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## INTRODUCTION

A key part of PVCC's mission is the promotion of student success, including employment that a student obtains after graduation. This report provides details on the impact that PVCC had on students obtaining employment. The study examined the relationship between the career and career and technical education (CTE) academic programs, reviews regional employers who hired PVCC students, and the average salary of the graduates. Essentially, this report sought to answer three questions:

1. Are PVCC CTE graduates obtaining jobs?
2. Are those eligible for licensure and/or certification receiving licensure and/or certification?
3. Has PVCC contributed to furthering students' academic and/or professional goals?

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## METHODOLOGY

This report focuses on the employability of CTE graduates at PVCC. A CTE graduate is defined as a student who has earned an Associates of Applied Science, Certificate, and/or Career Studies Certificates<sup>1</sup>. In the 2016-2017, 293 students graduated with a CTE award. Entrepreneurship students were excluded from this study because self-employment data is not available through employment databases. The total number of CTE graduates examined in this study was 291. A professional credential is defined as registered apprenticeship certificates, occupational licenses (typically awarded by State government agencies), and certifications from industry or professional associations<sup>2</sup>. Using a triangulated methodology, the data was captured from a series of databases (national, state, and federal<sup>3</sup>), the graduate exit application, and the graduate employment follow-up survey. By utilizing these three sources, the institution receives a clear picture of the employment of the most recent graduating class. Those programs that are non-CTE programs have been excluded from this report. To provide adequate time for graduates to obtain employment, PVCC uses the Bureau of Labor and Statistics standard of six months to obtain employment.

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## HIGHLIGHTS

- 97% of PVCC CTE graduates have a job in six months
- 92% of licensure and/or eligible certification students have successfully become licensed or obtained certification in their field of study.
- 99% of CTE graduates stated that PVCC had helped them further their academic and/or professional goals.
- Average Full-time Salary of CTE Graduates is \$47,000
- 85% of jobs related to the field of study.
- 73% of companies employing PVCC graduates are in the graduates' field of study.

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<sup>1</sup> See Appendix C

<sup>2</sup> U.S. Department of Labor Employment and Training Administration (2012). Retrieved from:  
<https://doleta.gov/taaccct/pdf/presenters/Bosworth-Frugoli.pdf>

<sup>3</sup> See Appendix B

## EMPLOYMENT RESULTS

The results presented provide the reporting details from the three employment databases currently available to PVCC. These databases include reporting at the state, national, and federal levels. The total number of CTE graduates was 293. Graduates of the entrepreneurship program were excluded from this study because self-employment is not available in employment databases. The total number of CTE graduates examined in this study was 291. Of those graduates, 65 were moved out of the database reporting area, were deceased, or were enrolled in an institution of higher education making the operable respondent 226 (78%). For 2016-17 CTE graduates, 220 (97%) obtained employment within six months of graduating.

For institutional effectiveness, PVCC has a target of having 90% of students employed six months after graduation. The table below denotes those programs that are not meeting the institutional effectiveness target of 90% marking the percent of graduates employed in red. The total number of graduates and the total number of employed graduates was not displayed for programs with three or fewer graduates.

**Table 1: Employment results by academic plan**

Academic Plan	Total graduates	Count of graduates in national, state, & federal employment databases	Percent of graduates in national, state, federal employment databases (%)	Total employed	Percent of graduates employed (%)
Diagnostic Medical Sonography (109)	11	8	73%	8	100%
Health and Information Management (141)	4	4	100%	4	100%
Emergency Medical Services (146)	10	6	60%	6	100%
Nursing (156)	76	60	79%	60	100%
Practical Nursing (157)	20	14	70%	14	100%
Surgical Technology (159)	12	9	75%	9	100%
Radiography (172)	20	15	75%	15	100%
Accounting (203)	*	*	100%	*	100%
Management (212)	6	6	100%	6	100%
Emergency Medical Services - Intermediate (221-146-03)	*	*	100%	*	100%
Emergency Medical Services - Paramedic (221-146-05)	4	4	100%	4	100%
Medical Administrative Support Assistant (221-152-10)	4	4	100%	3	75%
Pharmacy Technician (221-190-08)	9	7	78%	7	100%
Retail Management (221-212-26)	*	*	100%	*	100%
Professional Cooking (221-242-06)	8	5	63%	4	80%
Central Services Technician (221-285-88)	7	4	57%	4	100%
Administrative Support (221-298-55)	11	8	73%	8	100%
Horticulture (221-335-01)	*	*	100%	*	67%
Web Technologies (221-352-04)	*	*	100%	*	0%
Criminal Justice (221-400-45)	21	17	81%	17	100%
Graphic Design (221-514-35)	5	4	80%	4	100%
Early Childhood Development - Infant and Toddler (221-636-05)	*	*	100%	*	100%
Early Childhood Development – Preschool (221-636-06)	15	13	87%	12	92%
Computer and Network Support Technologies (221-732-07)	24	19	79%	18	95%
Cybersecurity (221-732-09)	5	4	80%	4	100%
Culinary Arts (242)	8	5	63%	4	80%
Information Systems Technology (299)	9	5	56%	5	100%
Police Science (464)	7	6	86%	6	100%
Electronics and Computer Technology (981)	*	*	100%	*	100%
<b>Total Unduplicated Across Academic Plans</b>	<b>291</b>	<b>226</b>	<b>78%</b>	<b>220</b>	<b>97%</b>

## EMPLOYERS

Employers are a vital part of the service community. Employers provide an indication as to the job preparedness and academic performance of college graduates. The following table details the number of employers and the percent of the employers who are in the academic plans field. Employers within the field were determined by the employers North American Industry Classification System (NAICS) code<sup>4</sup> and if the employer NAICS code related to the academic plan using the NAICS to CIP Code crosswalk. Many PVCC graduates are employed by the same employer. Overall, 73% of employers were in the graduates' field of study.

**Table 2: Employers by academic plan**

Academic Plan	Number of employers	Number of employers in academic plan field	% of employers in academic plan field
<b>Diagnostic Medical Sonography (109)</b>	6	6	100%
<b>Health and Information Management (141)</b>	4	4	100%
<b>Emergency Medical Services (146)</b>	5	5	100%
<b>Nursing (156)</b>	21	21	100%
<b>Practical Nursing (157)</b>	17	17	100%
<b>Surgical Technology (159)</b>	7	6	86%
<b>Radiography (172)</b>	20	17	85%
<b>Accounting (203)</b>	*	*	0%
<b>Management (212)</b>	14	12	86%
<b>Emergency Medical Services - Intermediate (221-146-03)</b>	*	*	100%
<b>Emergency Medical Services - Paramedic (221-146-05)</b>	6	6	100%
<b>Medical Administrative Support Assistant (221-152-10)</b>	4	*	75%
<b>Pharmacy Technician (221-190-08)</b>	7	*	43%
<b>Retail Management (221-212-26)</b>	*	*	100%
<b>Professional Cooking (221-242-06)</b>	4	4	100%
<b>Central Services Technician (221-285-88)</b>	4	*	75%
<b>Administrative Support (221-298-55)</b>	9	5	56%
<b>Horticulture (221-335-01)</b>	4	4	100%
<b>Criminal Justice (221-400-45)</b>	20	9	45%
<b>Graphic Design (221-514-35)</b>	6	*	33%
<b>Early Childhood Development - Infant and Toddler (221-636-05)</b>	*	*	100%
<b>Early Childhood Development - Preschool (221-636-06)</b>	23	9	39%
<b>Computer and Network Support Technologies (221-732-07)</b>	17	10	59%
<b>Cybersecurity (221-732-09)</b>	5	*	60%
<b>Culinary Arts (242)</b>	5	4	80%
<b>Information Systems Technology (299)</b>	5	4	80%
<b>Police Science (464)</b>	6	*	50%
<b>Electronics and Computer Technology (981)</b>	*	*	33%
<b>Total Unduplicated Across Academic Plans</b>	<b>227</b>	<b>165</b>	<b>73%</b>

<sup>4</sup> See Appendix A

## AVERAGE SALARY

Employment in the field of study assists program coordinators to determine if the program is a cost benefit to the student. From this study, 85% (n=187) of jobs were indicated to be in the program field of study. Spring 2017 graduates' quarter four wages were not available. Therefore, the first three quarters were averaged to calculate an estimated quarter four and annual salary for Spring 2017 graduates. The table below depicts the number of in the field of study jobs, the average full-time salary in the field of study, and the low to high range for full time salaries in the field of study. For in the field of study careers, the average salary was \$47,000 per year. The low to high range was \$20,000 to \$87,000 per year. Programs with three or less reported salaries were not reported.

**Table 3: Average full-time salaries, salary range, and number of jobs in field of study by academic plan**

Academic Plan	Total Employed	Total Employed in the field of study	% Employed graduates working in the field of study	Average full-time salary in the field of study*	Low-high full-time salary range in the field of study
Diagnostic Medical Sonography (109)	8	8	100%	\$ 57,000	\$43-67,000
Health and Information Management (141)	4	4	100%	\$35,000	\$23-54,000
Emergency Medical Services (146)	6	6	100%	\$66,000	\$47-81,000
Nursing (156)	60	60	100%	\$56,000	\$31-78,000
Practical Nursing (157)	14	14	100%	\$45,000	\$32-75,000
Surgical Technology (159)	9	9	100%	\$44,000	\$34-56,000
Radiography (172)	15	13	87%	\$43,000	\$20-68,000
Accounting (203)	*	*	0%	\$29,000	\$28-29,000
Management (212)	6	6	100%	\$26,000	\$23-29,000
Emergency Medical Services - Intermediate (221-146-03)	*	*	100%	*	*
Emergency Medical Services - Paramedic (221-146-05)	4	4	100%	\$60,000	\$48-73,000
Medical Administrative Support Assistant (221-152-10)	3	*	100%	*	*
Pharmacy Technician (221-190-08)	7	7	100%	\$35,000	\$21-56,000
Retail Management (221-212-26)	*	*	100%	*	*
Professional Cooking (221-242-06)	4	4	100%	\$33,000	\$23-43,000
Central Services Technician (221-285-88)	4	4	100%	\$33,000	\$24-45,000
Administrative Support (221-298-55)	8	5	63%	\$28,000	\$24-39,000
Horticulture (221-335-01)	*	*	66%	*	*
Criminal Justice (221-400-45)	17	7	41%	\$33,000	\$23-77,000
Graphic Design (221-514-35)	4	*	50%	*	*
Early Childhood Development - Infant and Toddler (221-636-05)	*	*	100%	*	*
Early Childhood Development - Preschool (221-636-06)	12	8	67%	\$25,000	\$21-28,000
Computer and Network Support Technologies (221-732-07)	18	10	56%	\$39,000	\$20-75,000
Cybersecurity (221-732-09)	4	*	50%	*	*
Culinary Arts (242)	4	*	75%	*	*
Information Systems Technology (299)	5	4	80%	\$49,000	\$24-87,000
Police Science (464)	6	4	67%	\$58,000	\$36-77,000
Electronics and Computer Technology (981)	*	*	100%	*	*
<b>Total Unduplicated Across Academic Plans</b>	<b>220</b>	<b>187</b>	<b>85%</b>	<b>\$47,000</b>	<b>\$20-87,000</b>

Note: Full time salary is classified as anything above \$20,000 per the national standard (BLS, 2016).

\*Denotes areas with less than three students

## THE PVCC RELATIONSHIP

As a part of a graduation exit survey, students were asked to respond if they had obtained employment and the extent to which their academic program related to this employment opportunity. Of the 228 students who responded to the academic and professional goal section of the graduate survey for CTE programs, 99% (n=225) stated that PVCC had helped them to further their academic and/or professional goals.

**Table 4: Respondents from graduate exit survey that stated PVCC had helped them further their academic and/or professional goals.**

Academic Plan	Total Number of Graduates	Total Number of Respondents	% of Respondents that Stated PVCC Helped Them to Further Their Academic and/or Professional Goals
Diagnostic Medical Sonography (109)	11	11	100%
Health and Information Management (141)	4	*	50%
Emergency Medical Services (146)	10	9	100%
Nursing (156)	76	69	100%
Practical Nursing (157)	20	19	100%
Surgical Technology (159)	12	*	100%
Radiography (172)	20	18	100%
Accounting (203)	*	*	100%
Management (212)	6	6	100%
Emergency Medical Services - Intermediate (221-146-03)	*	*	100%
Emergency Medical Services - Paramedic (221-146-05)	4	*	100%
Medical Administrative Support Assistant (221-152-10)	4	*	100%
Pharmacy Technician (221-190-08)	9	7	100%
Entrepreneurship (221-212-10)	*	*	100%
Retail Management (221-212-26)	*	*	100%
Professional Cooking (221-242-06)	8	4	50%
Central Services Technician (221-285-88)	7	5	100%
Administrative Support (221-298-55)	11	8	100%
Horticulture (221-335-01)	*	*	100%
Web Technologies (221-352-04)	*	*	-
Criminal Justice (221-400-45)	21	10	100%
Graphic Design (221-514-35)	5	5	100%
Early Childhood Development - Infant and Toddler (221-636-05)	*	*	100%
Early Childhood Development – Preschool (221-636-06)	15	13	100%
Computer and Network Support Technologies (221-732-07)	24	10	100%
Cybersecurity (221-732-09)	5	4	100%
Culinary Arts (242)	8	7	71%
Information Systems Technology (299)	9	8	100%
Police Science (464)	7	6	100%
Electronics and Computer Technology (981)	*	*	100%
<b>Total Number of Unduplicated Graduates</b>	<b>293</b>	<b>228</b>	<b>99%</b>

\*Denotes areas with less than three students

## CREDENTIALS

A part of PVCC's mission is to prepare students for success. This often occurs through external credentialing agencies. PVCC explored those students who graduated in programs that led to licensure in the state of Virginia or a credential from the field of study's national registry. Of the graduates eligible for credentialing (n=168), 154 (92%) completed their licensing examinations or certifications. Many of these graduates received multiple credentials. Of the 154 who received credentials, the average was 1.5 licenses or certifications per credentialed graduate.

**Table 5. Credentials earned by academic plan**

Academic Plan	Total Number of Graduate	Unduplicated number of successfully licensed or certified in the field graduates	Percent of unduplicated number of successfully licensed or certified in the field graduate (%)	Number of licenses or certifications held by graduates	Average number of licenses or certifications per credentialed graduate
<b>Diagnostic Medical Sonography (109)</b>	11	11	100%	30	2.7
<b>Emergency Medical Services (146)</b>	10	8	80%	17	2.1
<b>Nursing (156)</b>	76	70	92%	77	1.1
<b>Practical Nursing (157)</b>	20	19	95%	24	1.3
<b>Surgical Technology (159)</b>	12	10	83%	13	1.3
<b>Radiography (172)</b>	20	18	90%	32	1.8
<b>Emergency Medical Services - Intermediate (221-146-03)</b>	*	*	100%	*	*
<b>Emergency Medical Services - Paramedic (221-146-05)</b>	4	3	75%	6	2.0
<b>Pharmacy Technician (221-190-08)</b>	9	9	100%	17	1.9
<b>Central Services Technician (221-285-88)</b>	7	5	71%	8	1.6
<b>Total Unduplicated Across Academic Plans</b>	<b>168</b>	<b>154</b>	<b>92%</b>	<b>226</b>	<b>1.5</b>

## CONCLUSION

This study sought to answer three questions. The first research question examined job obtainment of PVCC CTE graduates. The results of this study show that 96% of PVCC CTE graduates obtained jobs within six months. Seventy-three percent (73%) of employers were in the academic plan field of study and 85% of occupations were in the field of study. Thus, concluding that PVCC CTE graduates are obtaining employment in their area of academic endeavor.

The second research question investigated student success in earning a licensure and/or certification. Of the eligible graduates, 92% (n=154) successfully completed their licensing examinations and/or certifications. Many of these graduates received multiple credentials with an average of 1.5 credentials per credentialed graduate.

The final question explored if PVCC had contributed to furthering students' academic and/or professional goals. Resoundingly, ninety-nine percent (99%) of graduates reported that PVCC helped them further their academic and/or professional goals. For institutional effectiveness, the results show PVCC is meeting or exceeding the targets for student employment success.

## APPENDIX A: NORTH AMERICAN INDUSTRY CLASSIFICATION SYSTEM

NAICS is a two- through six-digit hierarchical classification system, offering five levels of detail. Each digit in the code is part of a series of progressively narrower categories, and the more digits in the code signify greater classification detail. The first two digits designate the economic sector, the third digit designates the subsector, the fourth digit designates the industry group, the fifth digit designates the NAICS industry, and the sixth digit designates the national industry. The five-digit NAICS code is the level at which there is comparability in code and definitions for most of the NAICS sectors across the three countries participating in NAICS (the United States, Canada, and Mexico). The six-digit level allows for the United States, Canada, and Mexico each to have country-specific detail. A complete and valid NAICS code contains six digits.

NAICS_CODE	DESCRIPTION
11	Agriculture, Forestry, Fishing and Hunting
111	Crop Production
1111	Oilseed and Grain Farming
11111	Soybean Farming
111110	Soybean Farming
11112	Oilseed (except Soybean) Farming
111120	Oilseed (except Soybean) Farming
11113	Dry Pea and Bean Farming
111130	Dry Pea and Bean Farming
11114	Wheat Farming
...	

Please note: These are industry codes and no information is available regarding person's job function within industry.

## APPENDIX B: EMPLOYMENT DATABASES

This study used three databases federal, state, and a multi-state database.

### Federal Database

The federal database is collected and maintained by the University of Maryland and is provided four times a year on six-month stagger in reporting. The federal department, agency names, military branches, and addresses are not provided. Employee salaries are provided and the NAICS code for employment is used. Employment data on federal and military employees is provided at the unit level.

### Multi-state Database

The multi-state database is collected and maintained by the Bureau of Labor and Statistics and provides data to PVCC four times a year on a six-month stagger in reporting. Federal employees, farmers, incarcerated, and self-employed are excluded. Hawaii and Alaska do not report to the multi-state database.

### Virginia Database

All states are required to collect and maintain data on employees from every non-federal wage-paying employer, within their boundaries, covered by that state's unemployment compensation laws. In Virginia, this requirement is satisfied by the Virginia Employment Commission (VEC) collecting and maintaining wage records used to determine employment and earnings of individuals covered by the Virginia unemployment compensation laws. These records populate the VEC Unemployment Insurance (UI) database. Employers submit UI quarterly reports of employee earnings to the VEC. For each employee, an employer reports social security number (SSN) and total earnings received during the quarter. Additionally, employer information is also provided, such as the unique employer federal identification number, business name, mailing address, and industry affiliation code.

Since each state maintains its own UI database, based on reports from employers within its state boundaries, the VEC UI database consists primarily of data on individuals employed in the state of Virginia. Data on individuals employed in neighboring states (MD, NJ, OH, PA, WV, and DC) are also available from the VEC as part of a cooperative agreement with these states. These data, however, are limited to the extent that they include no information about the employers. In addition, the employer mailing addresses for individuals employed in Virginia may or may not be in Virginia, if the employer also operates in other states or countries (e.g., Canada).

Currently, the VCCS provides the VEC with a file containing the SSN for every student who has enrolled in one of the 23 Virginia Community Colleges within the previous five years. The VEC then cross-references this file of SSNs with the VEC UI database and the databases from the neighboring states. All records with matching SSNs from the previous 20 quarters are selected and provided to the VCCS, where the data are mapped to SAS datasets. (Data record format Information is provided below.) This process repeats four times per year resulting in quarterly updates to the VEC UI data.



### **Advantages of Databases**

The databases offers several advantages over other sources of employment and wage information. For example, the data is collected and maintained on most individuals employed throughout the United States (HI and AK excluded, federal and military included)). Since the data is linked to SSN, an individual's employment can be tracked despite changes in name, address, and employment anywhere as indicated above. The databases potentially make available longitudinal data on most students once they leave school, regardless of whether or not they graduated. The availability of the data requires no school staff or resources to collect or maintain.

### **Limitations of Data**

Although the database has its advantages, it also has its limitations which must be considered when using the data.

- Farm workers, incarcerated, and self-employed are excluded
- Only employee quarterly wages and industry of employment are reported, not other employee data that might be of interest such as date of hire, occupation, hourly wages, or time worked.
- The Industry Codes categorize the business of the employer, but does not provide any indication of the role of the employee in the business.
- The employer addresses do not necessarily provide the Virginia location of an individual's employment, but rather a mailing address for the employer which could be in another state or even another country.
- The data are often not available for at least six months after initial collection.
- Students who do not provide their SSN cannot be linked to the data.

## APPENDIX C: CTE ACADEMIC PLANS

Academic Plan
Diagnostic Medical Sonography-109
Health and Information Management-141
Emergency Medical Services-146
Nursing-156
Practical Nursing-157
Surgical Technology-159
Radiography-172
Accounting-203
Management-212
Emergency Medical Services - Intermediate-221-146-03
Emergency Medical Services - Paramedic-221-146-05
Medical Administrative Support Assistant-221-152-10
Pharmacy Technician-221-190-08
Entrepreneurship-221-212-10
Retail Management-221-212-26
Professional Cooking-221-242-06
Central Services Technician-221-285-88
Administrative Support-221-298-55
Horticulture-221-335-01
Web Technologies-221-352-04
Criminal Justice-221-400-45
Graphic Design-221-514-35
Early Childhood Development - Infant and Toddler-221-636-05
Early Childhood Development - Preschool-221-636-06
Computer and Network Support Technologies-221-732-07
Cybersecurity-221-732-09
Culinary Arts-242
Information Systems Technology-299
Police Science-464
Electronics and Computer Technology-981