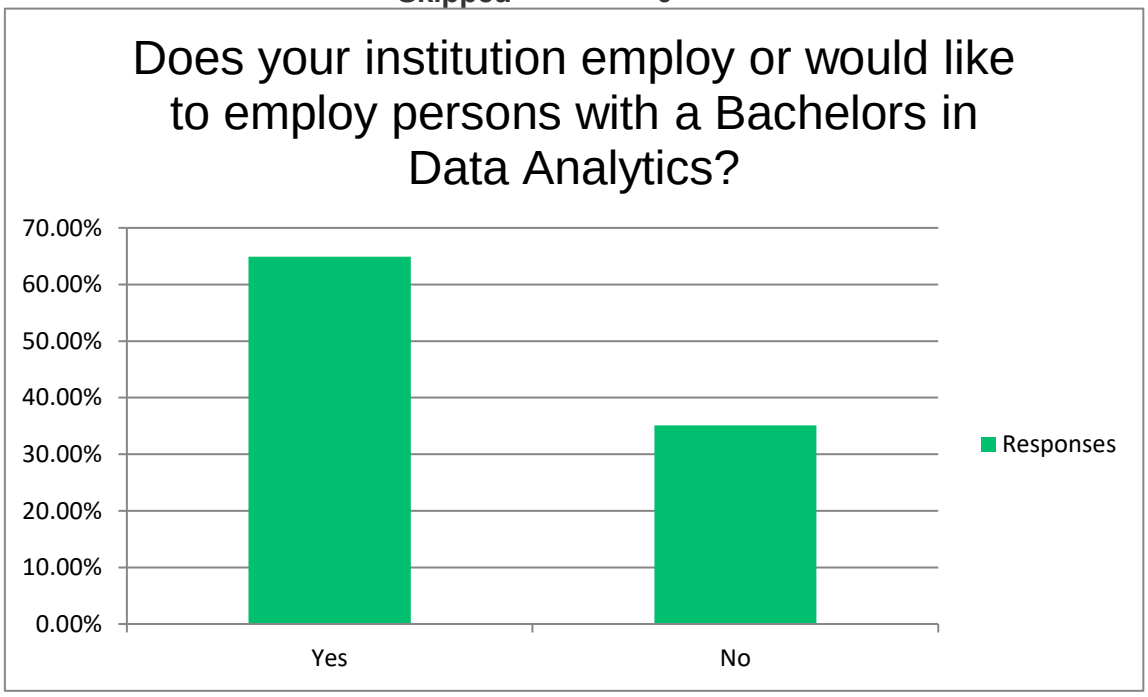
Appendix 2: BAS Employer Technology Need Survey

2018 BAS Technology Need Survey

Question 1:

Does your institution employ or would like to employ persons with a Bachelors in Data Analytics

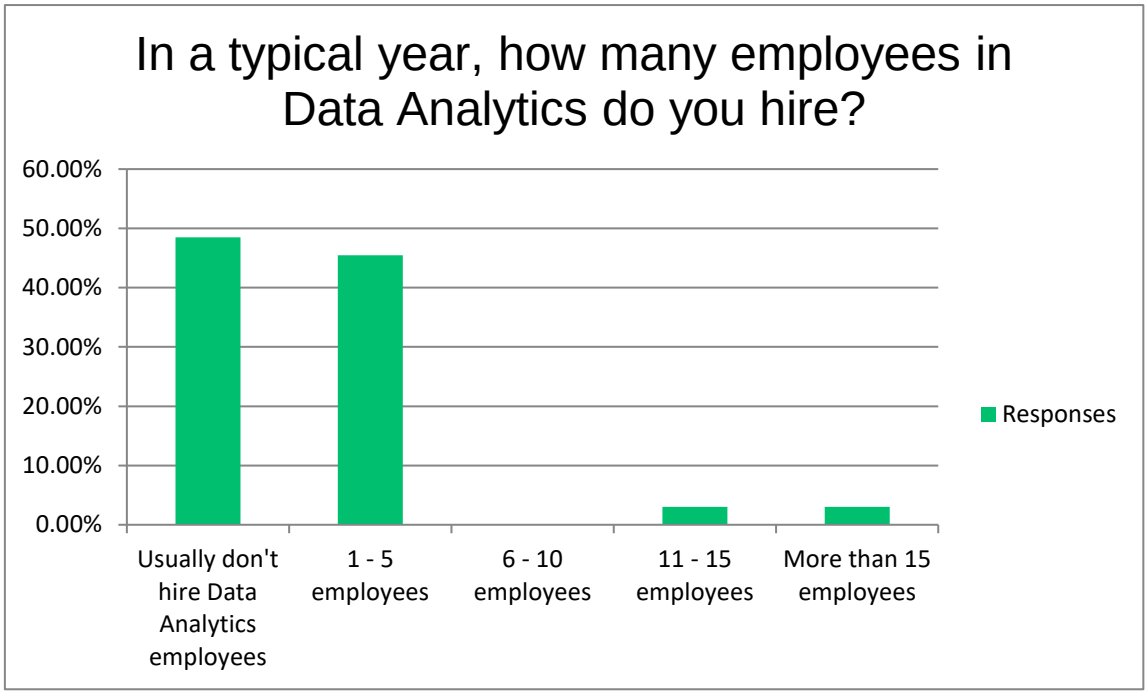
Answer Choices	Responses	
Yes	64.91%	37
No	35.09%	20
Answered		**57**
Skipped		**0**



2018 BAS Technology Need Survey
Question 2:

In a typical year, how many employees in Data Analytics do you hire?

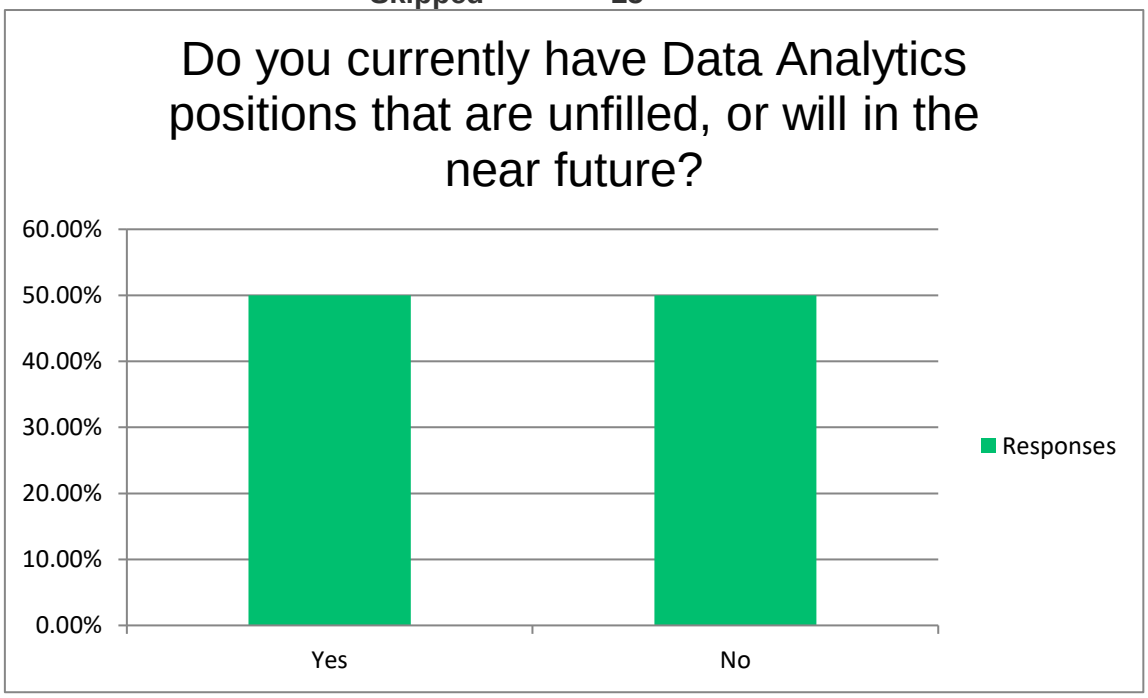
Answer Choices	Responses	
Usually don't hire Data Analytics employees	48.48%	16
1 - 5 employees	45.45%	15
6 - 10 employees	0.00%	0
11 - 15 employees	3.03%	1
More than 15 employees	3.03%	1
	Answered	**33**



2018 BAS Technology Need Survey
Question 3:

Do you currently have Data Analytics positions that are unfilled, or will in the near future?

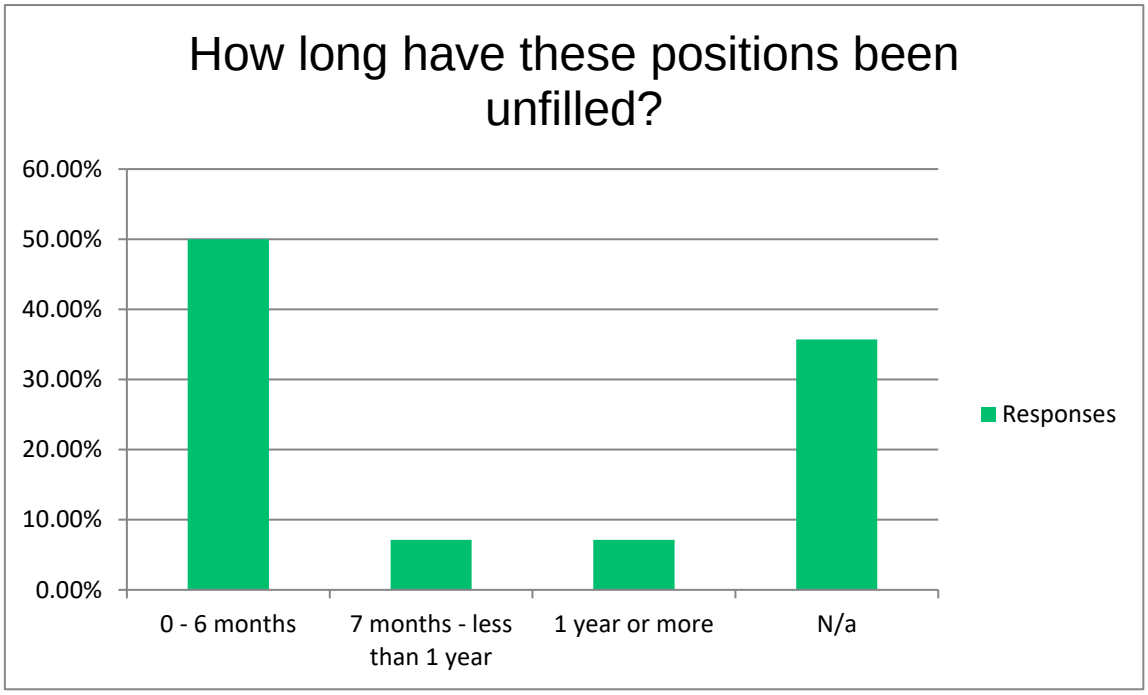
Answer Choices	Responses	
Yes	50.00%	16
No	50.00%	16
	Answered	**32**
	Skipped	**25**



2018 BAS Technology Need Survey
Question 4:

How long have these positions been unfilled?

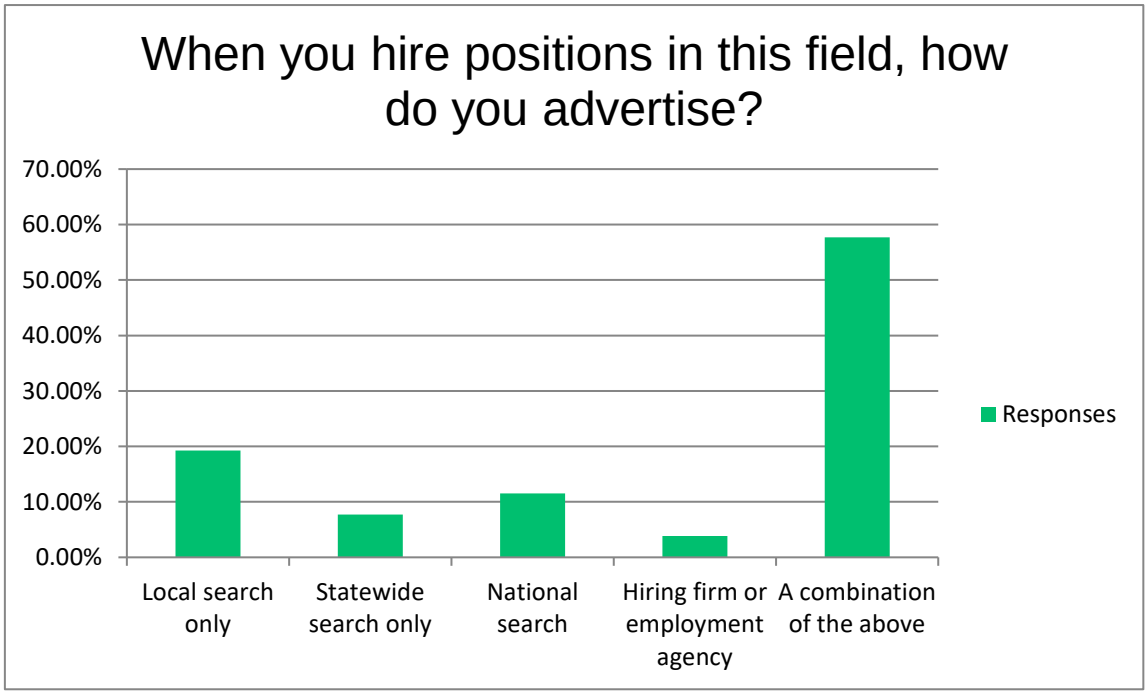
Answer Choices	Responses	
0 - 6 months	50.00%	7
7 months - less than 1 year	7.14%	1
1 year or more	7.14%	1
N/a	35.71%	5
	Answered	**14**



2018 BAS Technology Need Survey
Question 5:

When you hire positions in this field, how do you advertise?

Answer Choices	Responses	
Local search only	19.23%	5
Statewide search only	7.69%	2
National search	11.54%	3
Hiring firm or employment agency	3.85%	1
A combination of the above	57.69%	15
	Answered	**26**

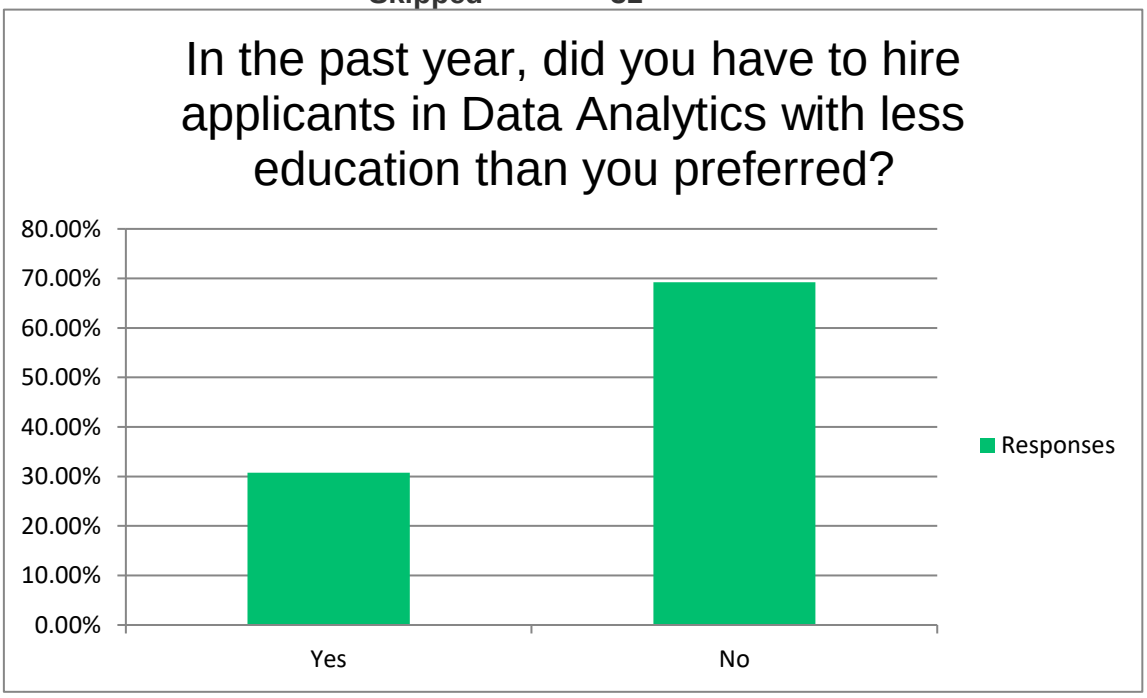


2018 BAS Technology Need Survey

Question 6:

In the past year, did you have to hire applicants in Data Analytics with less education than you preferred?

Answer Choices	Responses	
Yes	30.77%	8
No	69.23%	18
	Answered	**26**
	Skipped	**31**



2018 BAS Technology Need Survey
Question 7:

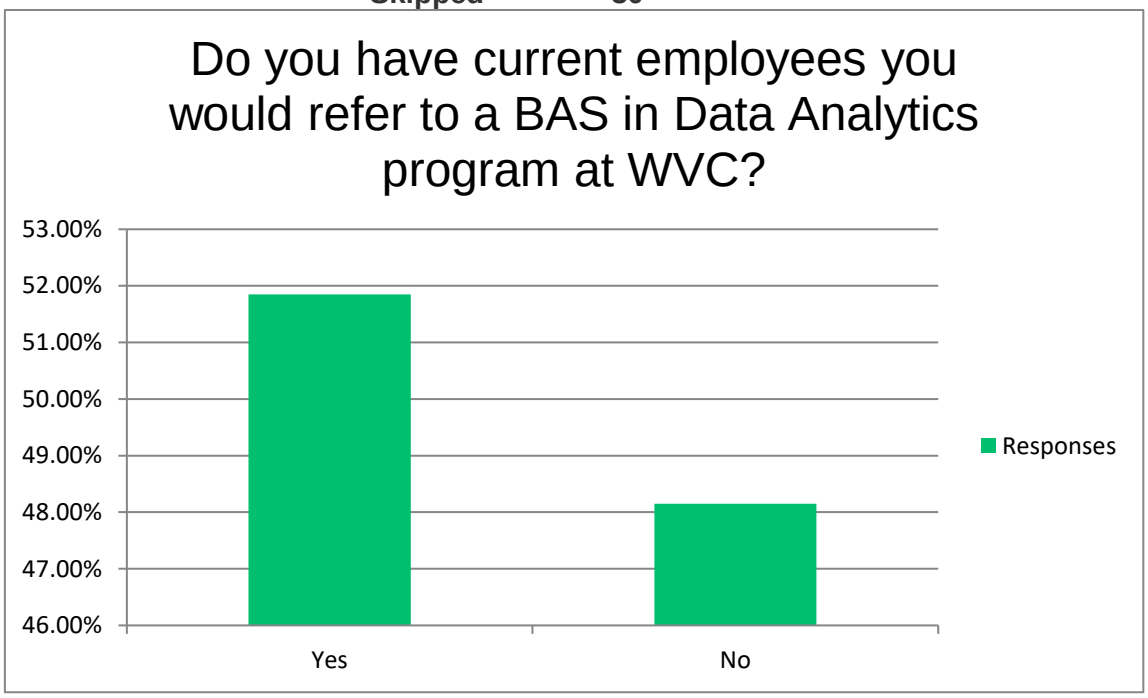
Do you offer professional development or other training to these employees to help them grow professionally?

Answer Choices	Responses	
Yes	76.92%	20
No	23.08%	6
	Answered	**26**
	Skipped	**31**

2018 BAS Technology Need Survey
Question 8:

Do you have current employees you would refer to a BAS in Data Analytics program at WVC?

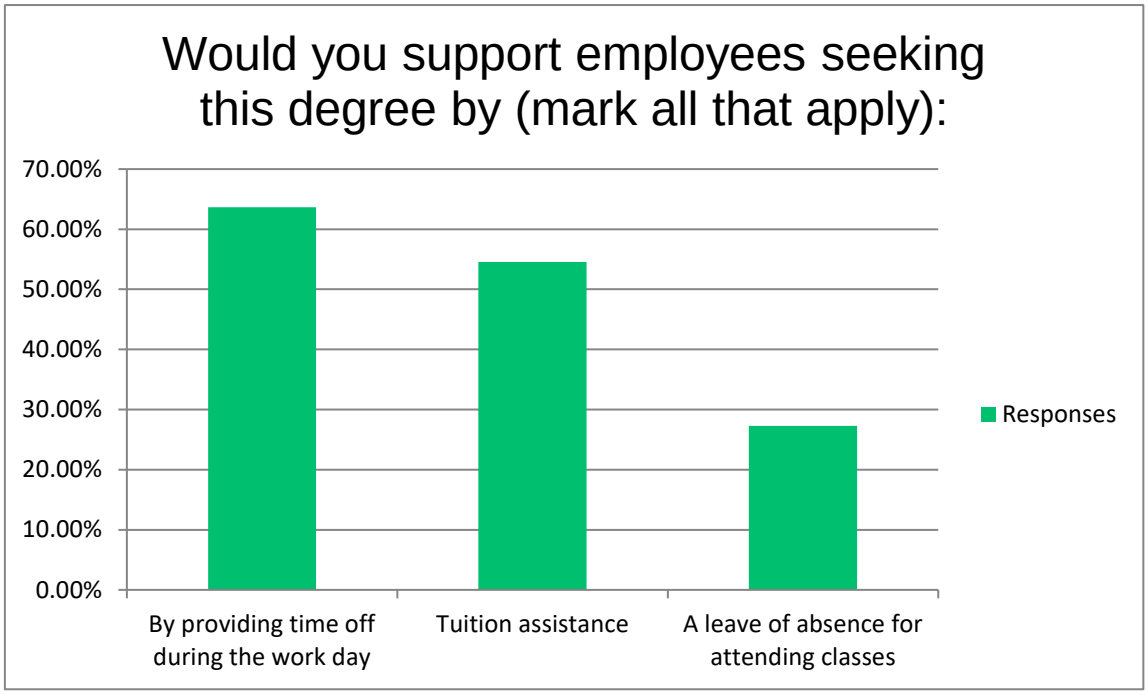
Answer Choices	Responses	
Yes	51.85%	14
No	48.15%	13
Answered		**27**
Skipped		**30**



2018 BAS Technology Need Survey
Question 9:

Would you support employees seeking this degree by (mark all that apply):

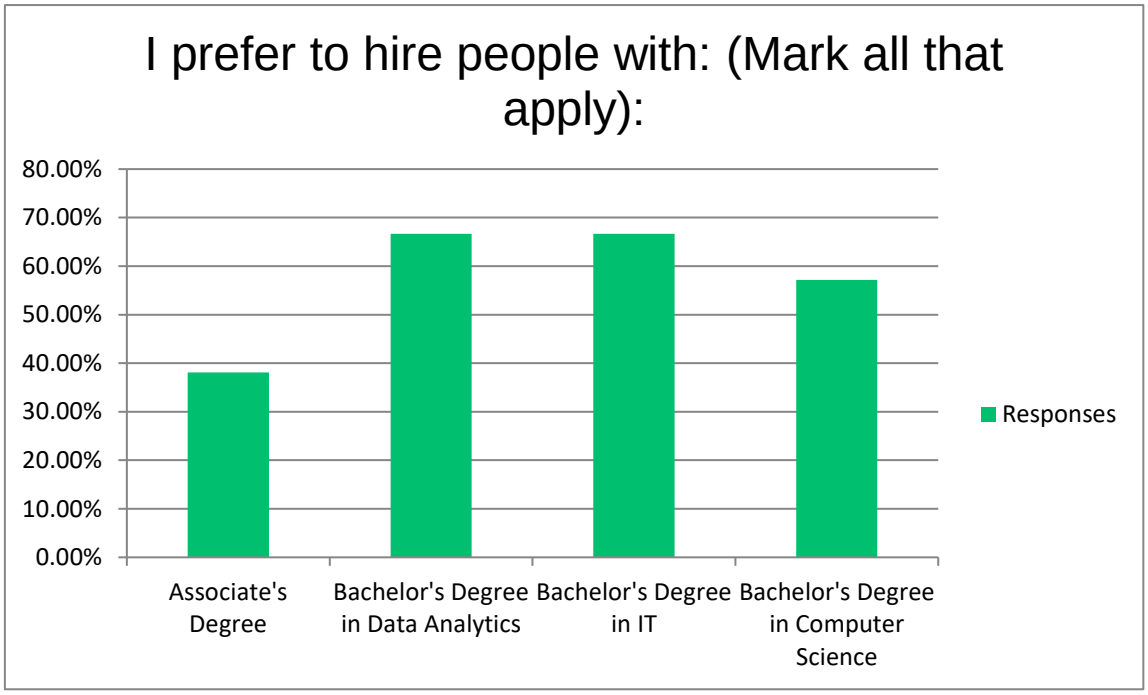
Answer Choices	Responses	
By providing time off during the work day	63.64%	7
Tuition assistance	54.55%	6
A leave of absence for attending classes	27.27%	3
Other (please specify)		3
	Answered	**11**



2018 BAS Technology Need Survey
Question 10:

I prefer to hire people with: (Mark all that apply):

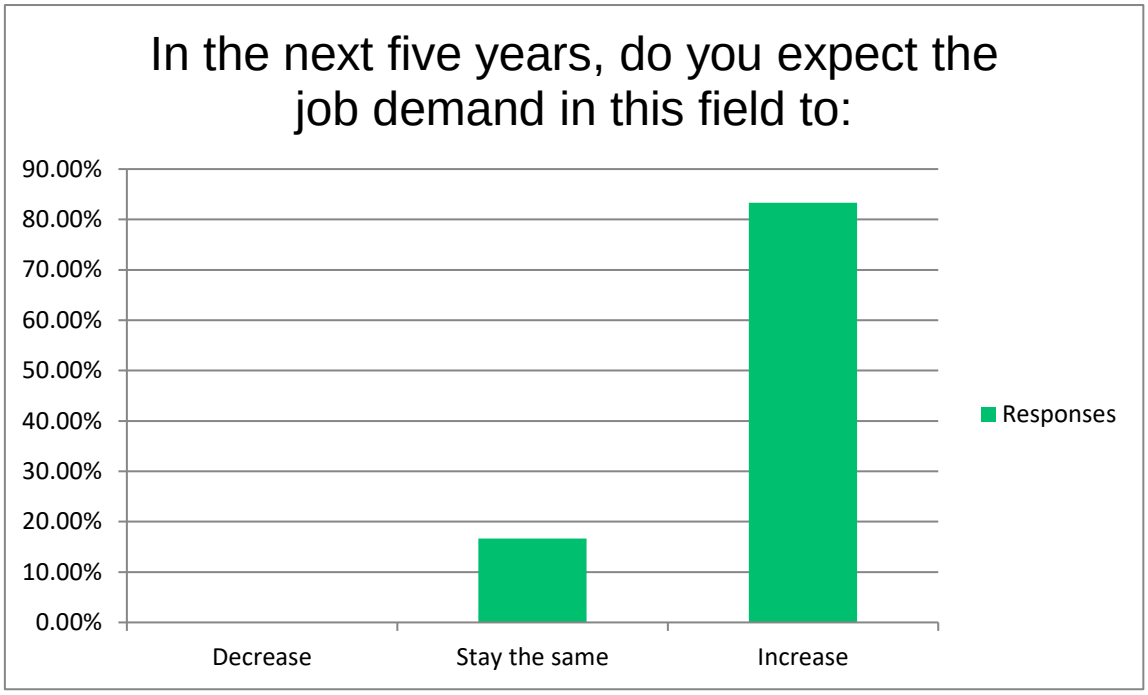
Answer Choices	Responses	
Associate's Degree	38.10%	8
Bachelor's Degree in Data Analytics	66.67%	14
Bachelor's Degree in IT	66.67%	14
Bachelor's Degree in Computer Science	57.14%	12
Other (please specify)		4
	Answered	**21**



2018 BAS Technology Need Survey
Question 11:

In the next five years, do you expect the job demand in this field to:

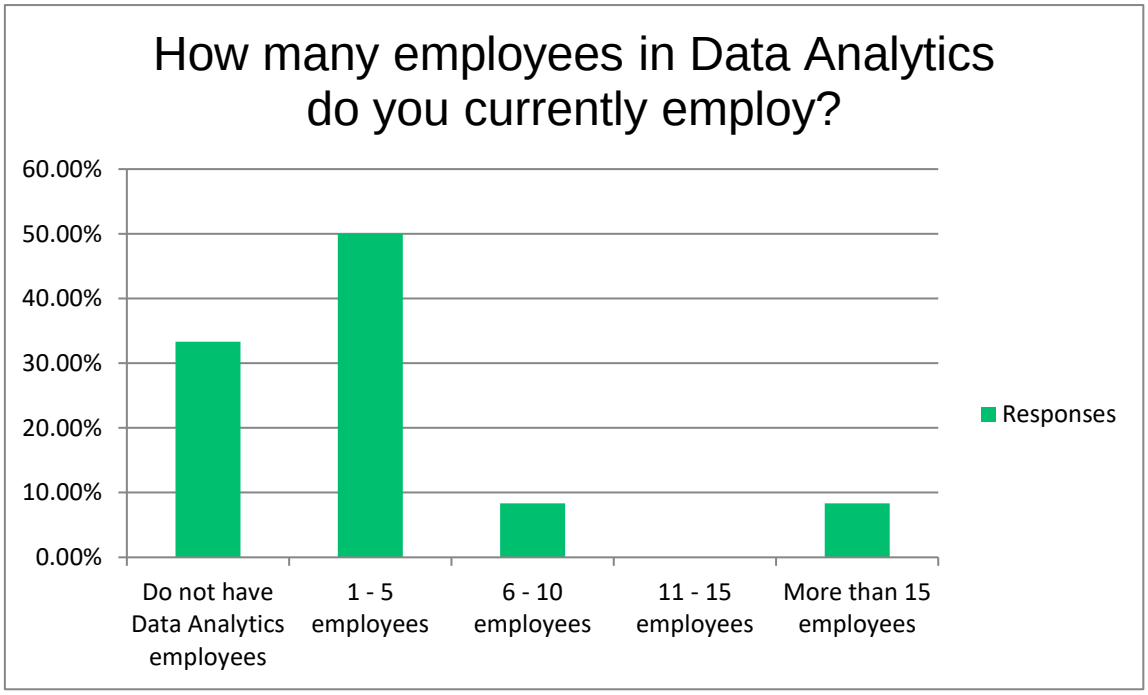
Answer Choices	Responses	
Decrease	0.00%	0
Stay the same	16.67%	4
Increase	83.33%	20
	Answered	**24**



2018 BAS Technology Need Survey
Question 12:

How many employees in Data Analytics do you currently employ?

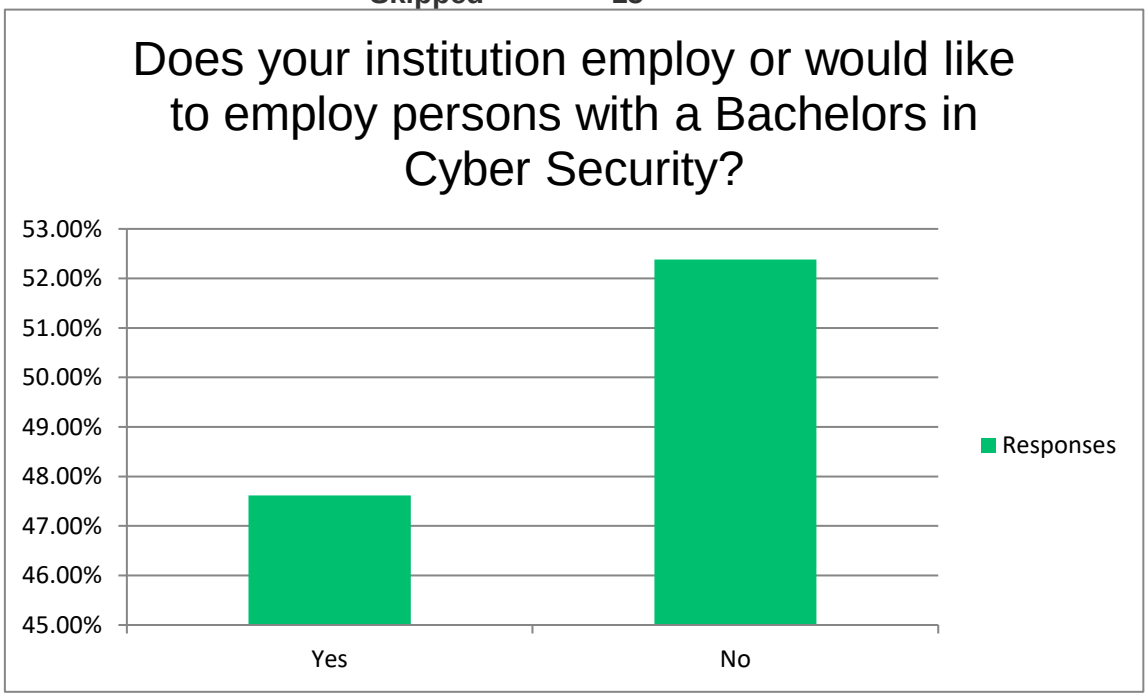
Answer Choices	Responses	
Do not have Data Analytics employees	33.33%	8
1 - 5 employees	50.00%	12
6 - 10 employees	8.33%	2
11 - 15 employees	0.00%	0
More than 15 employees	8.33%	2
	Answered	**24**



2018 BAS Technology Need Survey
Question 13:

Does your institution employ or would like to employ persons with a Bachelors in Cyber Security?

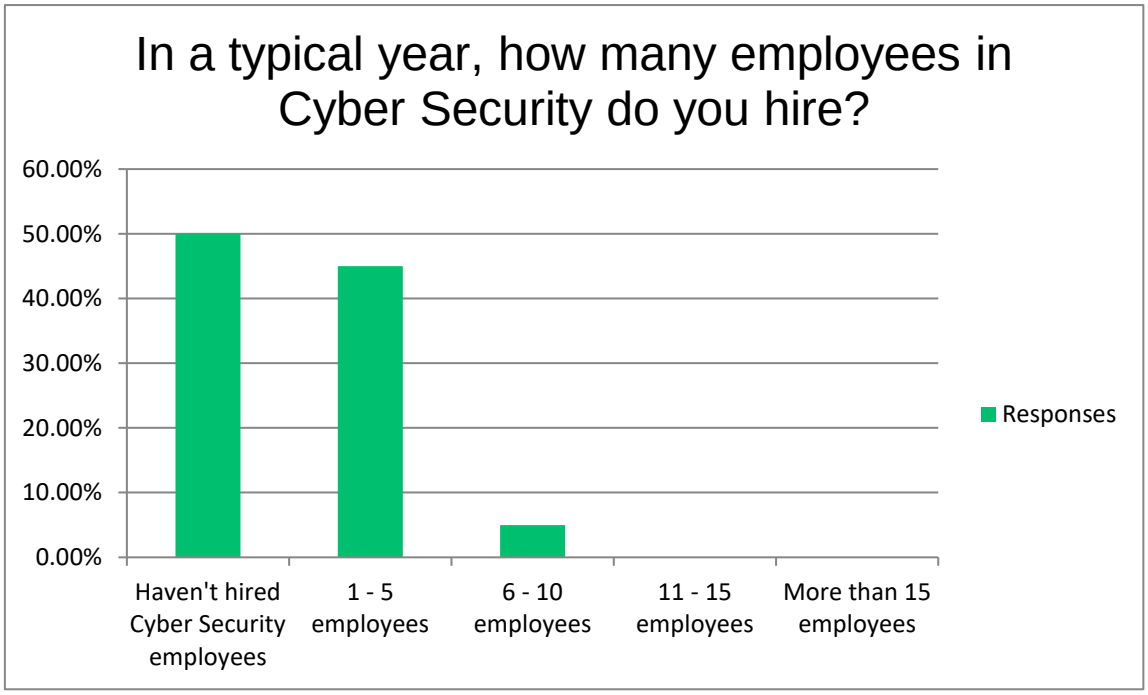
Answer Choices	Responses	
Yes	47.62%	20
No	52.38%	22
	Answered	**42**
	Skipped	**15**



2018 BAS Technology Need Survey
Question 14:

In a typical year, how many employees in Cyber Security do you hire?

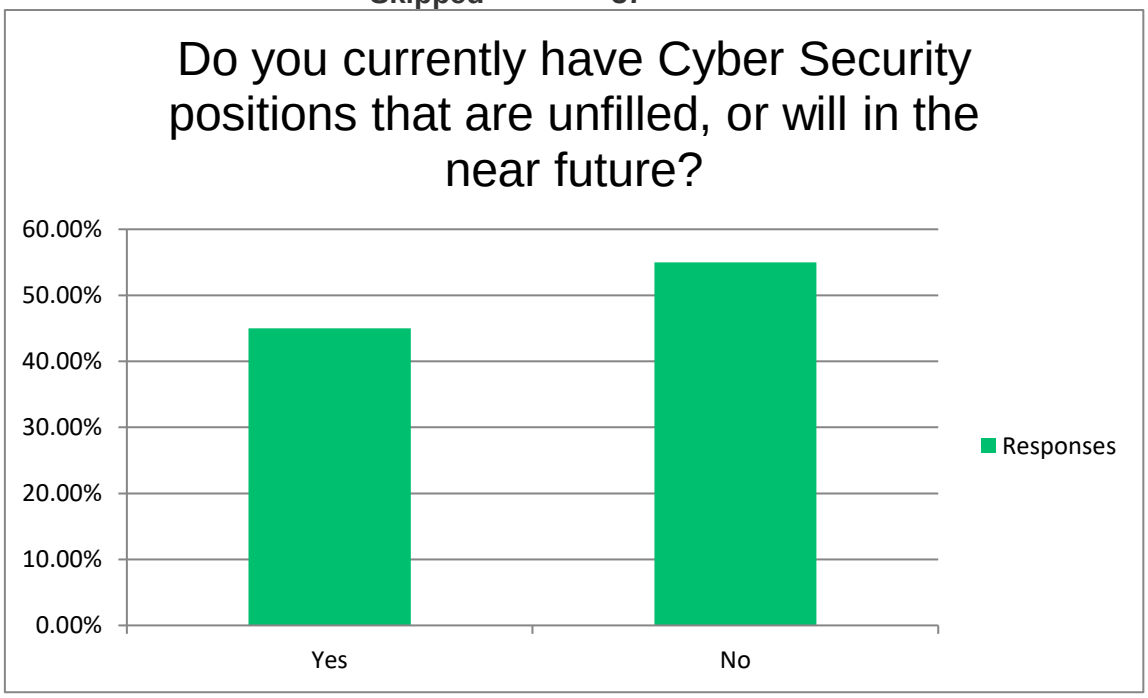
Answer Choices	Responses	
Haven't hired Cyber Security employees	50.00%	10
1 - 5 employees	45.00%	9
6 - 10 employees	5.00%	1
11 - 15 employees	0.00%	0
More than 15 employees	0.00%	0
	Answered	**20**



2018 BAS Technology Need Survey
Question 15:

Do you currently have Cyber Security positions that are unfilled, or will in the near future?

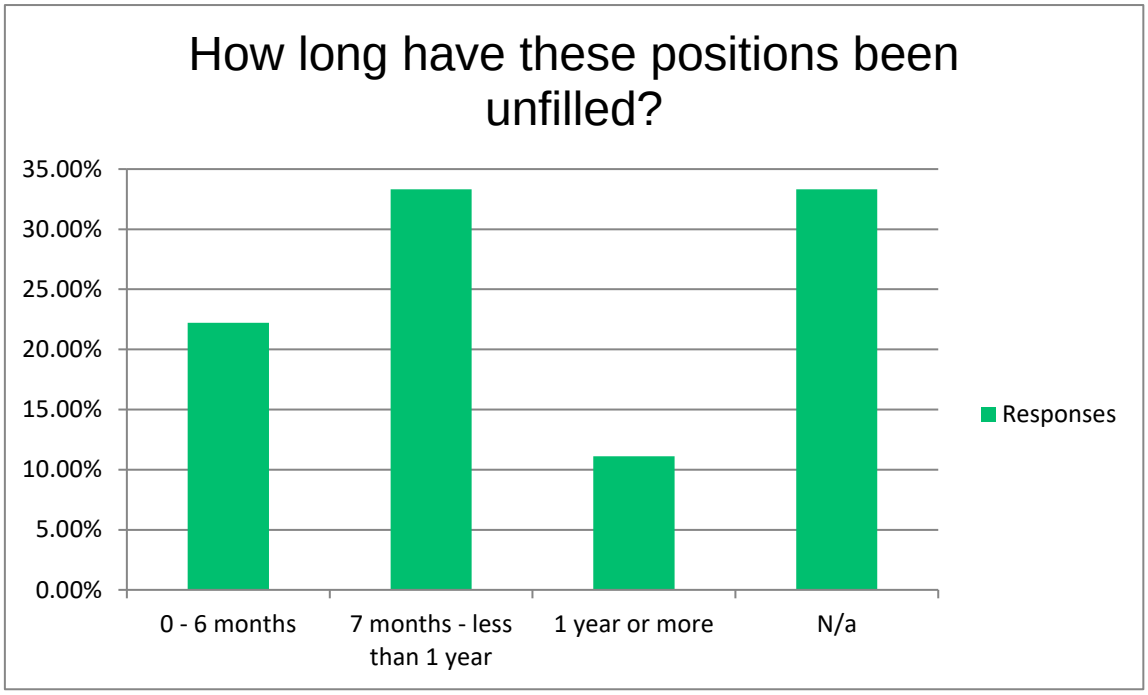
Answer Choices	Responses	
Yes	45.00%	9
No	55.00%	11
	Answered	**20**
	Skipped	**37**



2018 BAS Technology Need Survey
Question 16:

How long have these positions been unfilled?

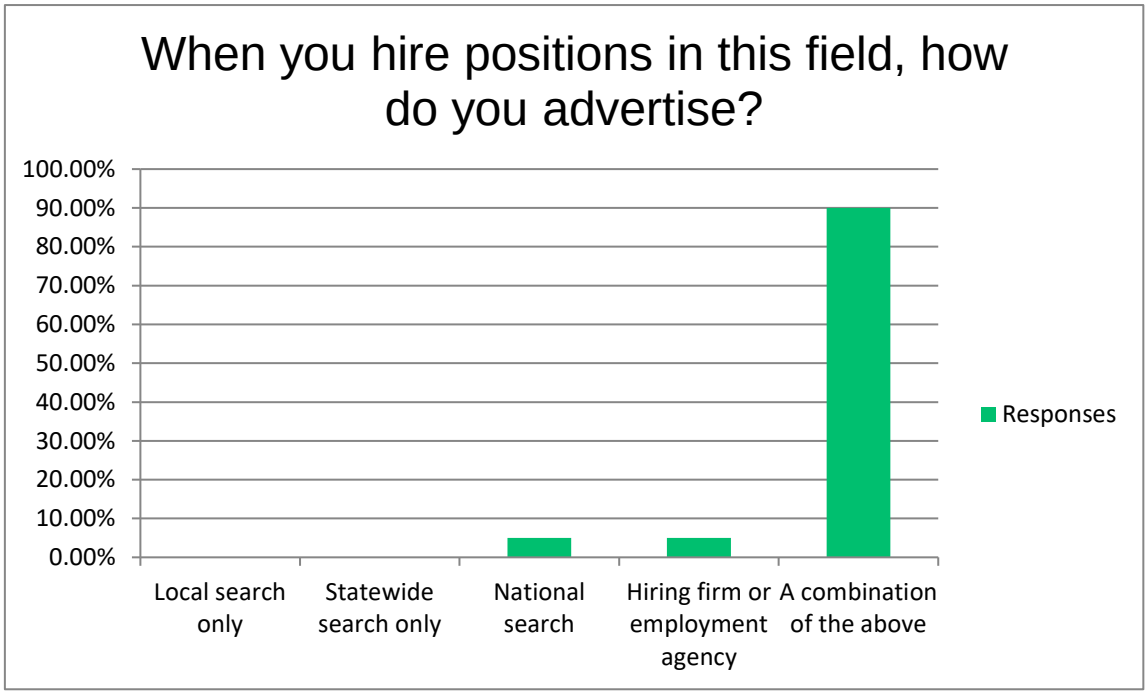
Answer Choices	Responses	
0 - 6 months	22.22%	2
7 months - less than 1 year	33.33%	3
1 year or more	11.11%	1
N/a	33.33%	3
	Answered	**9**



2018 BAS Technology Need Survey
Question 17:

When you hire positions in this field, how do you advertise?

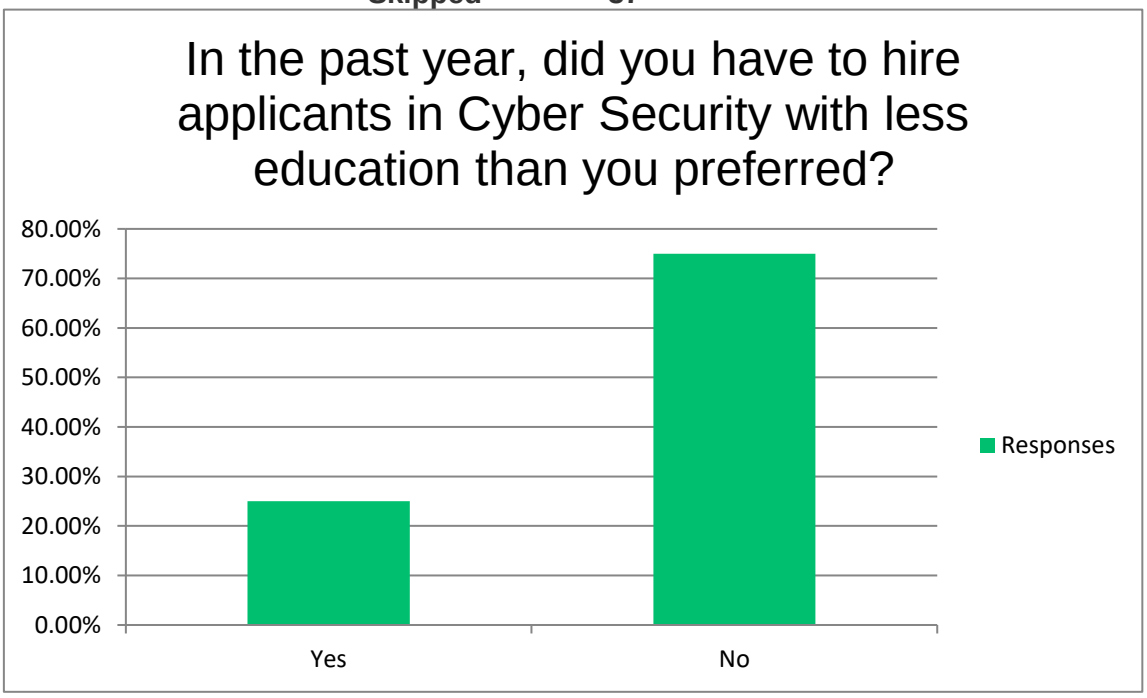
Answer Choices	Responses	
Local search only	0.00%	0
Statewide search only	0.00%	0
National search	5.00%	1
Hiring firm or employment agency	5.00%	1
A combination of the above	90.00%	18
	Answered	**20**



2018 BAS Technology Need Survey
Question 18:

In the past year, did you have to hire applicants in Cyber Security with less education than you preferred?

Answer Choices	Responses	
Yes	25.00%	5
No	75.00%	15
	Answered	**20**
	Skipped	**37**



2018 BAS Technology Need Survey
Question 19:

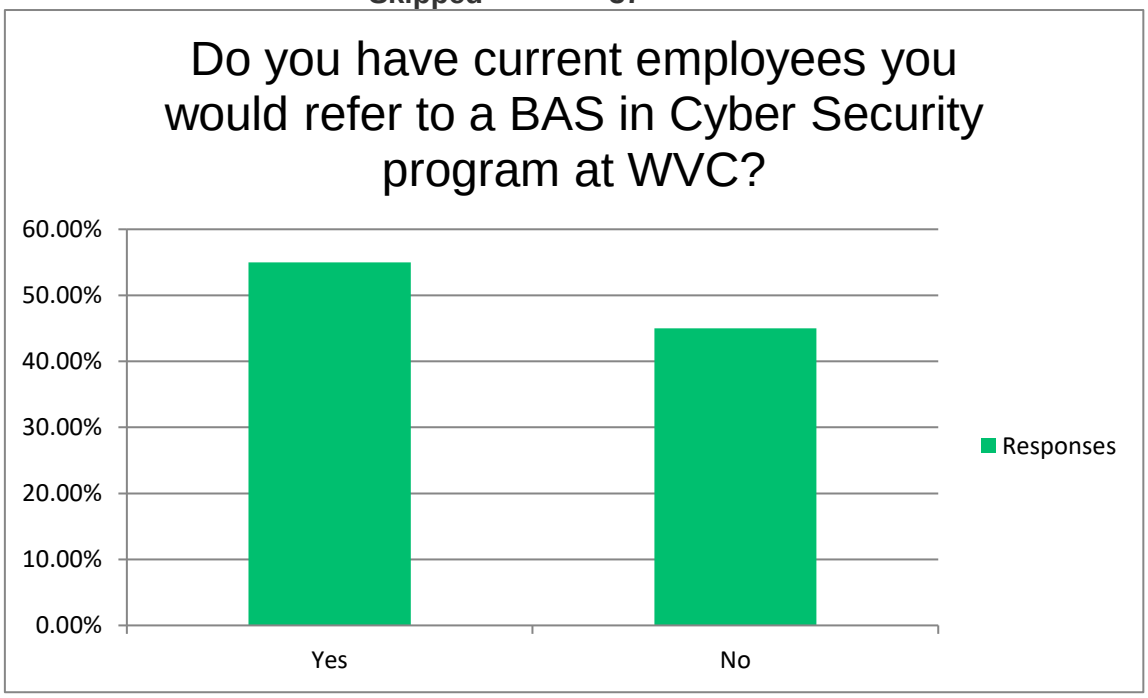
Do you offer professional development or other training to these employees to help them grow professionally?

Answer Choices	Responses	
Yes	78.95%	15
No	21.05%	4
	Answered	**19**
	Skipped	**38**

2018 BAS Technology Need Survey
Question 20:

Do you have current employees you would refer to a BAS in Cyber Security program at WVC?

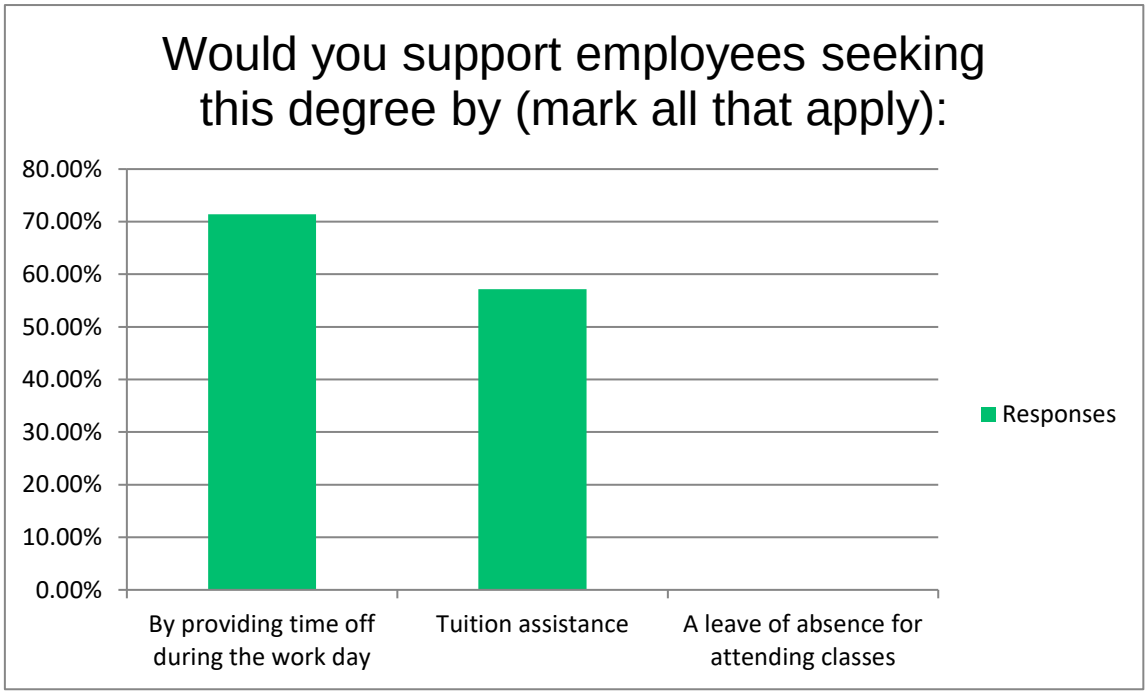
Answer Choices	Responses	
Yes	55.00%	11
No	45.00%	9
	Answered	**20**
	Skipped	**37**



2018 BAS Technology Need Survey
Question 21:

Would you support employees seeking this degree by (mark all that apply):

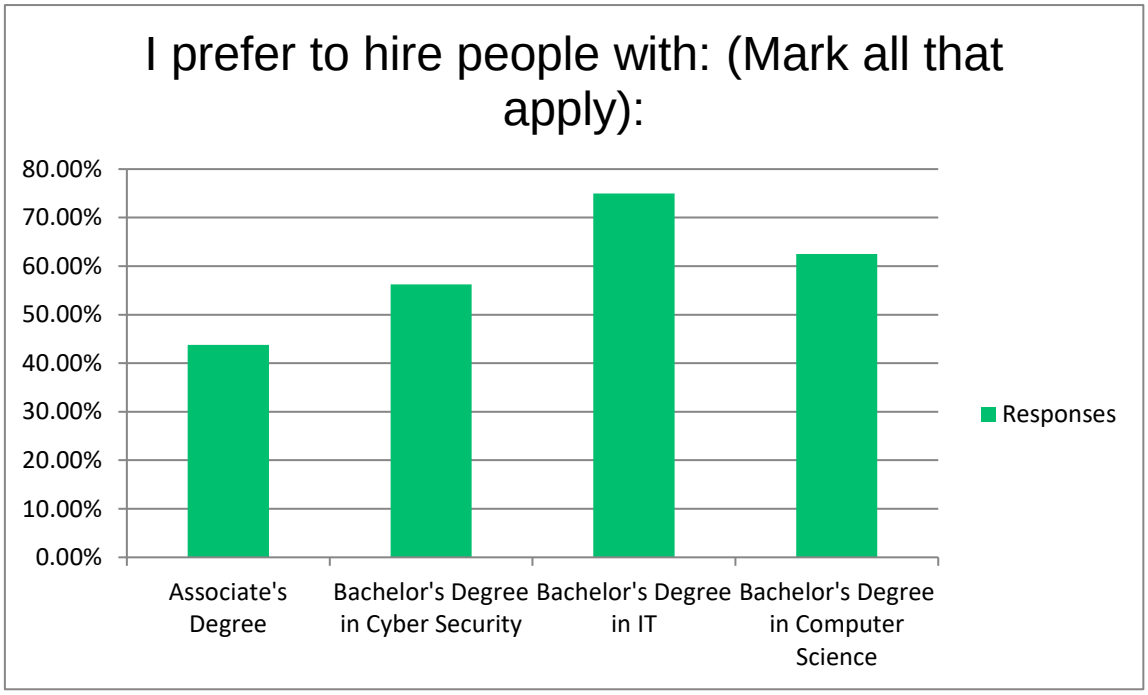
Answer Choices	Responses	
By providing time off during the work day	71.43%	5
Tuition assistance	57.14%	4
A leave of absence for attending classes	0.00%	0
Other (please specify)		2
	Answered	**7**



2018 BAS Technology Need Survey
Question 22:

I prefer to hire people with: (Mark all that apply):

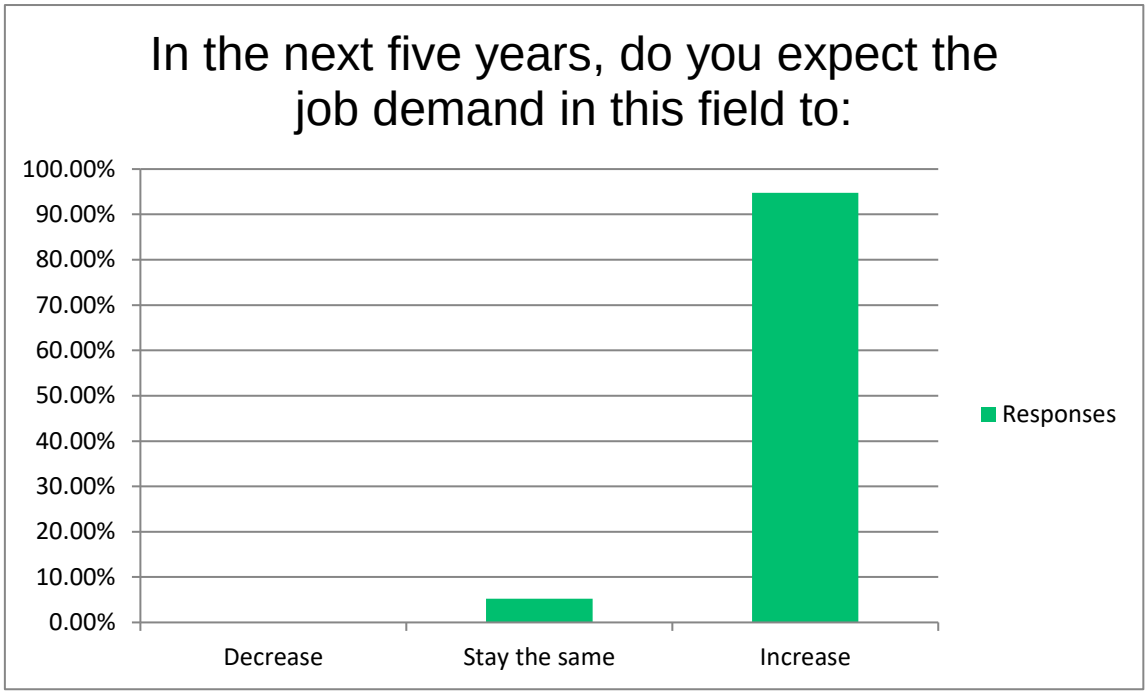
Answer Choices	Responses	
Associate's Degree	43.75%	7
Bachelor's Degree in Cyber Security	56.25%	9
Bachelor's Degree in IT	75.00%	12
Bachelor's Degree in Computer Science	62.50%	10
Other (please specify)		1
	Answered	**16**



2018 BAS Technology Need Survey
Question 23:

In the next five years, do you expect the job demand in this field to:

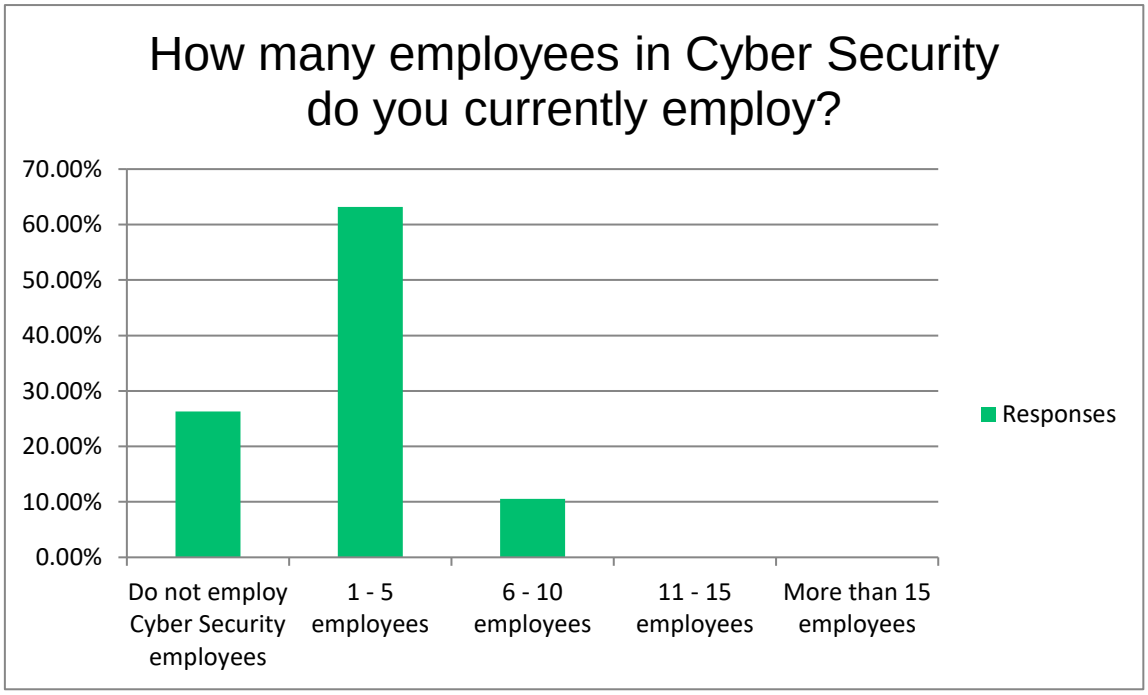
Answer Choices	Responses	
Decrease	0.00%	0
Stay the same	5.26%	1
Increase	94.74%	18
	Answered	**19**



2018 BAS Technology Need Survey
Question 24:

How many employees in Cyber Security do you currently employ?

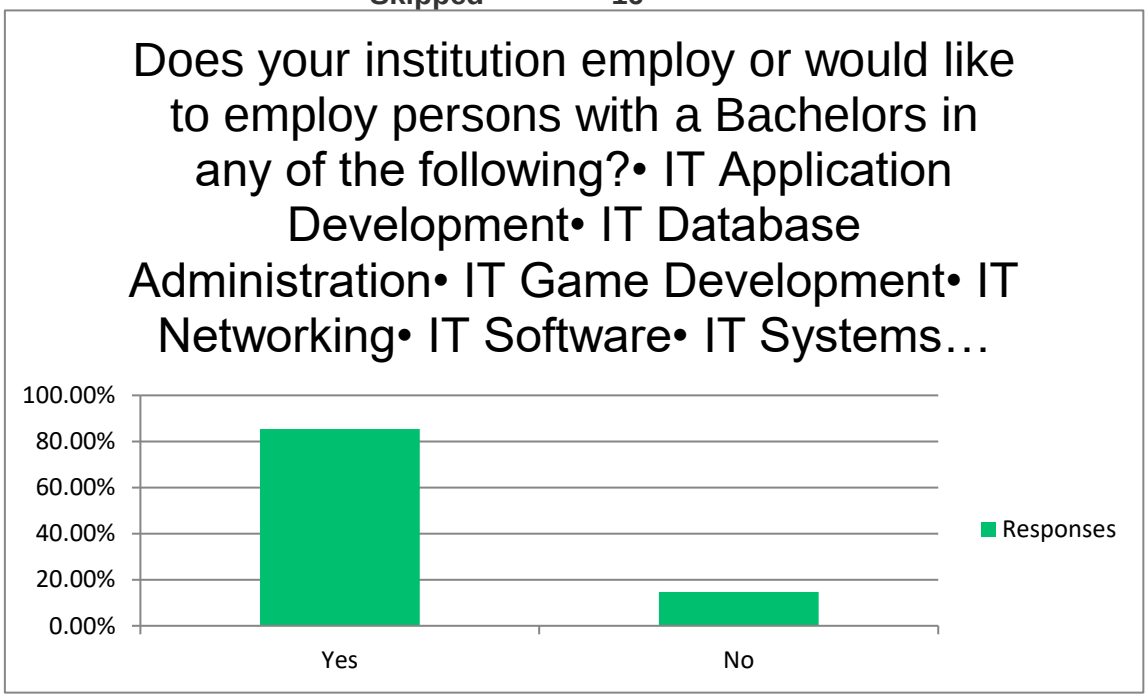
Answer Choices	Responses	
Do not employ Cyber Security employees	26.32%	5
1 - 5 employees	63.16%	12
6 - 10 employees	10.53%	2
11 - 15 employees	0.00%	0
More than 15 employees	0.00%	0
	Answered	**19**



2018 BAS Technology Need Survey
Question 25:

Does your institution employ or would like to employ persons with a Bachelors in any of the following?• IT Application Development• IT Database Administration •IT Game Development• IT Networking• IT Software• IT Systems Software

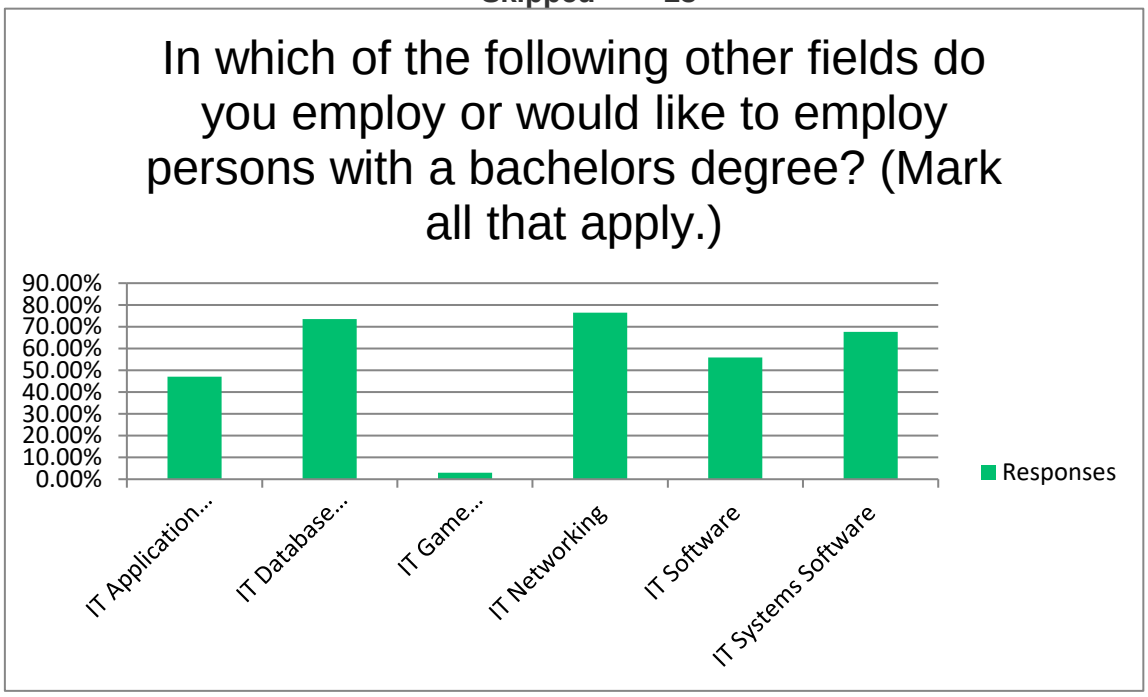
Answer Choices	Responses	
Yes	85.37%	35
No	14.63%	6
Answered		**41**
Skipped		**16**



2018 BAS Technology Need Survey
Question 26:

In which of the following other fields do you employ or would like to employ persons with a Bachelor's degree? (Mark all that apply.)

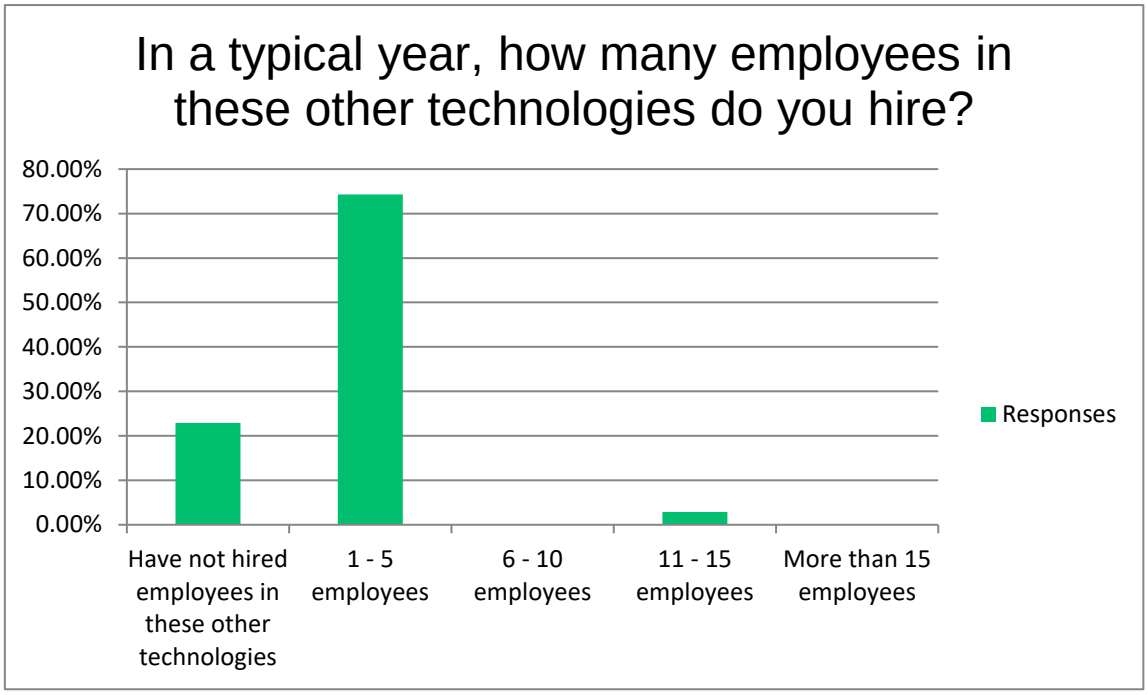
Answer Choices	Responses	
IT Application Development	47.06%	16
IT Database Administration	73.53%	25
IT Game Development	2.94%	1
IT Networking	76.47%	26
IT Software	55.88%	19
IT Systems Software	67.65%	23
	Answered	**34**
	Skipped	**23**



2018 BAS Technology Need Survey
Question 27:

In a typical year, how many employees in these other technologies do you hire?

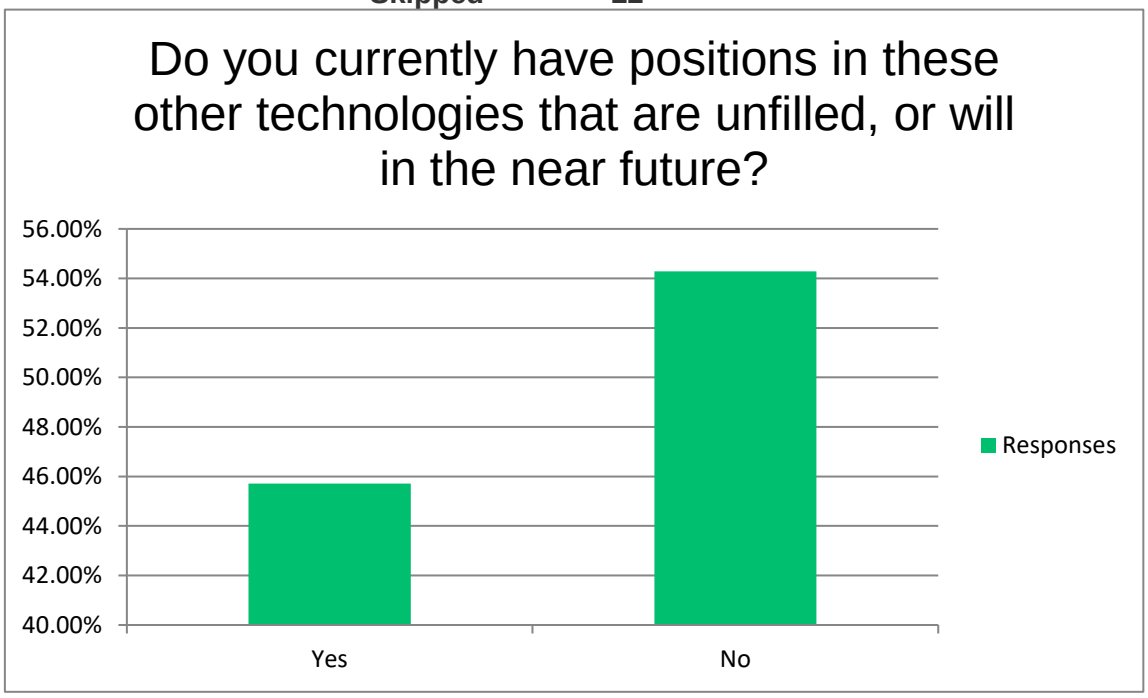
Answer Choices	Responses	
Have not hired employees in these other technologies	22.86%	8
1 - 5 employees	74.29%	26
6 - 10 employees	0.00%	0
11 - 15 employees	2.86%	1
More than 15 employees	0.00%	0
	Answered	**35**



2018 BAS Technology Need Survey
Question 28:

Do you currently have positions in these other technologies that are unfilled, or will in the near future?

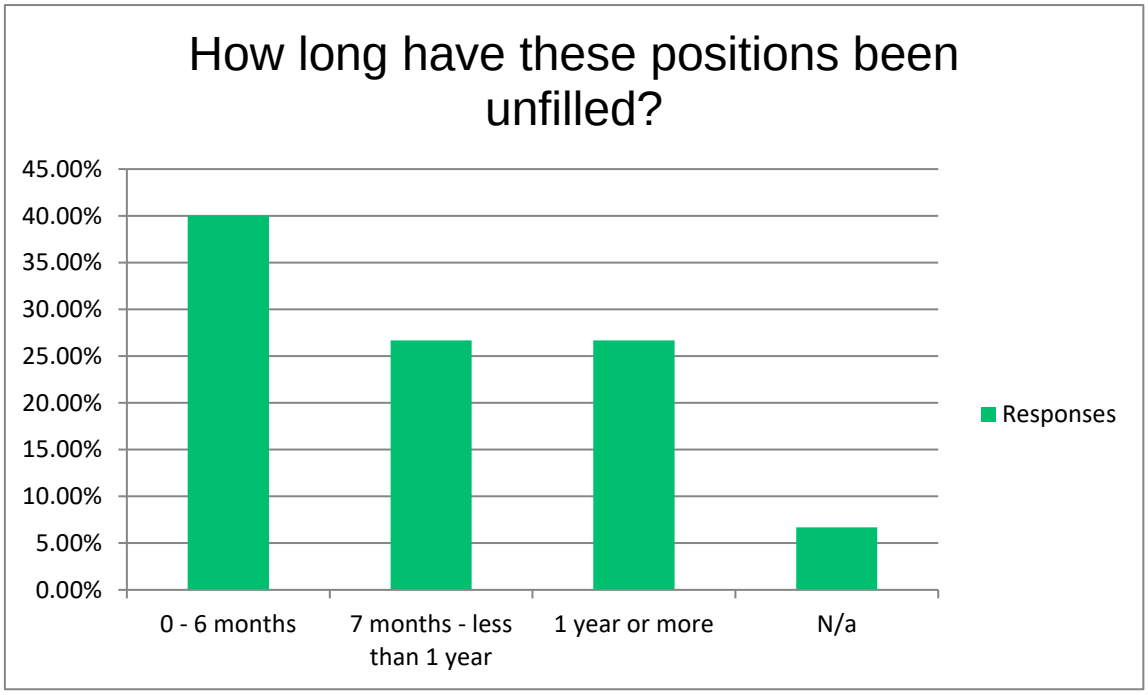
Answer Choices	Responses	
Yes	45.71%	16
No	54.29%	19
	Answered	**35**
	Skipped	**22**



2018 BAS Technology Need Survey
Question 29:

How long have these positions been unfilled?

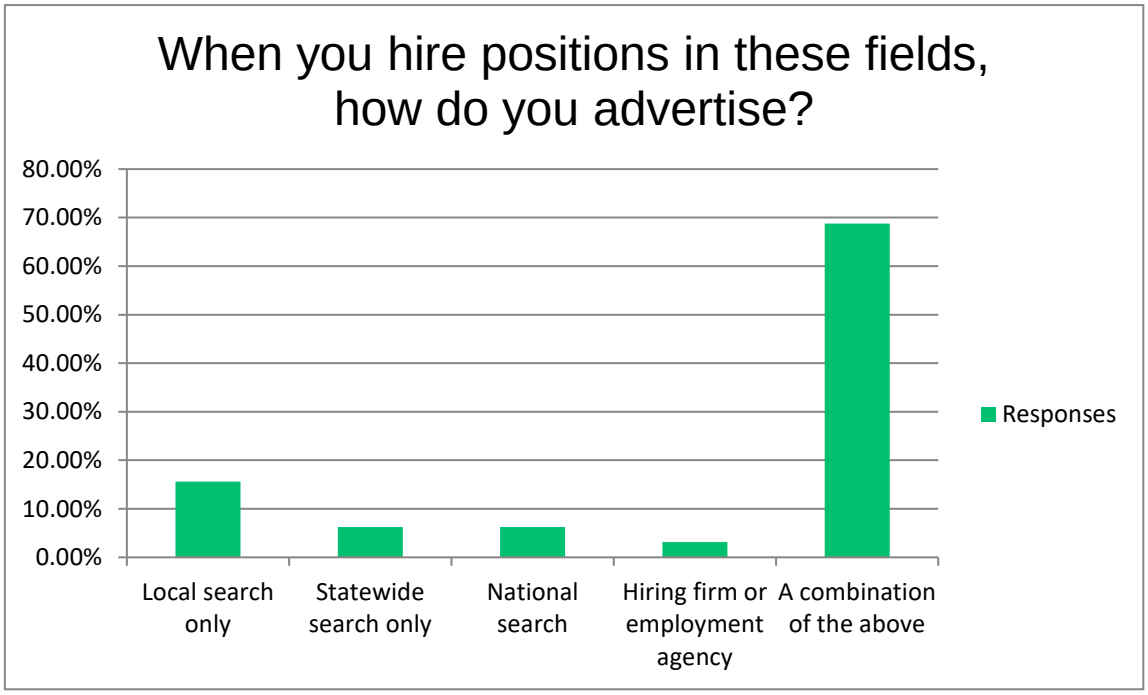
Answer Choices	Responses	
0 - 6 months	40.00%	6
7 months - less than 1 year	26.67%	4
1 year or more	26.67%	4
N/a	6.67%	1
	Answered	**15**



2018 BAS Technology Need Survey
Question 30:

When you hire positions in these fields, how do you advertise?

Answer Choices	Responses	
Local search only	15.63%	5
Statewide search only	6.25%	2
National search	6.25%	2
Hiring firm or employment agency	3.13%	1
A combination of the above	68.75%	22
	Answered	**32**

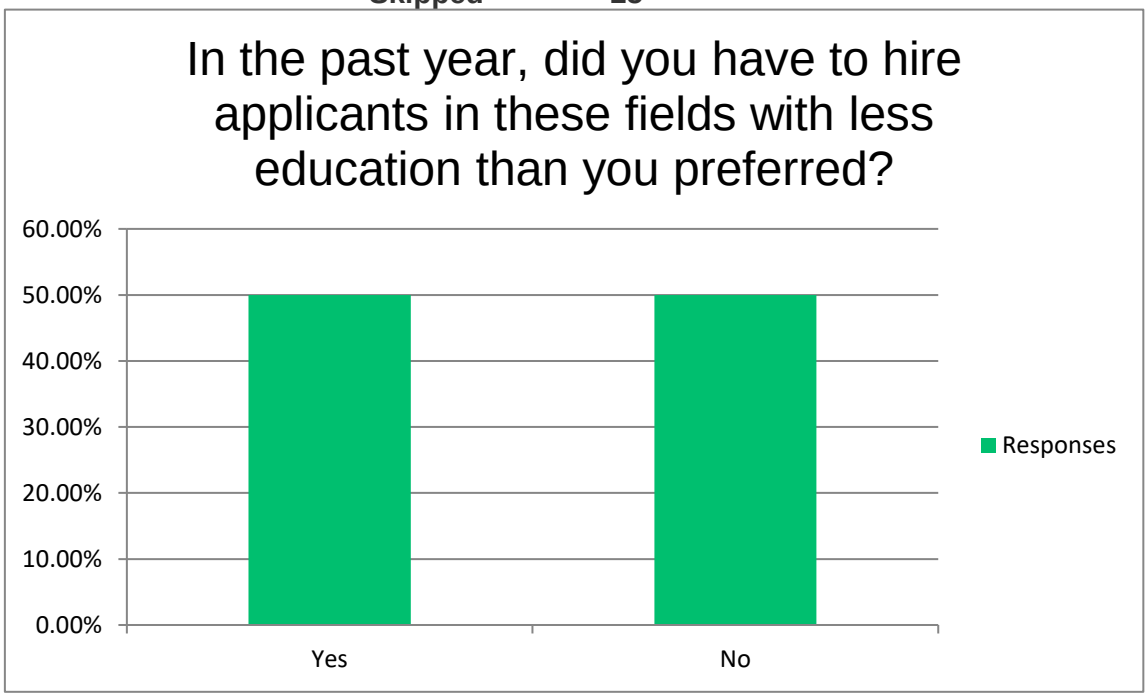


2018 BAS Technology Need Survey

Question 31:

In the past year, did you have to hire applicants in these fields with less education than you preferred?

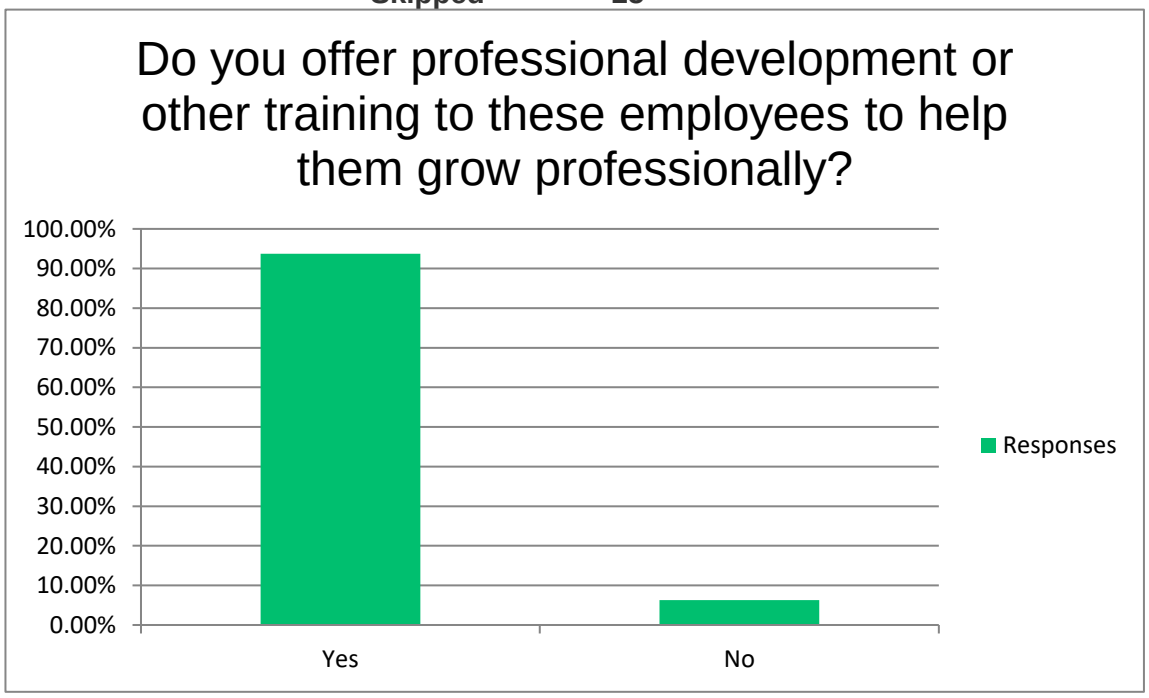
Answer Choices	Responses	
Yes	50.00%	16
No	50.00%	16
	Answered	**32**
	Skipped	**25**



2018 BAS Technology Need Survey
Question 32:

Do you offer professional development or other training to these employees to help them grow professionally?

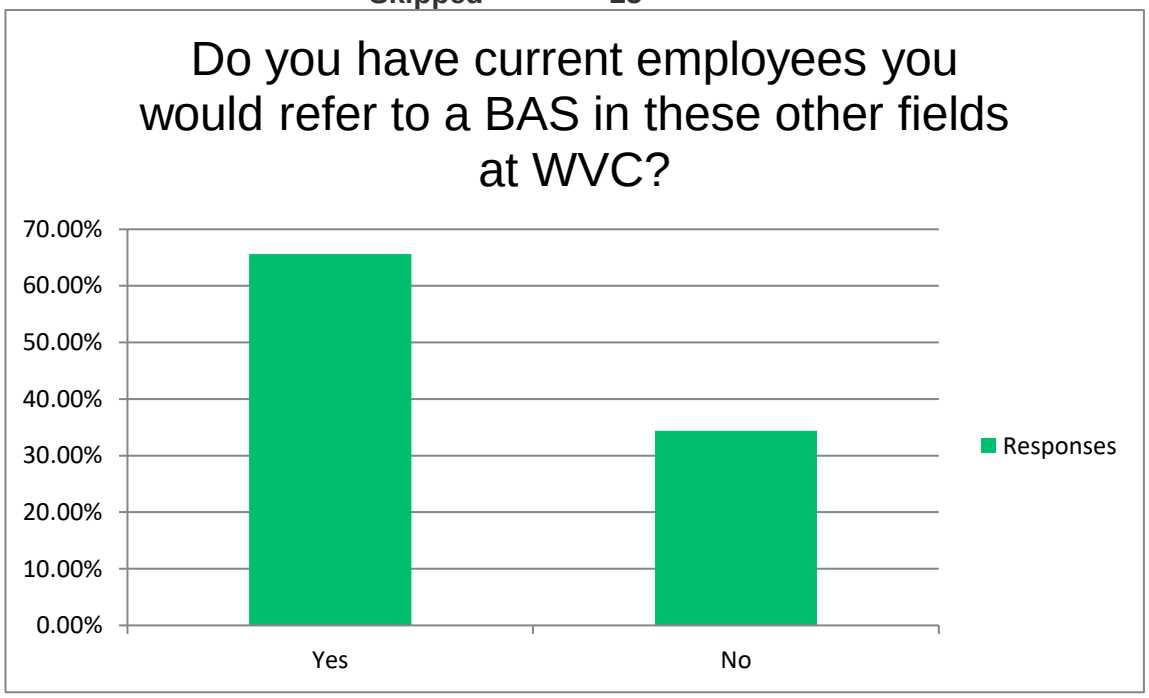
Answer Choices	Responses	
Yes	93.75%	30
No	6.25%	2
	Answered	**32**
	Skipped	**25**



2018 BAS Technology Need Survey
Question 33:

Do you have current employees you would refer to a BAS in these other fields at WVC?

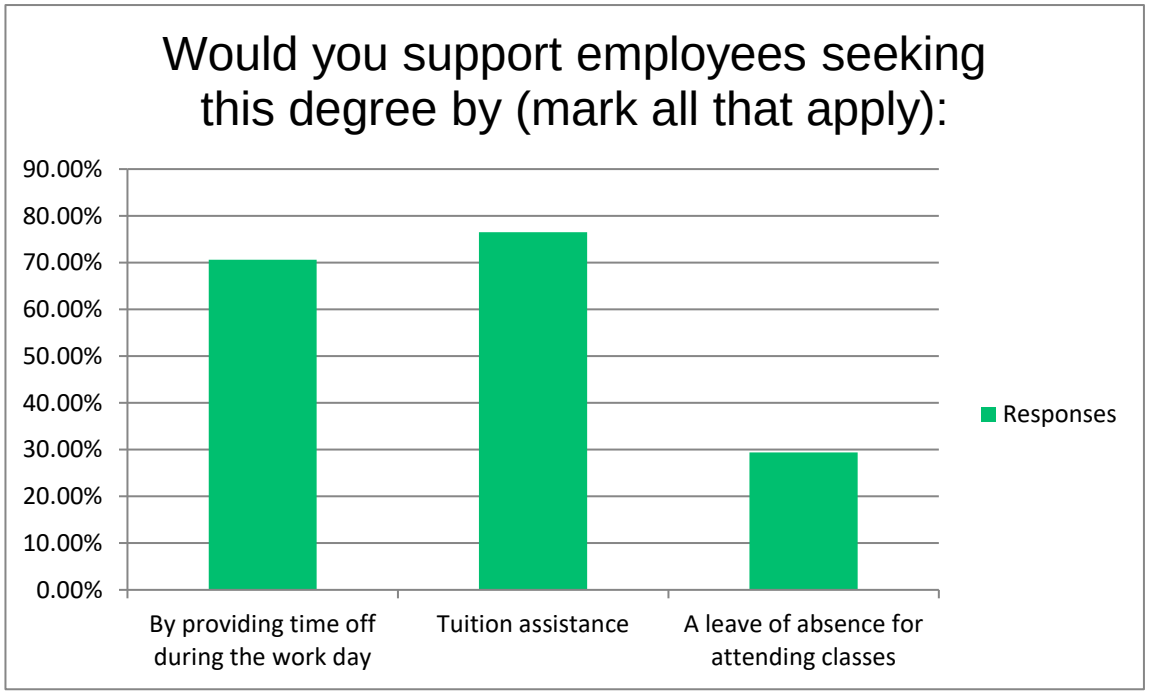
Answer Choices	Responses	
Yes	65.63%	21
No	34.38%	11
Answered		**32**
Skipped		**25**



2018 BAS Technology Need Survey
Question 34:

Would you support employees seeking this degree by (mark all that apply):

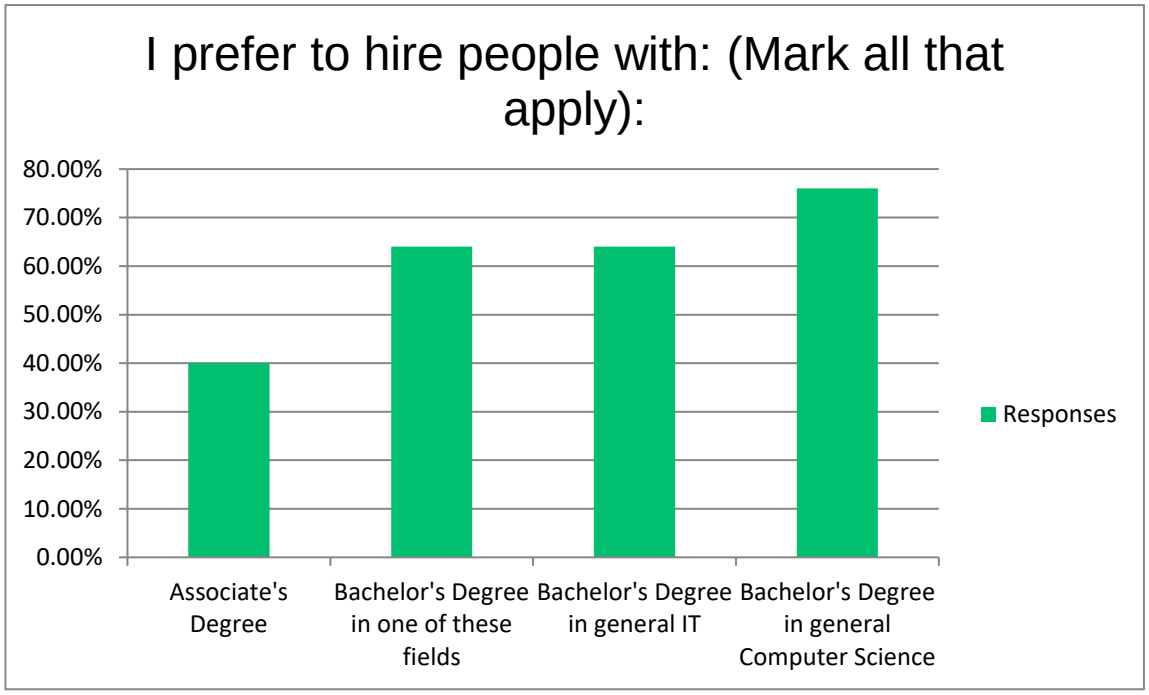
Answer Choices	Responses	
By providing time off during the work day	70.59%	12
Tuition assistance	76.47%	13
A leave of absence for attending classes	29.41%	5
Other (please specify)		2
	Answered	**17**



2018 BAS Technology Need Survey
Question 35:

I prefer to hire people with: (Mark all that apply):

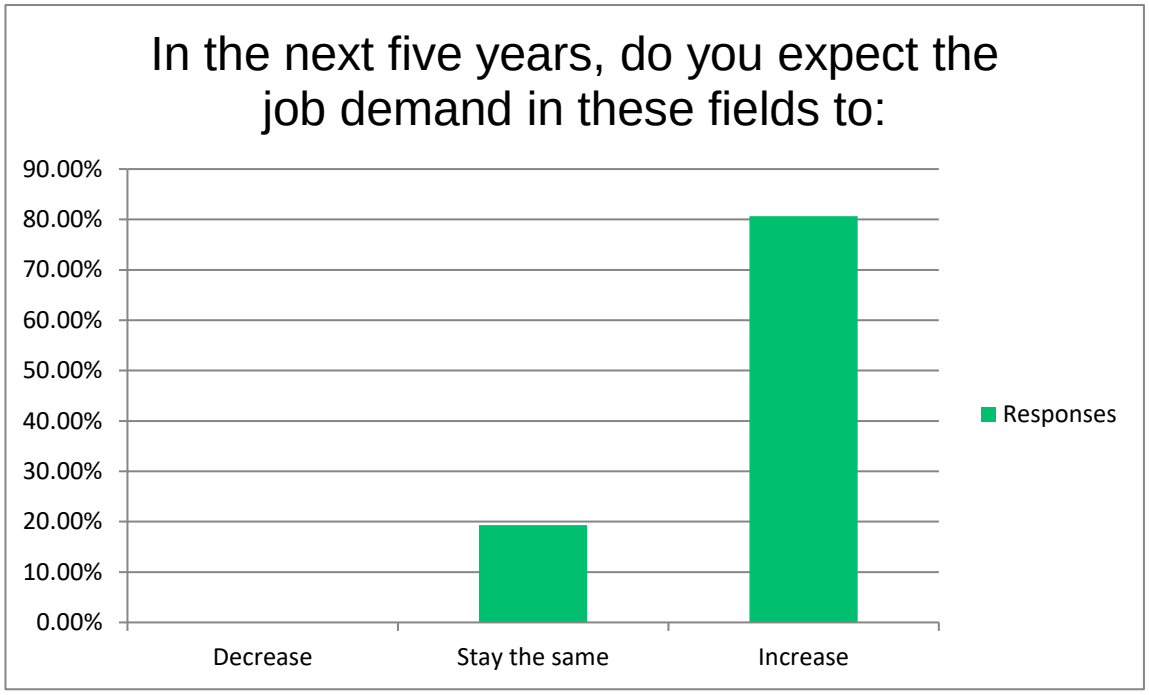
Answer Choices	Responses	
Associate's Degree	40.00%	10
Bachelor's Degree in one of these fields	64.00%	16
Bachelor's Degree in general IT	64.00%	16
Bachelor's Degree in general Computer Science	76.00%	19
Other (please specify)		4
	Answered	**25**



2018 BAS Technology Need Survey
Question 36:

In the next five years, do you expect the job demand in these fields to:

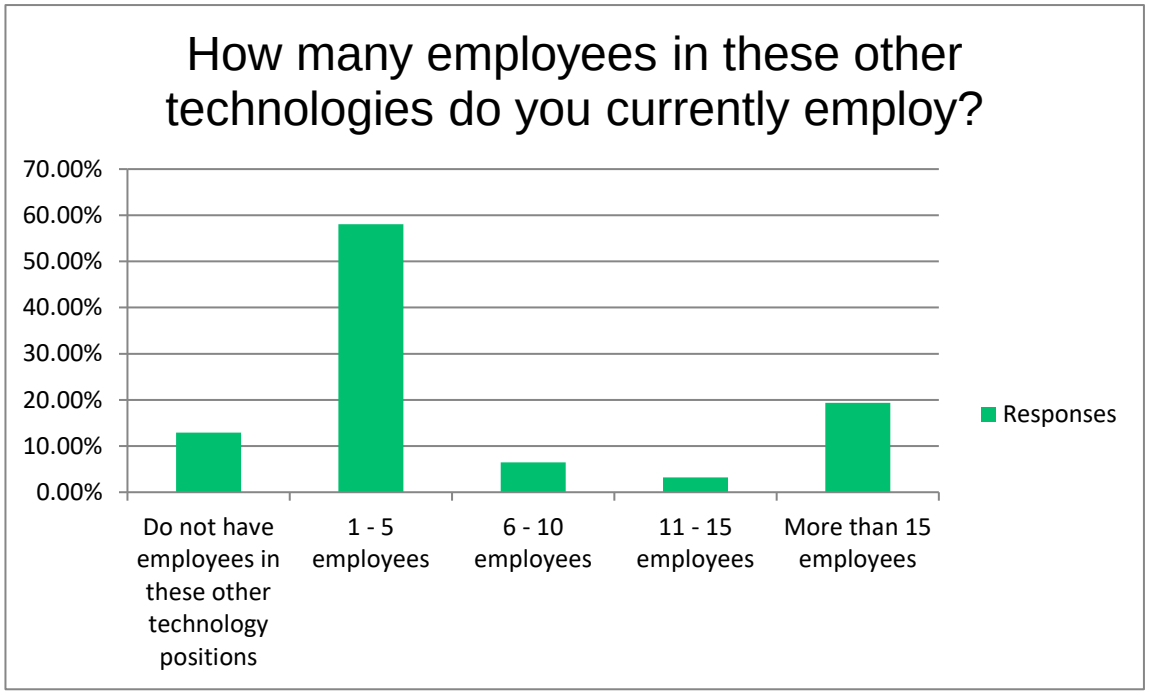
Answer Choices	Responses	
Decrease	0.00%	0
Stay the same	19.35%	6
Increase	80.65%	25
	Answered	**31**



2018 BAS Technology Need Survey
Question 37:

How many employees in these other technologies do you currently employ?

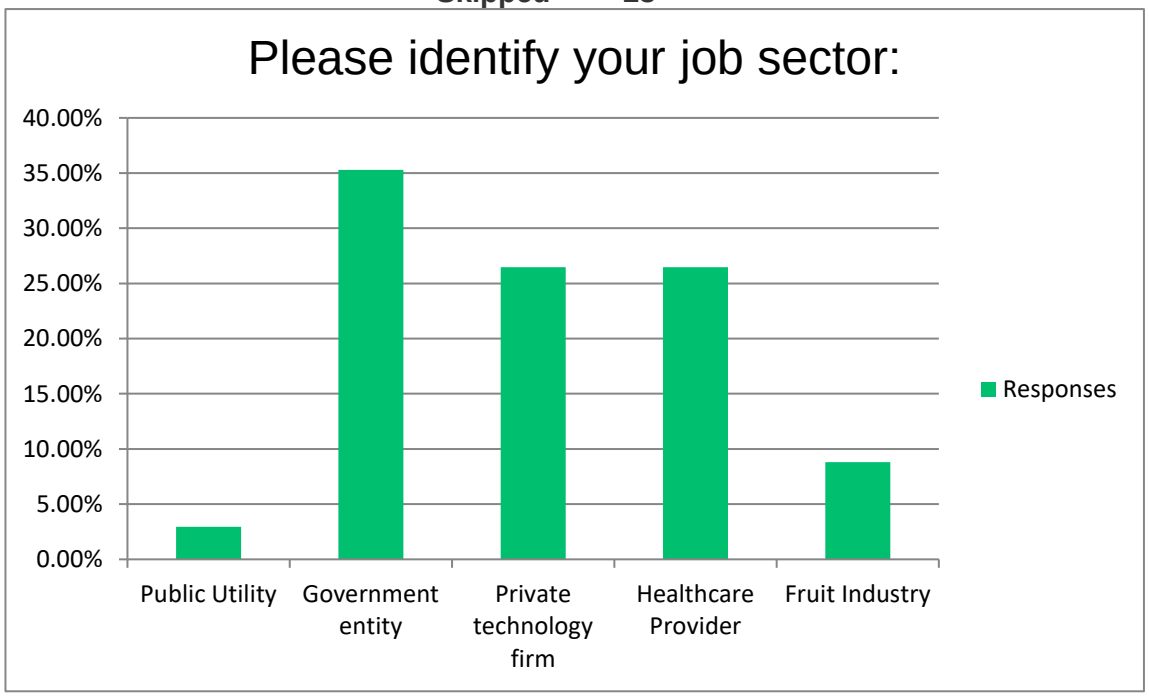
Answer Choices	Responses	
Do not have employees in these other technology positions	12.90%	4
1 - 5 employees	58.06%	18
6 - 10 employees	6.45%	2
11 - 15 employees	3.23%	1
More than 15 employees	19.35%	6
	Answered	**31**



2018 BAS Technology Need Survey
Question 38:

Please identify your job sector:

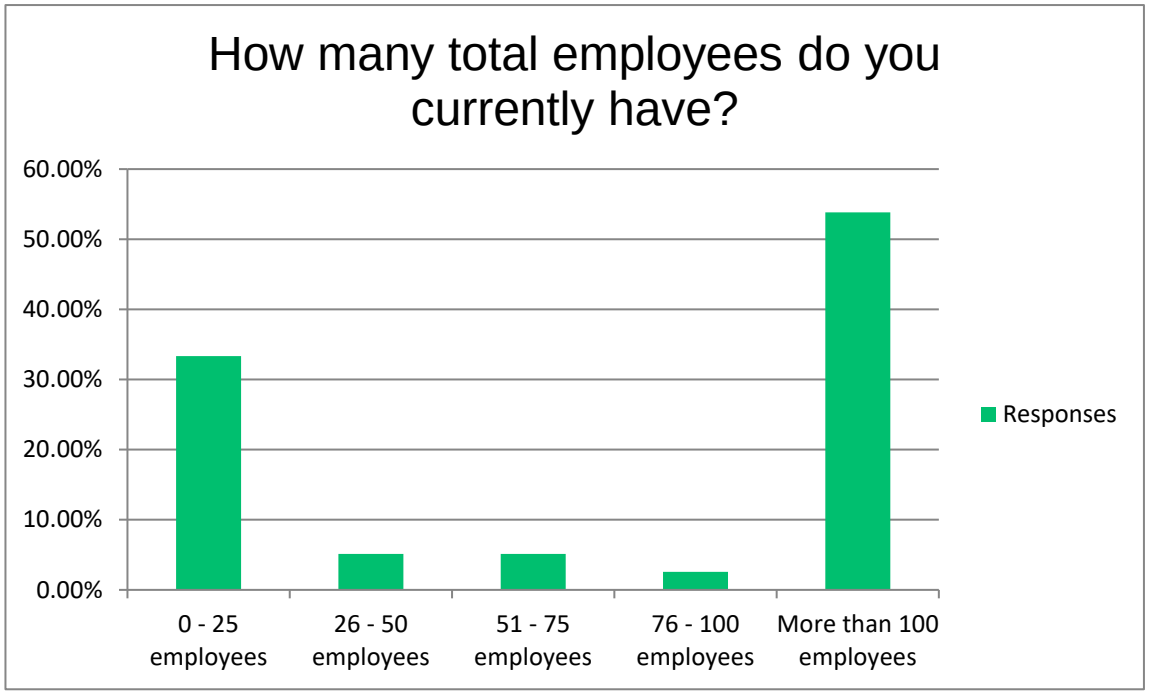
Answer Choices	Responses	
Public Utility	2.94%	1
Government entity	35.29%	12
Private technology firm	26.47%	9
Healthcare Provider	26.47%	9
Fruit Industry	8.82%	3
Other (please specify)		7
	Answered	**34**
	Skipped	**23**



2018 BAS Technology Need Survey
Question 39:

How many total employees do you currently have?

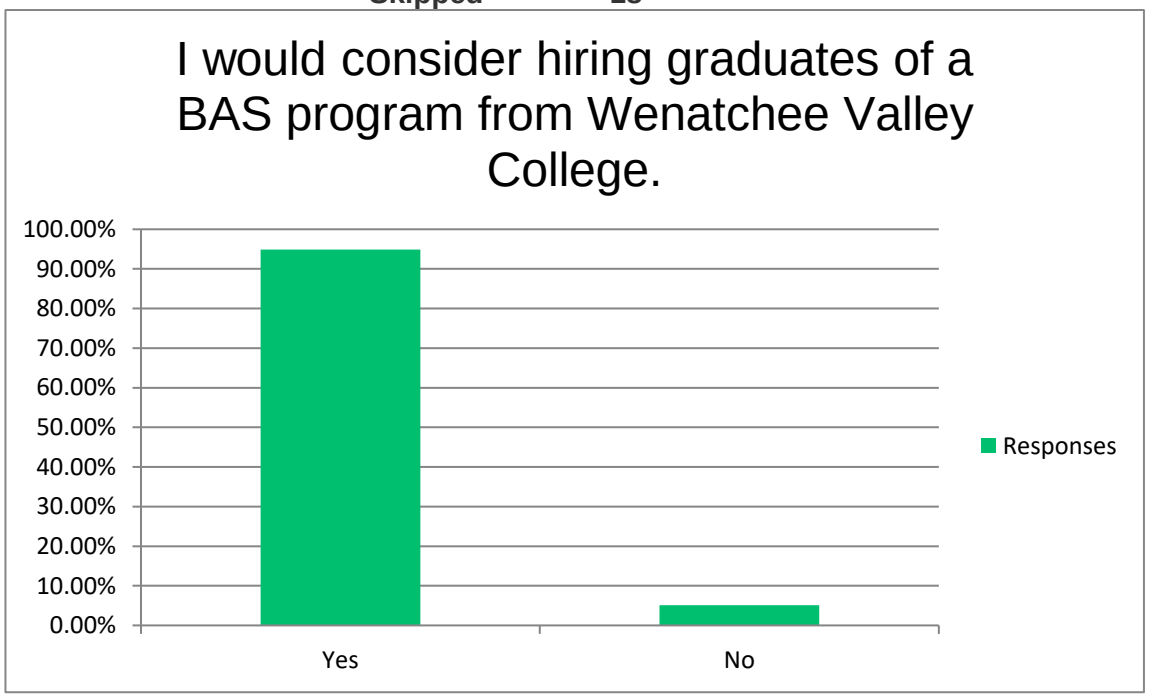
Answer Choices	Responses	
0 - 25 employees	33.33%	13
26 - 50 employees	5.13%	2
51 - 75 employees	5.13%	2
76 - 100 employees	2.56%	1
More than 100 employees	53.85%	21
	Answered	**39**



2018 BAS Technology Need Survey
Question 40:

I would consider hiring graduates of a BAS program from Wenatchee Valley College.

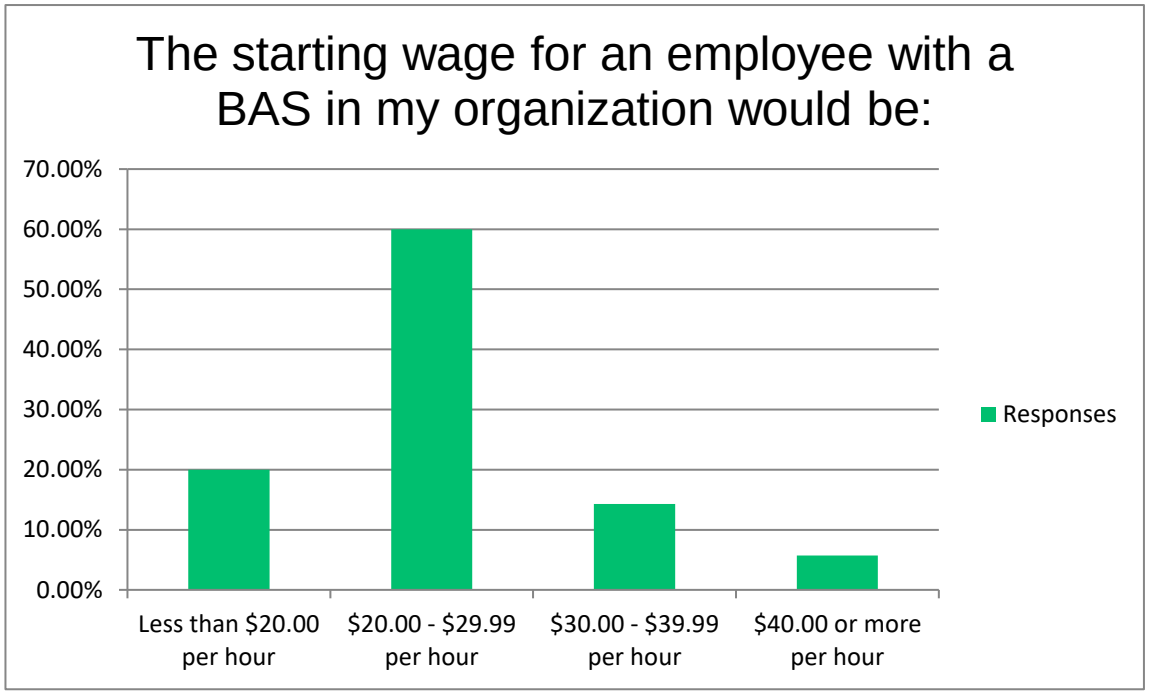
Answer Choices	Responses	
Yes	94.87%	37
No	5.13%	2
	Answered	**39**
	Skipped	**18**



2018 BAS Technology Need Survey
Question 41:

The starting wage for an employee with a BAS in my organization would be:

Answer Choices	Responses	
Less than $20.00 per hour	20.00%	7
$20.00 - $29.99 per hour	60.00%	21
$30.00 - $39.99 per hour	14.29%	5
$40.00 or more per hour	5.71%	2
	Answered	**35**



Appendix 3 - Advisory Committee information

Computer Technology Advisory Meeting
October 24, 2017
Agenda & Minutes

Sign in sheet – Quorum met – October 24th Meeting

Dave Burns	WVC-Faculty	Phone: 692-6656	dburns@wvc.edu
Nick Kerstetter	Support Tech-NCESD	Phone: 670-1472	nickk@ncesd.org
Julia O'Donnell	Systems Tech-NCED	Phone: 741-7139	juliao@ncesd.org
Kim Anderson	Instructor- WVTSC	Phone: 670-6277	anderson.kim@wehatcheeschools.org
Trevor Coates	Systems Engineer-NCESD	Phone: 667-7118	trevorc@ncesd.org
Mitch Davis	Tech Support Specialist-WSD	Phone: 885-0455	mitchdavis@gmx.com
Miguel Jimenez	Tech Support Specialist III-CVCH	Phone: 741- 0274	miguelj2828@gmail.com
Devin Howe	Systems Architect-Chelan PUD	Phone: 237-0261	devin.howe@chelanpud.org

Agenda:

- Initial meeting
- Introductions
- Description of programs at WVC and Tech Center
- Ideas

Minutes:

Kim Anderson – 3 year program process. Advisory board signed off on 3 year plan.
Articulations with the college
Drone projects

Dave Burns – CTS/CSC program changes
Discussion on programming languages
C#, C++, Java
Linux Command Line – Advanced Linux
Support for MAC computers
Best practices for virtual machines

General discussion from members on their jobs and training that they have had.

Data Analytics Ad Hoc Advisory Committee Meeting – 2/27/18

Larry Henderson, Stacy Luckensmeyer, Chad Evans, Dave Burns, Carli, Schiffner, Joey Walter, Nate Davis, Brent Madson, Rene Hartman, Alex Smith, Randy Pauli.

Carli Schiffner and Joey Walter started the meeting with a welcome and introductions of the committee members.

Dave Burns mentioned that Wenatchee Valley College current offers a two year Computer Technology, Network Administration program. In years past, the college did offer a two year computer programming degree. Wenatchee Valley College also had a full-time computer science instructor on staff. Right now, the college teaches intro and intermediate computer science courses, more specifically four core classes which could be used as electives for other degree requirements. Computer Science areas are continuing to thrive. Wenatchee Valley College is pursuing a BAS in Data Analytics. What are the needs? What can we do to help and start developing the statement of need? Initial research was completed by the Center of Excellence in Bellevue College. Laster summer, the director came to Wenatchee Valley College and confirmed the need in our area for a computer science program. How will we frame this program?

Alex Smith from Chelan Co PUD mentioned the PUD is moving toward hydro power energy and we don't need more of the same, we need data analytics, Randi Pauli mentioned we need employee with a broad grasp of skill set, Cisco network and cyber-security analysis prepared. He also mentioned it is hard to hire local well educated people.

Alex Smith mentioned the PUD is developing a Hydro Analytics Institute and they will be looking to hire two data analytics positions later this year. The PUD will be looking for master's degree oriented, industry and management prepared with a mathematical background. More positions these days require data structure and data management skills.

Rene Hamilton has a standard computer science degree and most of the degrees these days do not include database management skills. It's hard to find a face to face or online degree that offers multiple levels. Everything is web connected. It was recommended that the committee look at what's working such as success of code academy. It was also recommended that the committee specify more one the layers and user interface. Rene has suggested the degree require a completion project with added electives. It was recommended the data analytics degree require statistics or linear algebra. However, more discussion is required on the topic.

Chelan County PUD offer one to two intern positions a year. PUD has never hired anyone right out college before. PUD has always hired an intern or someone with work or industry experience. All internship positions at the PUD are paid positions. However, more discussion is needed on future intern possibilities and future class project at the PUD. It was suggested the committee contact Microsoft, Amazon, Boeing and Gigawatt to discuss future class projects and possible intern positions.

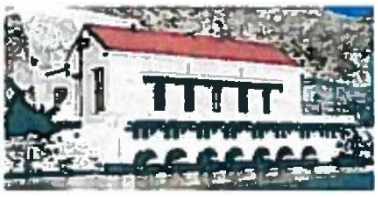
How marketable is the BAS Data Analytics degree? Dave Burns mentioned the BAS degree is not equivalent to a BA degree and is not transferrable to 4 year university. It was recommended that the committee contact other smaller businesses in the Wenatchee Valley to ask about the marketability and degree requirements.

Aptitude vs. attitude. Project based degree. Give students a chance to show their skills.

It was also suggested that the committee rethink the title of the degree because it might make or break it. Web programming and cyber-security students might be turned off.

Please fill out the survey and add any comments that you would like the committee to review.

Appendix 4: Local employer support


P U B L I C U T I L I·T Y D I S T R I C T N O . 1 o f C H E L A N C O U N T Y
PO. Box 1231 Wenatchee, \VA 98807-1231 • 327 N. Wenatchee Avenue, WA 98801
(509} 663-8121 • Toll free 1-888-663-8121 • www.chelanpud.org

February 5, 2018

Jim Richardson
President
Wenatchee Valley College
1300 Fifth Street
Wenatchee, WA 98801

Dear Jim,

Thanks for the discussion last week on the exciting opportunities for Wenatchee Valley College (WVC). As you continue to develop prospective programs for the energy Industry, I wanted to share with you some specific areas of study and research in the hydroelectric generation area.

Hydropower research is one of the areas our Board would like to advance through the District's Public Power Benefit program. We have been working through the planning phase and have become even more excited about the potential to form a Hydropower Research Institution right here In Chelan County. Our Vision is that researchers, students, manufacturing, and technology companies would be involved in taking advantage of an aggregated data set from hydropower owners from across the globe. The opportunities we can envision with WVC include the following:

1) **Data science.** Hydropower owners are installing more sensors on equipment to generate and collect more data. Data may come from a variety of systems in different formats from within a single generating station and certainly among other hydropower owners. There will be an Increasing need for data science skills with the ability to aggregate data from a variety of sources and provide the ability for advanced mathematics and analytics on both structured and unstructured data.

2) Data analytics. The hydroelectric Industry is looking for ways to predict Issues on their turbine and generator equipment. With a large volume data set, students and researchers could develop algorithms to determine relationships between data fields, which in tum will provide the opportunity to improve predictive capabilities.

3) Research protects. With a large data set and data analytics capabilities, there will be an opportunity for a number of research projects to help Improve predictive capabilities, identify new sensor technology, and identify ways to improve how current equipment operates. This an area of opportunity for colleges, universities, private industry, manufacturers, Department of Energy, and national labs. This could also be an opportunity to link students to other researchers from other organizations.

Appendix 5: EMSI Labor Market information

About Emsi

Emsi—an affiliate of the Strada Education Network—is a labor market analytics firm that is passionate about providing meaningful data for colleges and their students. Our data is trusted by a breadth of users including researchers at colleges and universities, economic development organizations, and Fortune 500 companies. Emsi data offers a three-pronged approach to labor market information: Our traditional LMI combines dozens of government sources from agencies like the Bureau of Economic Analysis, U.S. Census Bureau, and Bureau of Labor Statistics into one dataset that details industries, occupations, demographics, academic programs, and more. Emsi's job posting analytics give a real-time look into the needs of employers in today's labor market. Each month, millions of postings are scraped from employer sites and job boards, de-duplicated, and compiled into an actionable dataset. Emsi also leverages workforce profiles—an innovative database of more than 100 million resumés and professional profiles that are aggregated from the open web. These profiles unify information for workers—such as education, employment history, skills, and more—to reveal robust detail on what is happening in today's workforce. Together, these data related to labor market demand, relevant skills, and the competitive landscape help colleges and universities make informed decisions about their program offerings.

Program Definition

Institution

Code	Description
236975	Wenatchee Valley College

Program in Question

Code	Description
11.0104	Informatics

Award Level

Description
Bachelor's Degree

Program Definition - Cont.

Program Modality

Non-Distance Offered

Objective

Developing a new program

Competitive Landscape

Institution Sectors

Description
Administrative Unit Only
Public, 4-year or above
Private not-for-profit, 4-year or above
Private for-profit, 4-year or above
Public, 2-year
Private not-for-profit, 2-year
Private for-profit, 2-year

Award Levels

Description
Bachelor's Degree

Program Modality

Description
Distance Offered Programs
Non-Distance Offered Programs

Competitive Landscape - Cont.

Region

Code	Description
53007	Chelan County, WA
53017	Douglas County, WA
53047	Okanogan County, WA

Additional Competing Programs

Code	Description
11.0701	Computer Science
11.0103	Information Technology
11.0401	Information Science/Studies
11.0199	Computer and Information Sciences, Other
11.0101	Computer and Information Sciences, General

Target Occupations

12 items selected. See Appendix A for details.

Competitive Landscape - Cont.

Program Overview

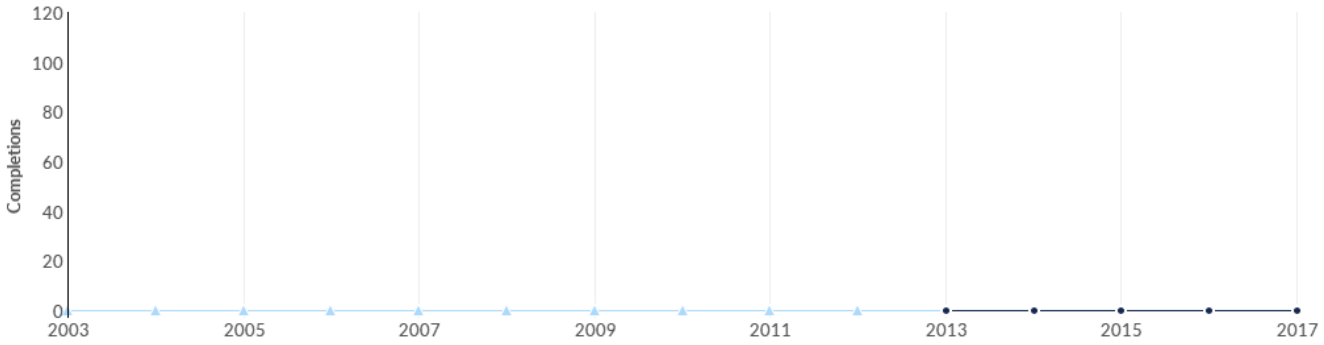
	Completions (2017)	% Completions	Institutions (2017)	% Institutions
All Programs	0	0%	0	0%
Distance Offered Programs	0	0%	0	0%
Non-Distance Offered Programs	0	0%	0	0%

Competitive Landscape - Cont.

No institutions with completions found in this region.

Competitive Landscape - Cont.

Regional Trends



	2013 Completions	2017 Completions	% Change
Distance Offered Programs	0	0	0.0%
Non-Distance Offered Programs	0	0	0.0%
All Programs	0	0	0.0%

Competitive Landscape - Cont.

Rank as a Talent Provider

Emsi's workforce profile data shows Wenatchee Valley College has 49 alumni working regionally in the occupations *Management Analysts*, *Computer Occupations, All Other*, *Market Research Analysts and Marketing Specialists*, *Computer Systems Analysts*, *Computer and Information Systems Managers*, *Computer and Information Research Scientists*, *Information Security Analysts*, *Operations Research Analysts*, *Database Administrators*, *Statisticians*, *Logisticians*, and *Actuaries*. These 49 alumni represent 12.86% of regional profiles working in these occupations, which ranks your institution 1st among regional talent providers.

49	12.86%	1
Your Alumni in Region	**Percent of Regional Profiles**	**Your Rank as a**
Working in Target Occupations	Working in Target Occupations	Regional Talent Provider

Top Talent Providers

The top regional institutions supplying the labor market with workers employed in the target occupations listed above, based on Emsi's workforce profile data.

School	Profiles	Percent
Wenatchee Valley College	49	12.86%
Washington State University	29	7.61%
Central Washington University	26	6.82%
University of Washington-Seattle Campus	14	3.67%
Eastern Washington University	13	3.41%
Western Washington University	9	2.36%
Oregon State University	5	1.31%
Western Governors University	5	1.31%
University of Phoenix-Arizona	5	1.31%
Virginia Polytechnic Institute and State University	4	1.05%
Seattle Pacific University	4	1.05%
Seattle University	4	1.05%
Colorado State University-Fort Collins	3	0.79%
Southern New Hampshire University	3	0.79%
Brigham Young University-Provo	3	0.79%
Community College of the Air Force	2	0.52%
University of California-Davis	2	0.52%
Brigham Young University-Idaho	2	0.52%
Saint Louis University	2	0.52%
Grace University	2	0.52%
University of Oregon	2	0.52%
Corban University	2	0.52%
University of North Texas	2	0.52%
Liberty University	2	0.52%
Bellevue College	2	0.52%
Big Bend Community College	2	0.52%
University of Puget Sound	2	0.52%
Shoreline Community College	2	0.52%

School	Profiles	Percent
Spokane Community College	2	0.52%
Spokane Falls Community College	2	0.52%
Whitworth University	2	0.52%
Yakima Valley College	2	0.52%
ITT Technical Institute-Troy	2	0.52%
ITT Technical Institute-Everett	2	0.52%
DeVry University-Illinois	2	0.52%
The University of Alabama	1	0.26%
Charter College	1	0.26%
Arizona State University-Tempe	1	0.26%
Grand Canyon University	1	0.26%
Anthem College-Phoenix	1	0.26%
Pulaski Technical College	1	0.26%
Bethany University	1	0.26%
California Polytechnic State University-San Luis Obispo	1	0.26%
California State University-Long Beach	1	0.26%
California State University-Sacramento	1	0.26%
University of California-Berkeley	1	0.26%
University of California-San Diego	1	0.26%
Coleman University	1	0.26%
De Anza College	1	0.26%
Foothill College	1	0.26%

Labor Market Demand

Labor Market Area Selection

Code	Description
53007	Chelan County, WA
53017	Douglas County, WA
53047	Okanogan County, WA

Target Occupations

12 items selected. See Appendix B for details.

Job Postings Keyword Filter

No selection

Labor Market Demand - Cont.

Degree Levels

Description
Bachelor's degree

Completions Year (default)

2017

Jobs Year (default)

2017

Labor Market Demand - Cont.

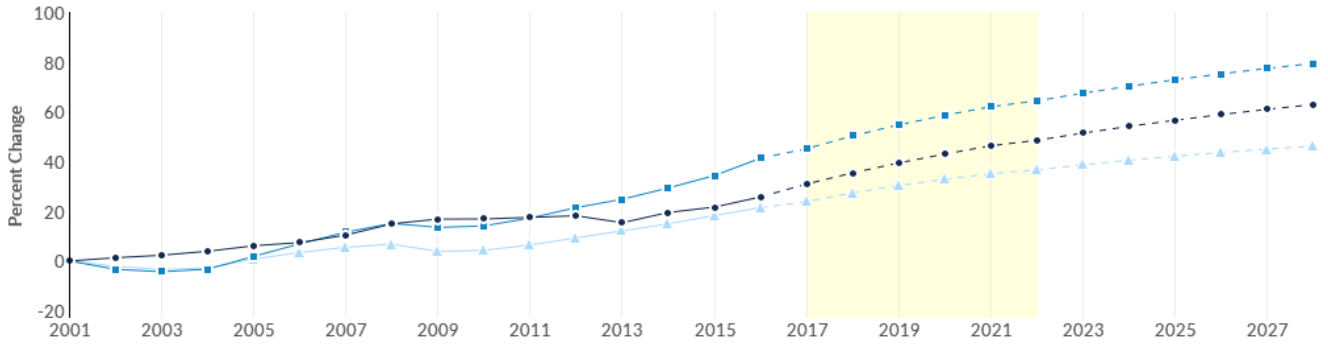
Target Occupations

272	13.6%	$30.38/hr	30
Jobs (2017)*	**% Change (2017-2022)***	**Median Hourly Earnings**	**Annual Openings***
57% below National average*	Nation: 10.6%*	Nation: $39.33/hr	

Occupation	2017 Jobs*	Annual Openings*	Median Hourly Earnings	Growth (2017 - 2022)*
Management Analysts	79	9	$31.41/hr	10.13%
Computer Systems Analysts	53	5	$31.38/hr	15.09%
Market Research Analysts and Marketing Specialists	45	7	$24.02/hr	22.22%
Computer and Information Systems Managers	32	3	$50.01/hr	12.50%
Computer Occupations, All Other	29	2	$25.70/hr	6.90%
Logisticians	11	1	$27.48/hr	9.09%
Database Administrators	<10	Insf. Data	$33.76/hr	Insf. Data
Operations Research Analysts	<10	Insf. Data	$26.61/hr	Insf. Data
Information Security Analysts	<10	Insf. Data	Insf. Data	Insf. Data
Statisticians	<10	Insf. Data	Insf. Data	Insf. Data
Computer and Information Research Scientists	<10	Insf. Data	Insf. Data	Insf. Data
Actuaries	<10	Insf. Data	Insf. Data	Insf. Data

Labor Market Demand - Cont.

Regional Trends



	Region	2017 Jobs	2022 Jobs	Change	% Change
●	Region	613	695	82	13.4%
●	State	98,031	111,048	13,017	13.3%
●	Nation	3,288,261	3,628,498	340,237	10.3%

Labor Market Demand - Cont.

Occupation Gender Breakdown

	Gender	2017 Jobs	2017 Percent
●	Males	289	55.0%
●	Females	237	45.0%

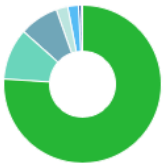
Labor Market Demand - Cont.

Occupation Age Breakdown

	Age	2017 Jobs	2017 Percent
●	14-18	1	0.1%
●	19-24	20	3.7%
●	25-34	126	24.0%
●	35-44	137	26.0%
●	45-54	126	23.9%
●	55-64	97	18.4%
●	65+	20	3.8%

Labor Market Demand - Cont.

Occupation Race/Ethnicity Breakdown



Race/Ethnicity	2017 Jobs	2017 Percent
White	400	76.0%
Asian	55	10.5%
Hispanic or Latino	42	8.0%
Black or African American	13	2.4%
Two or More Races	12	2.2%
American Indian or Alaska Native	3	0.6%
Native Hawaiian or Other Pacific Islander	1	0.2%

Labor Market Demand - Cont.

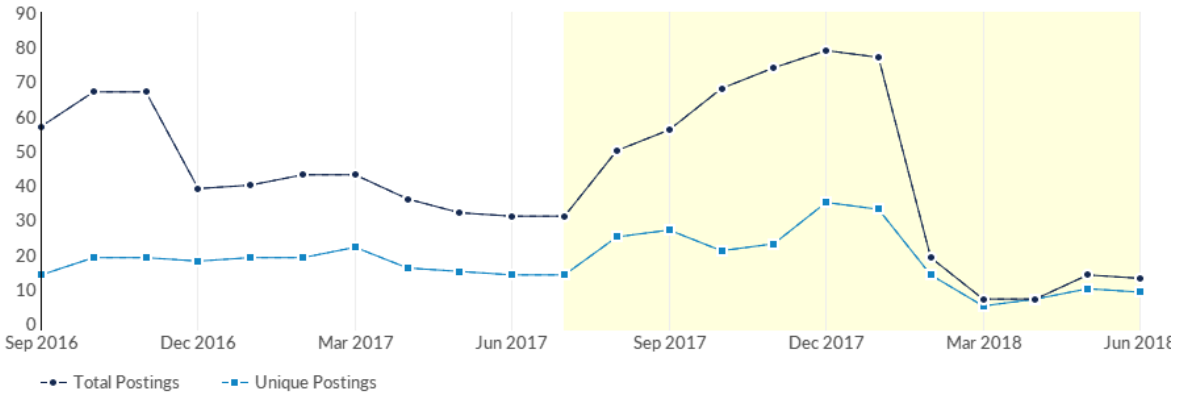
Job Postings Summary

85	2 : 1	32 days
Unique Postings	**Posting Intensity**	**Median Posting Duration**
180 Total Postings	Regional Average: 3 : 1	Regional Average: 25 days

There were **180** total job postings for your selection from July 2017 to June 2018, of which **85** were unique. These numbers give us a Posting Intensity of **2-to-1**, meaning that for every 2 postings there is 1 unique job posting.This is lower than the Posting Intensity for all other occupations and companies in the region (3-to-1), indicating that they may not be trying as hard to hire for this position.

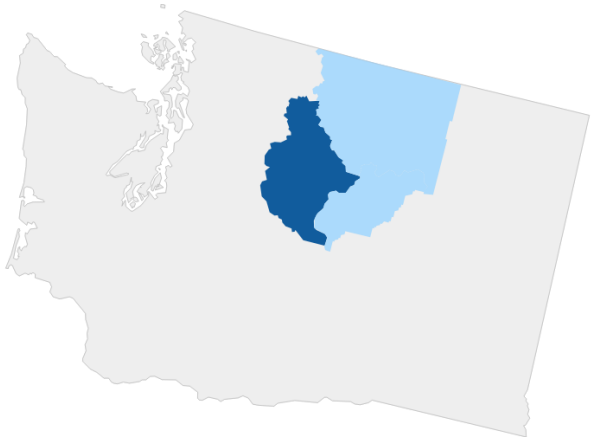
Labor Market Demand - Cont.

Total vs. Unique Postings Trend



Labor Market Demand - Cont.

Job Postings Regional Breakdown



County	Unique Postings (Jul 2017 - Jun 2018)
Chelan County, WA	75
Douglas County, WA	6
Okanogan County, WA	4

Labor Market Demand - Cont.

Top Companies Posting

Company	Total/Unique (Jul 2017 - Jun 2018)	Posting Intensity	Median Posting Duration
Confluence Health	73 / 21	3 : 1	31 days
BAE SYSTEMS PLC	16 / 13	1 : 1	46 days
Care Source Home Health, LLC	14 / 9	2 : 1	370 days
Medstar Health	9 / 4	2 : 1	11 days
County of Chelan	5 / 3	2 : 1	2 days
Horizon Credit Union	2 / 2	1 : 1	31 days
Livingston International, Inc.	3 / 2	2 : 1	15 days
Yara International ASA	8 / 2	4 : 1	60 days
AT&T Inc.	1 / 1	1 : 1	9 days

Labor Market Demand - Cont.

Top Cities Posting

City	Total/Unique (Jul 2017 - Jun 2018)	Posting Intensity	Median Posting Duration
Wenatchee, WA	134 / 63	2 : 1	35 days
Leavenworth, WA	24 / 11	2 : 1	9 days
East Wenatchee, WA	3 / 2	2 : 1	11 days
Mansfield, WA	2 / 2	1 : 1	31 days
Nespelem, WA	3 / 2	2 : 1	33 days
Oroville, WA	3 / 2	2 : 1	15 days
Bridgeport, WA	8 / 1	8 : 1	30 days
Cashmere, WA	2 / 1	2 : 1	40 days
Orondo, WA	1 / 1	1 : 1	n/a

Labor Market Demand - Cont.

Top Posted Occupations

Occupation (SOC)	Total/Unique (Jul 2017 - Jun 2018)	Posting Intensity	Median Posting Duration
Computer Systems Analysts	86 / 33	3 : 1	31 days
Computer Occupations, All Other	28 / 17	2 : 1	37 days
Management Analysts	9 / 8	1 : 1	14 days
Information Security Analysts	18 / 8	2 : 1	15 days
Computer and Information Systems Managers	13 / 7	2 : 1	33 days
Market Research Analysts and Marketing Specialists	12 / 6	2 : 1	30 days
Logisticians	9 / 2	5 : 1	30 days
Database Administrators	3 / 2	2 : 1	10 days
Computer and Information Research Scientists	1 / 1	1 : 1	66 days
Operations Research Analysts	1 / 1	1 : 1	n/a

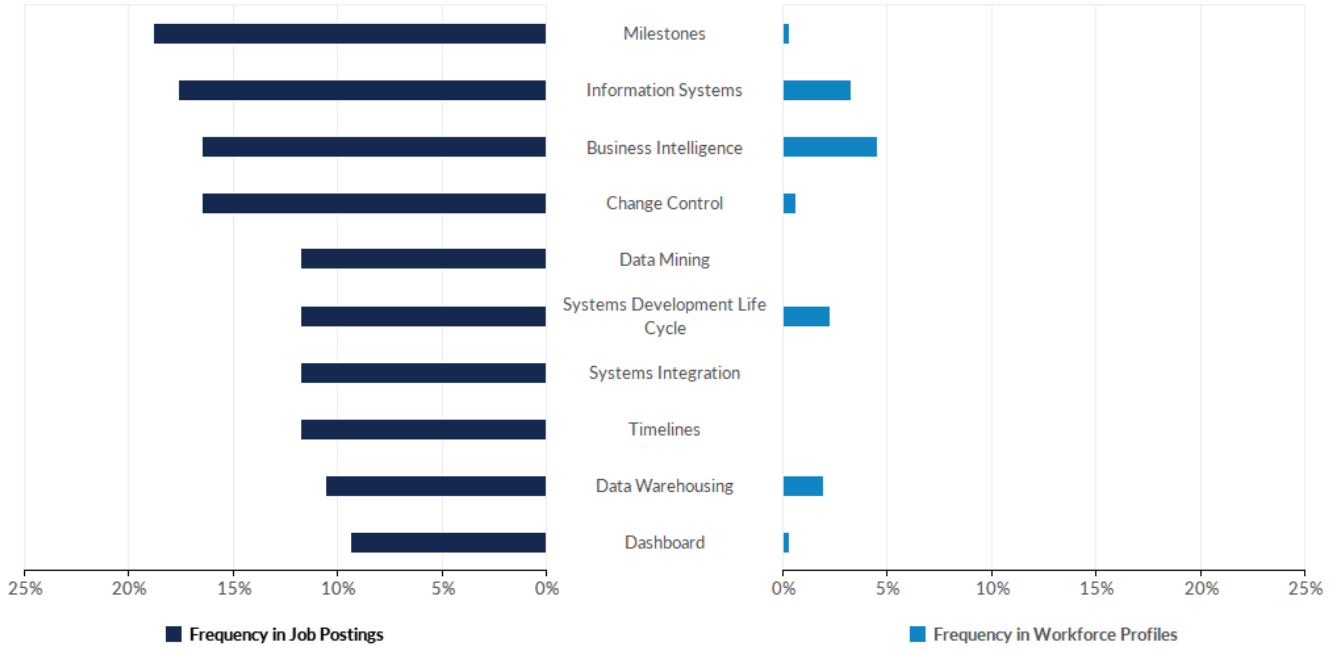
Labor Market Demand - Cont.

Top Posted Job Titles

Job Title	Total/Unique (Jul 2017 - Jun 2018)	Posting Intensity	Median Posting Duration
Research Analyst (Life, Physical, and Social Science)	9 / 7	1 : 1	11 days
Application Analyst	27 / 5	5 : 1	31 days
Business Analyst (Business and Financial Operations)	11 / 5	2 : 1	12 days
Business Analyst (Computer and Mathematical)	16 / 5	3 : 1	40 days
Systems Analyst	6 / 5	1 : 1	32 days
Epic HIM Analyst	12 / 4	3 : 1	33 days
Applications Analyst	7 / 3	2 : 1	53 days
Business Systems Consultant	3 / 3	1 : 1	44 days
Clinical Systems Analyst	6 / 3	2 : 1	32 days
Information Security Analyst	11 / 3	4 : 1	32 days

Relevant Skills

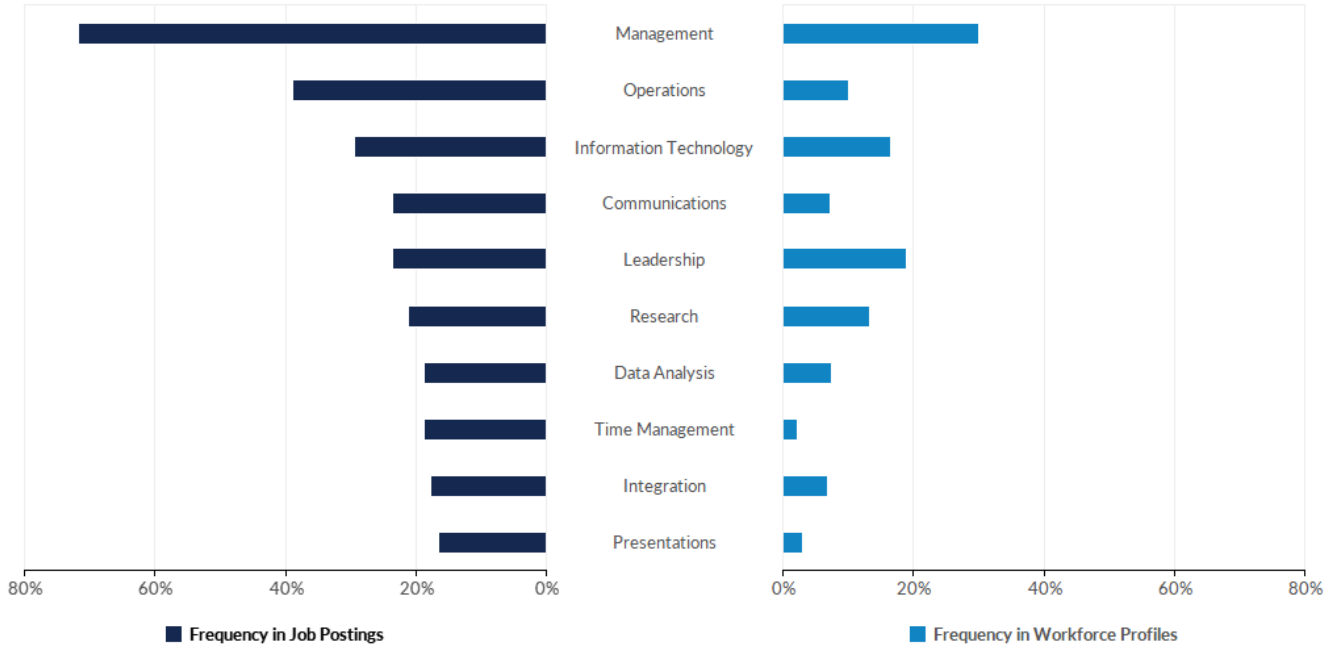
Top Hard Skills



Skill	Frequency in Postings	Postings with Skill / Total Postings (Jul 2017 - Jun 2018)	Frequency in Profiles	Profiles with Skill / Total Profiles (2016 - 2018)
Milestones	19%	16 / 85	0%	1 / 307
Information Systems	18%	15 / 85	3%	10 / 307
Business Intelligence	16%	14 / 85	5%	14 / 307
Change Control	16%	14 / 85	1%	2 / 307
Data Mining	12%	10 / 85	0%	0 / 307
Systems Development Life Cycle	12%	10 / 85	2%	7 / 307
Systems Integration	12%	10 / 85	0%	0 / 307
Timelines	12%	10 / 85	0%	0 / 307
Data Warehousing	11%	9 / 85	2%	6 / 307
Dashboard	9%	8 / 85	0%	1 / 307

Relevant Skills - Cont.

Top Common Skills



Skill	Frequency in Postings	Postings with Skill / Total Postings (Jul 2017 - Jun 2018)	Frequency in Profiles	Profiles with Skill / Total Profiles (2016 - 2018)
Management	72%	61 / 85	30%	92 / 307
Operations	39%	33 / 85	10%	31 / 307
Information Technology	29%	25 / 85	17%	51 / 307
Communications	24%	20 / 85	7%	22 / 307
Leadership	24%	20 / 85	19%	58 / 307
Research	21%	18 / 85	13%	41 / 307
Data Analysis	19%	16 / 85	7%	23 / 307
Time Management	19%	16 / 85	2%	7 / 307
Integration	18%	15 / 85	7%	21 / 307
Presentations	16%	14 / 85	3%	9 / 307

Relevant Skills - Cont.

Top Qualifications

Qualification	Postings with Qualification
CompTIA Security+	7
Cisco Certified Network Associate	3
Microsoft Certified Systems Administrator (MCSA)	3
Certified Crop Advisor	2
Certified Information Systems Security Professional	2
EC Council Certified Security Analyst	2
PMI Certified	2
Certified Ethical Hacker	1
Certified Information Security Manager	1
Certified Professional Coder	1

Code	Description
13-1111	Management Analysts
15-1199	Computer Occupations, All Other
13-1161	Market Research Analysts and Marketing Specialists
15-1121	Computer Systems Analysts
11-3021	Computer and Information Systems Managers
15-1111	Computer and Information Research Scientists
15-1122	Information Security Analysts
15-2031	Operations Research Analysts
15-1141	Database Administrators
15-2041	Statisticians
13-1081	Logisticians
15-2011	Actuaries

Code	Description
13-1111	Management Analysts
15-1199	Computer Occupations, All Other
13-1161	Market Research Analysts and Marketing Specialists
15-1121	Computer Systems Analysts
11-3021	Computer and Information Systems Managers
15-1111	Computer and Information Research Scientists
15-1122	Information Security Analysts
15-2031	Operations Research Analysts
15-1141	Database Administrators
15-2041	Statisticians
13-1081	Logisticians
15-2011	Actuaries

Appendix 6: Independent Program Review from Center of Excellence for Information and Computing Technology

Information Technology Program Review: Wenatchee Valley College's Computer Technology Program November 2017

Maureen Majury, M.Ed.
Director for the Center of Excellence for Information and Computing Technology, hosted at Bellevue College, Bellevue, Washington

Contents

I. Introduction

Wenatchee Valley College (WVC) requested the Center of Excellence for Information and Computing Technology, hosted at Bellevue College, Bellevue, Washington, perform a comprehensive information technology (IT) program review for its Computer Technology (CT) program. A comprehensive IT program review's purpose is to analyze, assess, make recommendations which address an IT program's strengths, challenges, and to explore program's potential new pathways that meet workforce demand in college's service region.

WVC's CT program enrollment/completion data was provided to the Center between June and September 2017. Interviews with WVC's academic team, as well as industry/educational partners and advisory board members, were scheduled. They took place between September and November of 2017. Employment research focusing on WVC's service region began in June 2017. It was completed by November 2017. Finally, CT current student and graduate surveys were sent out, and the results have been analyzed. These series of activities created the basis for the analysis and recommendations contained in this report. These recommendations take into account what is achievable in the short term (one- to two-years) and what is possible long-term to encourage positive growth in WVC's IT and computer science (CS) academic offerings. There are also suggestions made on how to strengthen industry partnerships and advisory board participation. The challenges facing the WVC IT program area were considered.

This report also examines the types of IT graduates the service region's employers are looking for, while also exploring potential changes in hiring demand for occupations outside of IT generalist and networking/security technicians. Some of the primary deliberations within this report, as well as subsequent recommendations, include:

- How well does WVC understand its employer-base and their needs?
- How does the CT program's industry advisory board function? What is the value they provide? How integral are they to keeping the CT program up-to-date in its course offerings?

 Is the Bachelor of Applied Science (BAS) process fully understood? For example, the BAS is created for an academic pathway continuation from an existing college Associates in Applied Science (AAS) degree (that has been established and functioning for two-years as a "2 + 2" feeder degree). Could the current networking program's AAS-T be used to create a BAS degree?
 How open is the CT program to change? Is it serving its students to the best of its ability to prepare work-ready graduates?
 Could a more effective process be developed for creating internships?
 What are the options for creating an articulation agreement with the CT's Associates in Applied Science – Transfer (AAS-T) – with a four-year university or college with the existing networking degree or taking and reconstituting the CS degree and creating an AAS-T for that program of study?
 How much work would it take to update the CS program's curriculum so it meets current and future workforce demand and/or transferability?

The Center, after an assessment of all of the information gathered and analyzed, produced this final report. It provides an inclusive analysis, recommendations, and possible solutions for Wenatchee Valley College's consideration. 3

2. Methodology

The review's methodology was comprised of the following research, interviews, and analysis activities.

1. A review of the Computer Technology (CT) program, including the program description, program guide, courses, gainful employment, and faculty. The Center consulted IT industry professionals to review the CT program's degree and certificates and all related courses for the program of study.

The Center requested the following data for analysis:

- Student Data:
  - o Enrollments over the last three to five-years for all CT and computer science (CS) courses and the programs
  - o Completion rates
  - o Graduation rates
  - o Employment rates (Note: This data was not available as it's not tracked according to Ms. Randy Mitchell, Education and Career Services.)
- CT Program Advisory Board:
  - o Advisory board make-up
  - o Advisory board notes from meetings
- Local Employer Engagement:
  - o The Center reviewed any reports, notes, information related to interaction with local employers about their workforce demands and/or skills gaps

The Center performed an analysis, utilizing the Bureau for Labor & Statistics, the Occupational Outlook Handbook, O*Net, EMSI, and Indeed.com (for real-time employment needs) in the Wenatchee Valley College's service area. It also identified existing employment demand in the region, as well as anticipated new technology trends impacting future workforce needs. Industry professionals were also consulted about the current CT program and the possible reconfiguration and launch of CS AAS-T and a BAS.

Between September 2017 and November 2017, the Center interviewed the following:

- CT program advisory board members and employers

- WVC administrators or related personnel who have direct oversight or interaction with the CT program
- CT faculty (tenured/full-time/part-time and/or adjunct)
- Two surveys were created and run for Current CT students and CT program graduates. Initially in-person group interviews, with a minimum of five, was proposed. That did not occur. Thus, the two surveys were proposed and created to get some student feedback. The Center ran the survey to ensure confidentiality. A total of nine CT current and graduate students completed the surveys. See *Appendix 3: WVC Current Students and CT Graduates Survey Response Summary* for a summary of the results.
- Career Center or/program advisors

See *Appendix 1: Wenatchee Valley Employee, Industry/Educational Organization Partners, and Advisory Board Member Interview* for references to statements made or conclusions drawn from the WVC interviews.

3. Wenatchee Valley College's Computer Technology Program

3A. Program Overview

The WVC CT degree is housed in the CS division, a sub-division of the STEM Academic group. A distinction that needs to be made clear to WVC's team, as well as current/prospective students, parents and K-12 educators is what differentiates IT from CS.

A program of study in computer science is the study of a science that focuses on the theories behind computational applications. Algorithms and advanced mathematics are used to manipulate and analyze to solve problems and create solutions. The main focus of a computer science major is the study of software and operating systems. General coursework includes programming (mastering at least one language), linear and discrete mathematics, and software design and development. Computer science uses mathematics, considered the language of computers. Typical computer science occupations include application software developers, systems engineers, or web developers.

Information Technology (IT) programs of study focus on the use of technology, such as existing software, applications, operating systems to analyze data, solve problems, typically in an enterprise environment. For example, an information technology worker will build a network from a prepackaged operating system to complete a task. This means they would have to understand how to use and navigate a Windows or Linux system. A Program of Study in networking typically entails mastering networks, some basic programming, database design, and applied mathematics. Occupations in IT include a networking or computer support specialist, a database analyst, a security analyst, or an IT generalist.

WVC's CT program consists of three main faculty members, one full-time program chair/coordinator, Mr. David Burns, and two adjunct faculty, Mr. Larry Henderson and Mr. Brant Madson. Mr. Burns teaches the majority of networking courses, with Mr. Henderson teaching programming (Java), and Mr. Madson teaching web design. All three shared their thoughts about the program (See *Appendix 1*). 6

The CT program has been moved to the Skilled Trades division. The college website needs to be updated to reflect that change, as it has not been changed as of November 27, 2017.

The following CT program offerings are as follows (taken directly from the CT Program's webpage as of November 2017):

Wenatchee Valley College

Computer Science Options

The WVC Computer Technology department offers training programs for computer support technicians, security specialists, network administrators and network engineers. By completing coursework in the computer technology series, you can prepare for several industry-recognized certifications including CompTIA A+, CompTIA Network+, Linux and Microsoft Certified Systems Administrator (MCSA). Computer programming classes are offered in Java, JavaScript, HTML, PHP and MySQL.

The WVC Computer Technology Center is located in Sexton Hall. The computer labs feature up-to-date equipment that is configured to allow students to perform a variety of programming and networking exercises such as configuring a domain controller, network security, routing or setting up a Web server.

Core program courses may have prerequisite requirements. English and mathematics courses require qualifying assessment score or acceptable preparatory coursework on those subjects. See course descriptions for details.

Computer Technician Certificate Outcomes:

Students who complete the Computer Technician Certificate will be able to:

- Work effectively, both independently and in groups, to solve computer hardware issues.
- Work effectively, both independently and in groups, to solve computer software and operating system issues.
- Diagnose and troubleshoot a variety of networking issues, from the physical layer through the application layer.
- Install, configure and troubleshoot a variety of client and server platform operating systems.
- Configure and support networks in a peer-to-peer network and a client server, domain-based network structure.
- Develop a foundation to continue their studies in computer technology and related fields.

 Acquire training and education to seek employment or advance in current employment in computer technology fields.

Computer Technology AST Degree Outcomes:
Students who complete the ATS in Computer Technology be able to:
 Work effectively, both independently and in groups, to solve computer hardware issues.
 Work effectively, both independently and in groups, to solve computer software and operating system issues.
 Diagnose and troubleshoot a variety of networking issues, from the physical layer through the application layer.
 Install, configure and troubleshoot a variety of client and server platform operating systems.
 Configure and support networks in a peer-to-peer network and a client server, domain-based network structure.
 Recognize and work to prevent security issues such as viruses, denial of service attacks, and attacks from both inside and outside a network perimeter.
 Install and configure advanced Network Operating Systems (NOS), including configuration of domain controllers, group policy, replication, file sharing and security.
 Administrate networks: create user accounts and passwords; manage file permissions, user rights and security.
 Set up and configure a variety of roles for network operating systems, including File Server, Domain Controller, Web Server, Mail Server, FTP Server.
 Learn the fundamentals of open source operating systems such as Linux, including preparing for installation, dual-booting multiple operating systems, software installation fundamentals, configuration of network parameters, and operation of server in various roles (web server, FTP server, file services).
 Acquire training and education to seek employment or advance in current employment in computer technology fields.
 Develop a foundation to continue their studies in computer technology and related fields.

Computer Technology Program Guide
Suggested Course Sequence: Associate of Technical Science (ATS) Degree in Computer Technology-Network Administration (complete both years) **Computer Technician Certificate-Help Desk/IT Support** (complete first year) **Offered on Wenatchee campus** 8

Program Guide First Year - Fall Quarter		**Credits**
CTS 110	Computer Hardware	5
CTS 115	Computer Software	5
CTS 120	Introduction to Networking	5
Support Course*		3-5
First Year - Winter Quarter		
CTS 130	Client Operating Systems	5
CTS 140	Server Operating Systems	5
Support Course*		
First Year - Spring Quarter		
CTS 150	Network Infrastructure	5
CTS 160	Active Directory	5
Support Course*		5
Second Year - Fall Quarter		
CTS 222	Security Fundamentals	5
CSC 201	Programming Fundamentals	5
Elective		5

APPLIED BACHELOR DEGREE
STATEMENT OF NEED CRITERIA

CRITERIA	STANDARD
1. Relationship to institutional role, mission, and program priorities.	Describe how the proposed program reflects and support the role and mission of the institution and reflect program priorities.
2. Support of the statewide strategic plans.	Describe how the program will support SBCTC Mission goals outline in the Mission Study and WSAC policies and goals for higher education as articulated in the Strategic Master Plan for Higher Education.
3. Employer/community demand for graduates with baccalaureate level of education proposed in the program.	•Employer demand must exceed regional supply of graduates with relevant degrees. •Demand must be based on data sources including but not limited to local employer survey, traditional labor market data, industry data, trade associated data, and other transactional data. Please provide evidence of the gap between the numbers of program graduates verses the number of job opening locally and regionally. Refer to attached supply/demand gap rubric for additional guidance.
4. Applied baccalaureate program builds from existing professional and technical degree program offered by the institution.	Describe the existing professional and technical degree program that will be used as the foundation for applied baccalaureate program. Include how long the program has been in existence and the enrollment history of the program over the past five years.
5. Student demand for program within the region.	Evidence of student interest and demand from multiple sources, such as but not limited to: students graduating with technical associate degrees in the region, survey of students within region, demand in excess of opportunity to enroll in related traditional bachelor's

	programs, and changes in industry standards. Include enrollment projections for each year over the next five years.
6. Efforts to maximize state resources to serve place-bound students.	•Describe how program will serve place-bound working adults. •Identify similar program offered by public or independent institutions in the region. •Describe options that have been explored for collaboration with other public baccalaureate institutions, businesses, and /or community organizations considered in the development of the proposal and include a brief description of initial conversations. •Describe collaboration with similar CTC BAS programs and related CTC Centers of Excellence. •Describe unique aspects of the proposed program that differentiate it from similar programs and/or describe why expansion would be desirable or necessary.