SHORELINE COMMUNITY COLLEGE

PURCHASING SUPPLY CHAIN MANAGEMENT PROGRAM REVIEW

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Overall Observations

The Purchasing Supply Chain Management (PSCM) Program offers an associate degree and five certificates. All degrees and certificates are offered completely online. A single faculty person on an annual contract provides all the instruction and management of this program. By and large she is doing a fantastic job – but she needs additional support on some of the management components of the program, particularly with regard to developing and maintaining external relationships.

Shoreline's PSCM program attracts a significant number of incumbent workers in search of a way to boost specific skills as they pursue promotions. This is reflected in the certificates awarded, as well as results from the student and alumni surveys conducted for this review. Future program enhancements should be focused on this population. The completely online nature of this program is also a big draw with students and alumni. Highline College offers the only other program that competes with Shoreline's program in the Puget Sound; it is not currently all online.

Priority Suggestion 1: Improve support for the lone faculty person.

As mentioned above, the sole faculty person for this person provides all the teaching and management of this program. She is on an annual contract. Keeping the lead and only faculty member on contract for a program intended to be offered on a regular basis is neither a strategic nor a sustainable way to operate. The lack of job security does not encourage the employee to think long-term about the program and makes program management difficult. To her credit, the faculty person did not exhibit signs of thinking short-term about this program.

Students report satisfaction with her teaching abilities, but since her background is not in teaching she expressed a desire to beef up her abilities in that area.

There are opportunities for Shoreline to improve external relationships in this field that could benefit both students and the school that have not yet been pursued. In particular, her expertise is in purchasing and contract management. It's important that the supply chain management component of the program is equally as strong.

Suggestions

1.1 Make a long-term commitment in the program and its sole faculty member by converting her annual contract to a full-time teaching line. (pp. 16)

1.2 Ensure she participates in Quality Matters "lite" training to prepare for recertification next year. (pp. 8, 16-17)

1.3 Improve her ability to support the program advisory committee by providing her with advisory committee training and support. (p. 17)

1.5 Offer her opportunities to improve her teaching skills. (p. 17)

Internships, particularly paid internships, are correlated with converting to paid jobs ([National Association of Colleges and Employers](#), 2016). All internships can be incorporated into curriculum to add to learning outcomes (Ibid. See especially the Literature Review). Internships and job placement services, despite being encouraged by many Professional-Technical programs, are not typically coordinated by department faculty because of a lack of resources.

Suggestions

2.1 Shoreline Community College should consider centralizing this task to serve multiple departments by generating and coordinating internships. (p. 17)

2.2 Progress should be tracked through regular surveys of students and employers to gauge satisfaction, and the employment of alumni participating in the internships coordination service. (p. 17)

2.3 Shoreline Community College could market this service for students, distinguishing itself from competitor colleges. (p. 17)

The faculty member of this program has deep expertise and clear passion for purchasing and contract management. It's important that the supply chain management component of the program is also strong.

Suggestions

3.1 Recruit at least two new members of the Advisory Committee with a background in supply chain management. (p. 17)

3.2 Offer the faculty member opportunities to connect with the Center of Excellence for Global Trade and Logistics to identify opportunities to strengthen that portion of the program. (p. 17)

3.3 Consider developing articulations with Lake Washington Institute of Technology, Highline College, and/or Central Washington University, all of which offer Baccalaureate options in Supply Chain Management. (pp. 17-18)

Program Review Findings

School-wide Findings

1. Shoreline Community College should develop a system for collecting contact information from graduating students. This information could be used by the Foundation for fundraising, as well as by individual departments to assess

alumni satisfaction and the degree to which alumni achieved program outcomes. (p. 8)

Program Level Findings

1. Curriculum mapping should occur to provide the department with measurable results regarding student achievement of program level outcomes (p. 8).

2. Consider re-evaluating the program outcomes using Bloom's Taxonomy to incorporate a few higher-level learning outcomes that will lend itself to improved critical thinking. (p. 8)

3. The program is designed so that students automatically earn certificates as they proceed through the program towards the degree. These certificates are central to the popularity of Shoreline's program and any program improvements should focus on enhancing existing or creating new certificates. (p. 18)

Employment Findings

1. Employment projections and program advisory committee comments indicate that this field will have ample employment demand (pp. 19-20).

Student/Course Level Findings

1. Students gave the program a strong 4.5 on a scale of 1 (poor) to 5 (excellent), on its ability to meet individual learning. (p. 18)

2. Employment and wage data for completers of this program is relatively high for a community college program. (pp. 10-11)

3. PSCM student diversity lags Shoreline's overall professional-technical diversity but matches industry diversity. Diversity can be improved by seeking qualified people of color for open teaching positions (pp. 12-14)

Faculty Findings

1. The faculty are engaged, thoughtful, and had a good understanding of the needs of students and employers. (p. 16)

2. PSCM operates at higher student-to-faculty ratio than all of Shoreline Professional Technical programs, and for Shoreline overall, but very close to its peer department (Business Administration). (p. 16)

Resource Findings

1. PSCM are savvy with technology and make use of a variety of IT tools to help improve instruction and accessibility. (p. 17).

Partnerships

1. The program advisory committee needs more members coming from a variety of industries more closely related to the degrees offered in PSCM. The program should consider recruiting recent graduates to participate

on the committee as a way to rejuvenate, expand, and diversify the types of businesses participating. (p. 17)

2. The Make it in Washington grant from the State Workforce Training and Education Coordinating Board has supported 30 students in their studies over the past four years. (p. 17)

3. The college is in the final phases of cementing an articulation agreement with North Seattle College's Applied Baccalaureate in International Business. Although this program has no courses focusing on purchasing or supply chain management, this relationship will benefit students interested in an international business career. (p. 17)

Program Services

1. Students participating in the current student survey expressed satisfaction with program services. Open responses offered no concrete suggestions for improvement nor areas of strength. (p. 18).

Labor Market Opportunities

1. The SOC codes linked to this program show little to no growth through 2020, but a significant number of openings not due to growth (likely retirements) that will continue to support demand for graduates into the forseeable future. (pp. 19-20)

2. The Program Advisory Committee indicated that the SOC codes currently linked to this program may not be reflective of students with little to no experience in the industry. (pp. 19-20)

3. The Program Advisory Committee suggested new and/or emerging skills that would make graduates more competitive, including critical thinking, soft skills, applied data analysis, and project management. (p. 20)

INTRODUCTION

In an effort to maintain the highest quality post-secondary education and meet regulatory requirements, Shoreline Community College hired Phippen Consulting, LLC in fall of 2018 to conduct a program review of its Purchasing Supply Chain Management (PSCM) Program.

METHODOLOGY

Meetings

- One one-hour meeting with Division Dean, program chair, and Institutional Review staff to identify major issues of focus.

- Three two-hour meetings with staff and faculty to discuss all aspects of their program.

- One one-hour meeting with the PSCM Program Advisory Committee to discuss the relevance of this program.

Documents Reviewed

- One survey of current students (n=18)

- One survey of alumni covering (n=11)

- Student demographic data

- Class cancellation and waitlists

- Student completion data

- Student completion ratios for PSCM, Shoreline, and the state

- Student grade distributions

- Comparative data on student-faculty ratios

- Comparative data on full-time to part-time faculty ratios

- Program and course level fill rates

- Labor market data

- Job openings data from EMSI

- Program level learning outcomes

- College and program website and planning guides

- Annualized FTEs, headcount, and percent of enrollment by program and by certificate/degree)

Surveys

The program instituted an alumni and current student survey this year (see the separate document, "PSCM Surveys" for a copy of the survey results). Surveys were distributed by Shoreline's Marketing and Communications Department using MailChimp and Survey Monkey. One email and one follow-up email were sent to both current and former students resulting in a response rate of 34 percent for current students and four percent for former students. Because of the low response rate for the former student survey, the results are not included in this program review. The former student survey response could be improved by collecting contact information for graduating students.

CURRICULUM

PSCM is certified by Quality Matters. Quality Matters certification ensures helps to ensure the quality of online instruction and student learning. To help control costs, Shoreline has developed a Quality Matters "Lite" version of this certification. PSCM's certification is up for renewal next year. Additional time will need to be made for faculty to complete the renewal process. This will ensure that the faculty member can become grounded in the Quality Matters framework and improve her teaching abilities.

ASSESSING STUDENT LEARNING

Program Outcomes

PSCM offers one associate degree, one long term and one short term certificate. Typically, these program reviews have sought alumni input on the degree to which the school helped them achieve the intended program learning outcomes. As noted above, the response rate was too low to conduct this analysis for PSCM.

To better understand the degree to which graduates of the program attain the program learning outcomes, it is suggested that the department engage in a curriculum mapping process to connect these outcomes to the existing courses. This process will help identify gaps, overlaps, and misalignments between the program outcomes and existing courses. It will also result in tools faculty can use to evaluate the attainment of these outcomes.

Program outcomes were evaluated using Bloom's Taxonomy, a system for understanding the type of learning being required from basic "did the student understand a concept" to the more advanced, "can the student analyze the quality of information and make or defend arguments based on this analysis." This analysis revealed that all of the existing program outcomes consistently fell under Bloom Level III: Application. At this level students can solve problems in new situations by applying acquired knowledge in new ways.

As will be covered below, employers are increasingly requiring more critical thinking skills of their new employees. With this in mind, it may be worth considering re-evaluating the program outcomes to incorporate a few higher level learning outcomes that will lend itself to improved critical thinking.

Meeting Individual Learning Needs

On a scale of 1 (poor) to 5 (excellent), current students (n=18) gave this department a strong 4.5 on its ability to meet individual learning needs.

Grades

An examination of PSCM pass-no pass awards (all PSCM students, not just professional-technical students) reveals that PSCM pass rates declined as enrollment declined in Academic Year (AY) 2013 and 2014. As enrollment rebounded in AY 2015, pass rates began to increase as well. This pattern is likely attributed to just the smaller sample size and not any changes in faculty grading practices. A similar, though subtler trend can be seen with all of Shoreline's Professional Technical Programs.

PSCM Pass-No Pass
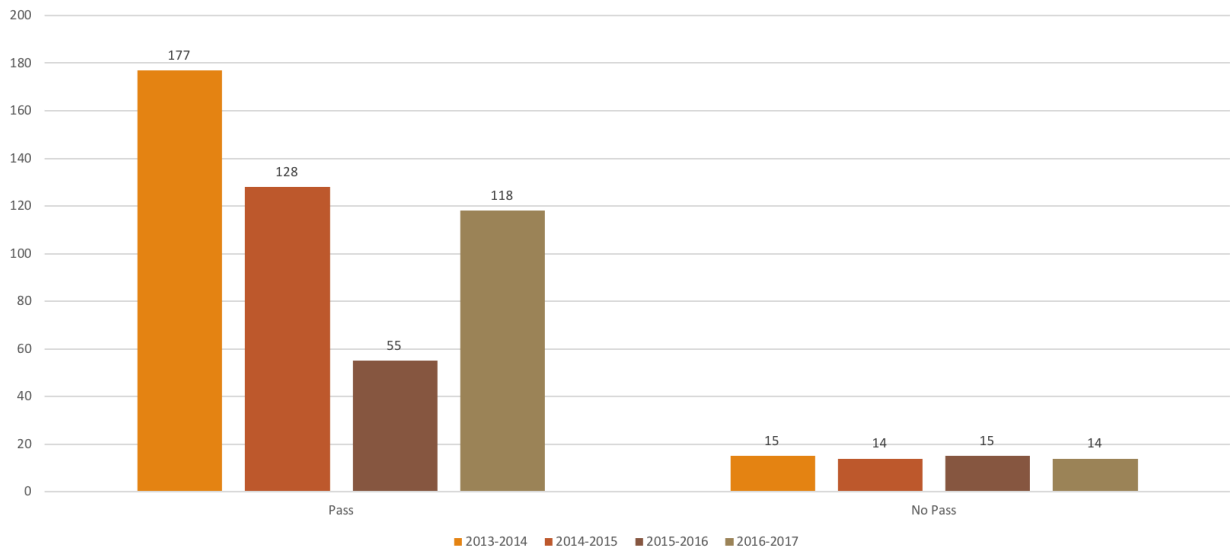
Shoreline Professional-Technical Program Pass-No Pass
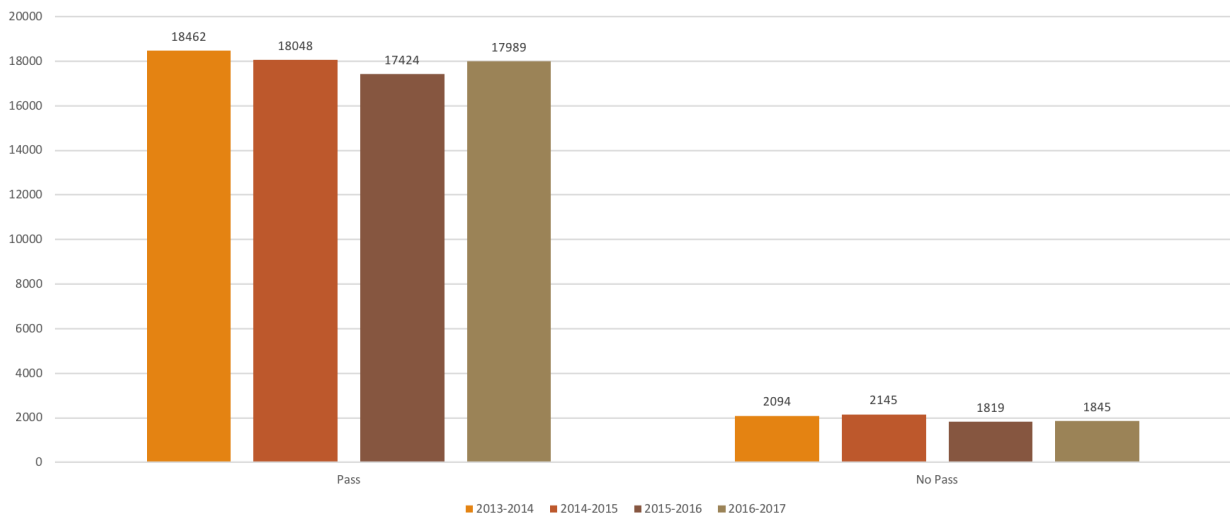
EMPLOYMENT OUTCOMES

To understand employment outcomes, two data sources are typically used. First, PSCM alumni survey responses regarding their employment status is considered. However, because of the low response rate this data is not helpful. However, open-ended responses to a question asking about which skills taught led to employment reveal some qualitative flavor. Alumni indicated that the following was helpful:

- Supply chain concepts
- The overview of how a supply chain operates
- Contract management
- Sourcing
- Concepts and vocabulary
- Management skills
- Inventory management

The second data source is the Data Linking for Outcomes Assessment database compiled by the Washington State Board for Community Colleges linking program outcomes and employment data. This data shows the employment outcomes for alumni that completed their degree or certificate. The data does not show what jobs these individuals have.

Academic Year	Completion by Year (Unique Students)	Estimated Employment Rate for Completers
2010-2011	9	69%
2011-2012	15	98%
2012-2013	18	76%
2013-2014	28	81%
2014-2015	31	75%

While the number of people included in this particular analysis is relatively low (between 9-30 people each year), these employment rates are quite high for a community college program.

Completers –Average Wages (2010-2015)			
Completion Year	Degree Completers	Certificate Completers	All Completers
2010-2011	No data	$16.06	$16.06
2011-2012	$14.93	$17.15	$16.20
2012-2013	$23.49	$42.59	$40.46
2013-2014	$26.58	$23.49	$24.05
2014-2015	$19.08	$22.63	$22.08

Wages for this program were also strong across the board. Wages for certificate completers are typically a little higher than those for degree completers, indicating that these may be mid-career individuals looking to upgrade their skills.
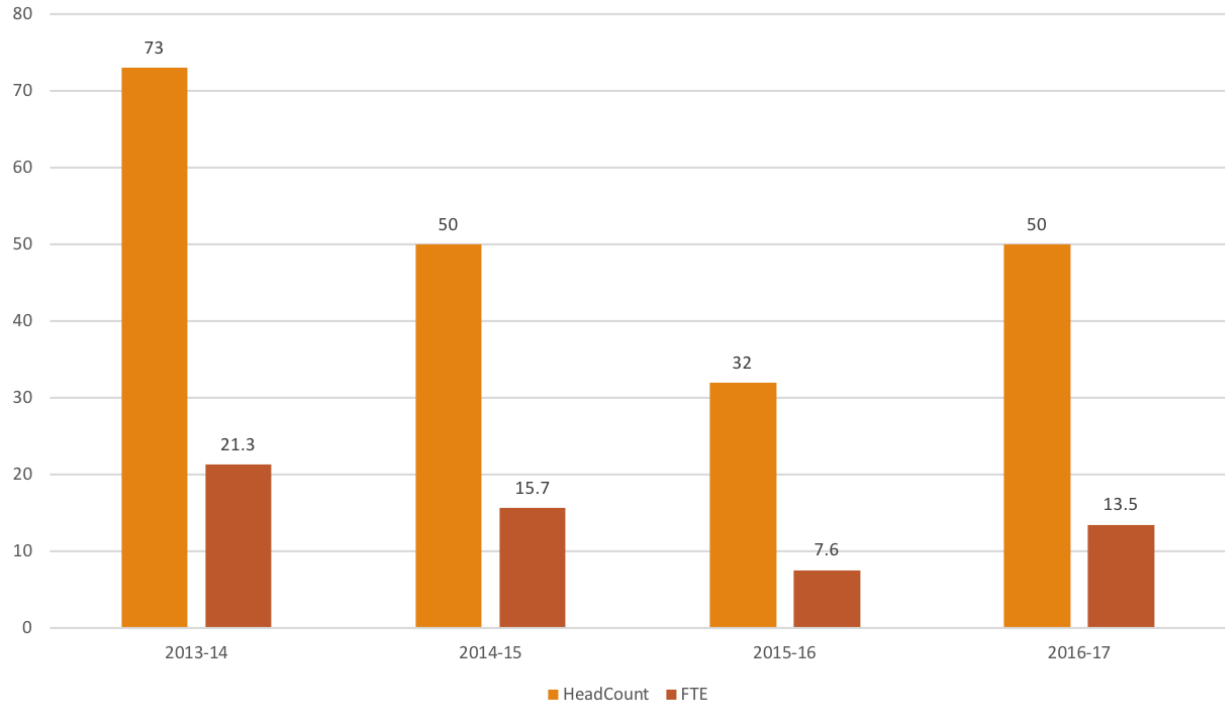
Enrollment

As the following table shows, PSCM headcount and FTE enrollment declined from a high in AY 2013 to a low in AY 2015. In AY 2016 enrollment increased back to AY 2014 levels. The decline in enrollment can be attributed to the increase in the economy. All Shoreline professional-technical programs decreased in AY 2014 and 2015, though not to quite the degree that PSCM did. Another potential reason for the decline is the death of the head faculty member in 2015. A capable replacement was found, but it is natural for some students to lose interest upon such a switch.

It's important to note that faculty and administrators point to the Grow it in Washington grant received from the State Workforce Training and Education Coordinating Board as a resource that has helped bolster enrollments. This grant pays for tuition for incumbent workers in Washington companies and supported 30 PSCM students at Shoreline between Spring 2015 to Fall 2017.

PSCM Headcount and FTE by Academic Year

When comparing PSCM enrollment fluctuations to local competitors (see the following table), Shoreline's FTE decreased by 37 percent between AY 2013 and AY 2015. Other programs experienced enrollment increases. Highline started a new PSCM program in 2014 and it grew significantly the second year. Tacoma's program grew 2.5 percent during this period.

PSCM FTE Comparison

Change from AY 2013 to AY 2015	PSCM FTE
Highline (AY 2014 to 2015)	22.3%
Shoreline	-36.9%
Tacoma	2.5%

PSCM is slightly more female, older, and less racially diverse than Shoreline's overall Professional-Technical programs on average. It does compare similarly to the industry as a whole. More PSCM students use need-based aid than overall Professional-Technical programs.

PSCM Mean Age
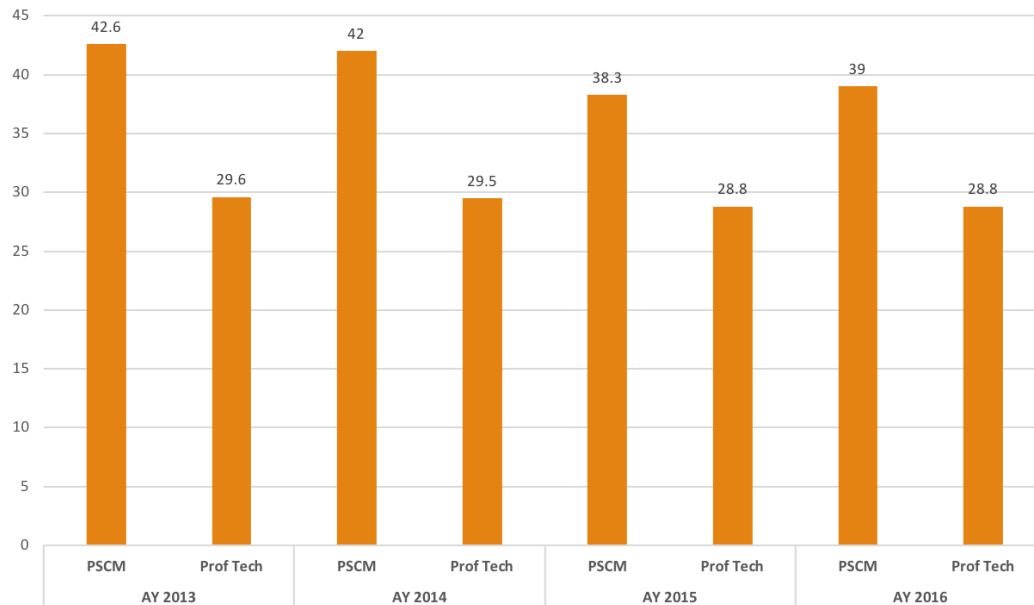
PSCM Sex

PSCM Race/Ethnicity

Race & Ethnicity by Gender

Associate's Degree

MOST COMMON RACE/ETHNICITY AND GENDER COMBINATION

1. White Male
   1,999

2. White Female
   801

3. Black or African American Male
   214

This chart illustrates the differences by gender for each race & ethnicity of students graduating with a Associate's Degree in Logistics, Materials, & Su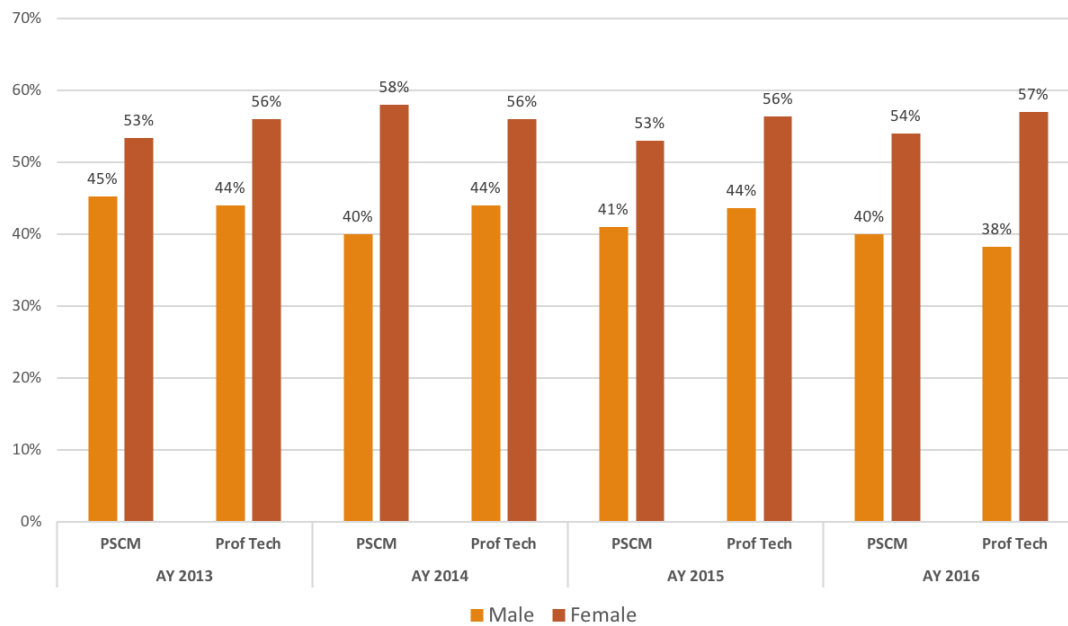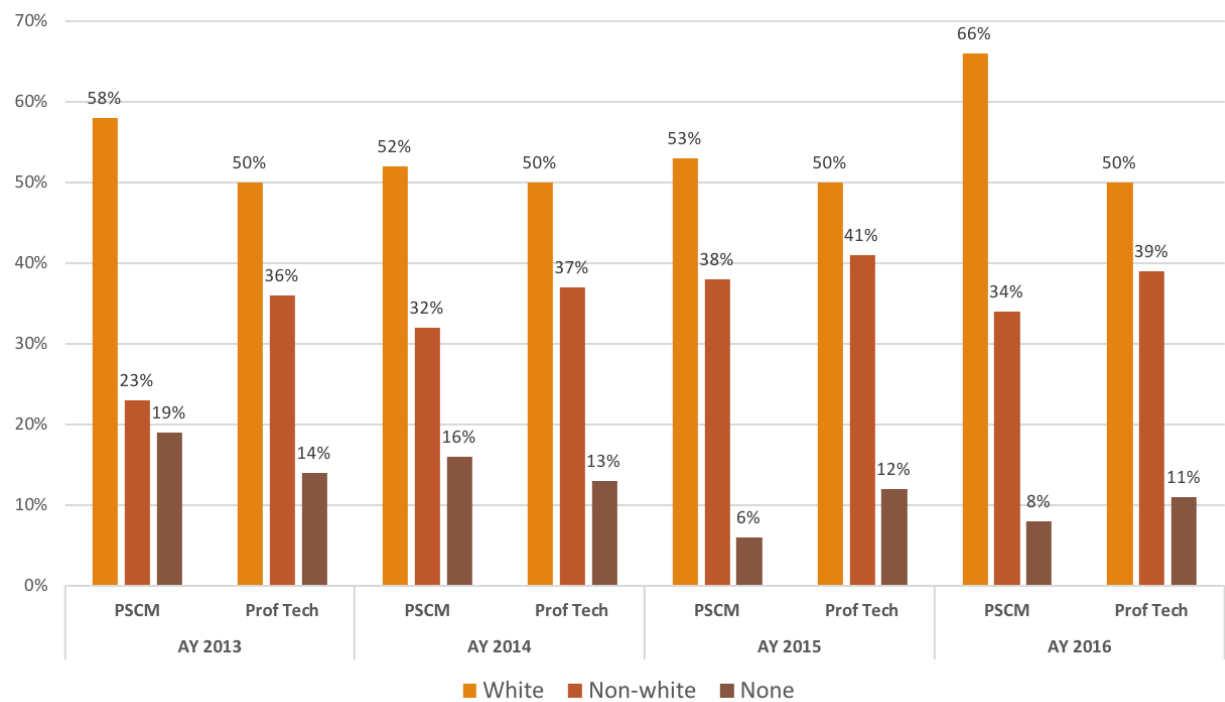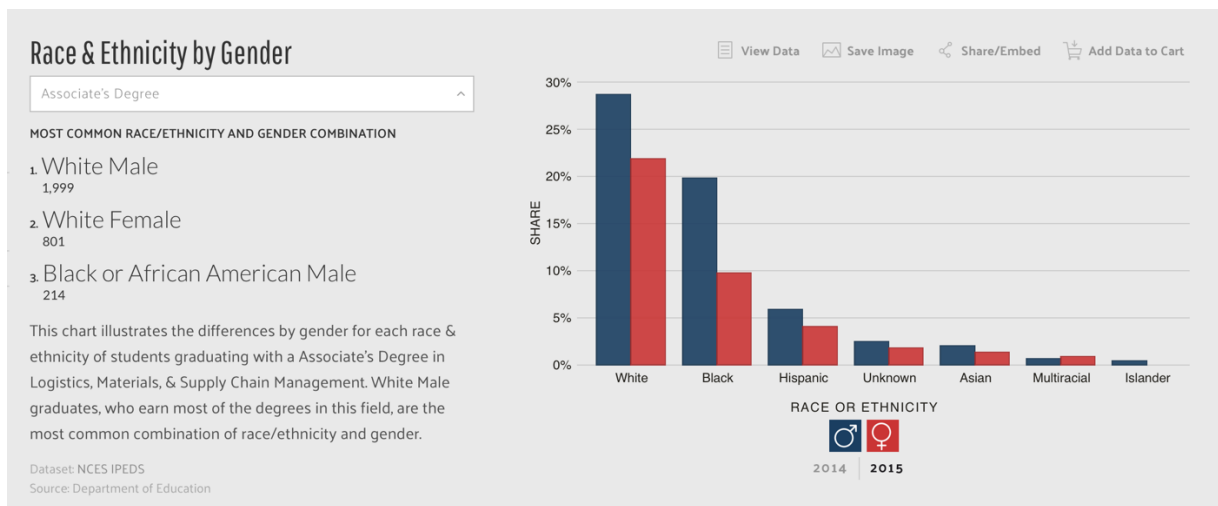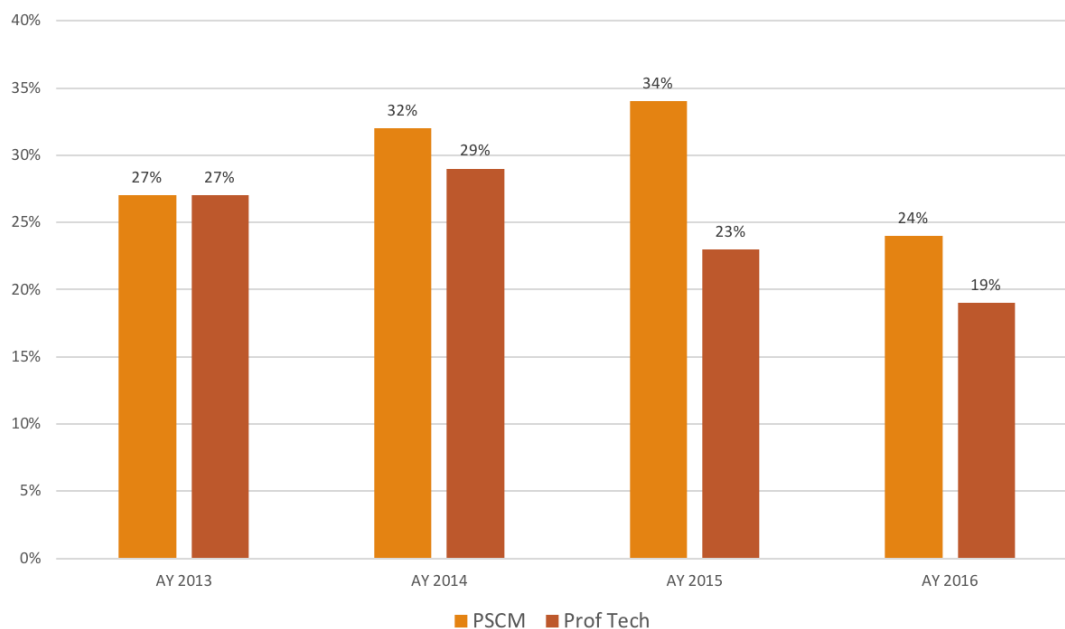pply Chain Management. White Male graduates, who earn most of the degrees in this field, are the most common combination of race/ethnicity and gender.

Dataset: NCES IPEDS
Source: Department of Education

View Data   Save Image   Share/Embed   Add Data to Cart

RACE OR ETHNICITY

2014 | **2015**

Need Based Aid

Program diversity will continue to improve if program administrators identify people of color and female candidates for new teaching positions, especially part-time positions where female candidates are under-represented.

Completion Data

An analysis of PSCM completions reveals the popularity of the certificates in the program, particularly the Certificate of Completion and the two short-term Certificates. The popularity of these is likely due to incumbent workers coming to Shoreline to seeking a short-term boost in skills. It should be noted that certificates are automatically conferred to students. However, the popularity of these certificates was confirmed in the surveys and is a key to Shoreline's niche.

PSCM Completions	AY 2013	AY 2014	AY 2015	AY 2016
AAAS	2	4	3	2

CC	20	20	7	12
CP	4	4	0	2
Sustainable PSCM-CC	2	3	1	0
Purchasing Contract Management -ST	N/A	N/A	7	13
Supplier Relations and Logistics-ST	N/A	N/A	1	16

When comparing PSCM completion ratios to Shoreline Community College and statewide ratios, the completion ratios of all workforce certificates and degrees compares favorably to Shoreline overall and the state. For workforce degrees only, the program performs at a much lower rate compared to Shoreline. This evidence strengthens the assumption that Shoreline's program attracts a high number of students only interested in certificates.

All Workforce Certificates and Degrees		2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
State	**Ratio**	**Unavail.**	**20%**	**20%**	**20%**	**Unavial.**	**Unavial.**
	Completions	641	626	694	652	702	545
	Headcount	2262	2110	2331	2156	2075	1854
Shoreline	**Ratio**	**28%**	**30%**	**30%**	**30%**	**34%**	**29%**
	Completions	9	15	18	25	24	12
	Headcount	31	44	75	69	53	34
PSCM	**Ratio**	**29%**	**34%**	**24%**	**36%**	**45%**	**35%**

Workforce Degrees Only		2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
	Completions	251	194	206	203	208	181
	Headcount	1798	1616	1786	1643	1534	1389
Shoreline	**Ratio**	**14%**	**12%**	**12%**	**12%**	**14%**	**13%**
	Completions	1	4	3	2	4	2

		Headcount	23	33	60	47	33	24
PSCM	**Ratio**		4%	12%	5%	4%	12%	8%

Waitlists and Fill Rates

Shoreline Community College's Institutional Review Department (IRD) studies waitlist data for the college, analyzing number of seats waitlisted by course and quarter, in addition to several additional factors of importance. This analysis flags courses that have 16 or more seats waitlisted.

No classes had waitlist issues during the study period (AY 2014 – AY 2016).

Fill rates are determined by comparing the number of students enrolled in a course during an academic year, with that course's capacity for the year. Analyzing fill rates by cluster identified no courses where the fill rate was consistently high or low.

FACULTY

Shoreline has one contract faculty person managing and teaching in this program. She fully participated in the program review and was engaged, thoughtful, and had a strong understanding of the needs of students and employers.

Keeping the lead and only faculty member on contract for a program intended to be offered on a regular basis is neither a strategic nor a sustainable way to operate. The lack of job security does not encourage the employee to think long-term about the program and makes program management difficult. To her credit, the faculty person did not exhibit signs of thinking short-term about this program. The college should make a similar investment in her by converting this position to a full-time teaching line.

Faculty Workload

Historically, PSCM operates at higher student-to-faculty ratio than all of Shoreline Professional Technical programs, and for Shoreline overall, but very close to the Business Administration program.

Quarter	PSCM	BUSAD	Prof Tech	Shoreline
2011	1:22	1:27	1:14	1:20
2012	1:21	1:29	1:15	1:20
2013	1:30	1:27	1:15	1:20
2014	1:25	1:26	1:13	1:19
2015	1:17	1:22	1:13	1:19
2016	1:25	1:22	1:13	1:17

Professional Development

PSCM faculty do not have departmental norms or expectations around professional development. In the coming year, professional development will focus on preparing for the Quality Matters "lite" re-certification. Future professional development

opportunities include attending events hosted by the Highline College Center of Excellence. The faculty member also shared a desire to improve her teaching skills.

RESOURCES

PSCM is an online program with no face-to-face instruction. As such, the instructor makes heavy use of Canvass and other online instructional tools. She also has an office she uses for office hours and other student meetings. She reports a high level of satisfaction with the resources available through the program.

As with other departments, PSCM faculty struggle to find time to help students find internships and with other job placement activities. Because these needs are found in multiple professional development programs, the school should explore the option of providing a centralized resource for them. Progress of this service could be tracked through regular surveys of students and employers to gauge satisfaction, and the employment of alumni participating in the internships coordination service. Shoreline Community College could market this service for students, distinguishing itself from competitor colleges.

PARTNERSHIPS

Active Partners

The PSCM Advisory Committee has 11 members. At the time of this report, six of these members were clearly representing the purchasing side of the program and two were representing the supply chain management side. Three members had an unclear affiliation with the industry segment. Because the faculty member is strong with purchasing and less strong with supply chain management, it is important that the advisory committee has a good balance of members. For this reason, recruiting at least two new supply chain management members would improve balance and support for the program.

During the Program Advisory Committee, the faculty member seemed unsure of her role vis a vis the committee chair. She would benefit from training on being a faculty member of a program advisory committee.

This program has also had a good relationship with the Workforce Training and Education Coordinating Board through a grant from the Make It in Washington program. As noted earlier, this grant has supported 30 students in their studies over the past four years.

Finally, the program is also in the final phase of cementing an articulation agreement with North Seattle College's Applied Baccalaureate in International Business. Although this program has no courses focusing on purchasing or supply chain management, this relationship will benefit students interested in an international business career. The college could consider adding articulation agreements with other local program offering pathways more closely aligned to the PSCM degree, such as Highline College's Applied Baccalaureate in Global Trade and Logistics, Lake Washington Institute for Technologies Applied Baccalaureate

in Global Trade and Logistics, or Central Washington University's Business Administration with a Supply Chain Management Specialization (offered online).

Current students were surveyed regarding their opinions of PSCM's program services. They were asked to rate each component on a scale of 1 (poor) to 5 (excellent). The ratings were:

Element	Rating
Helpful program information on college website and printed materials	4.53
Effective curriculum structure: (Did the sequence of courses make sense? Did the skills you learned in one class transfer to the next class?)	4.78
Support of individual learning needs	4.5
Adequate preparation for employment (knowledge and skills for the field)	4.56
Adequate guidance for career planning	4.0
Adequate program resources (information technology, equipment, space, supplies)	4.73
Class schedules meet student needs	4.59
Academic advising meets student needs	4.69
Effectiveness of other support services (tutoring, financial aid, counseling etc.)	4.53

The ratings for PSCM's program elements were in line with other programs at Shoreline. Open responses offered no concrete suggestions for improvement nor areas of strength.

COMPETITION

As described above, other local schools offering applied associate degrees and certificates in this field include Tacoma Community College and Highline College.

Neither program is fully online, which appears to be a niche that is critical to Shoreline's program. Based on completion data and results from the student and alumni surveys it seems clear that the certificates offered in this program give it a competitive edge. The school should support any efforts to enhance its online program and enhance its certificate offerings.

Current students were asked what other programs they considered before selecting Shoreline and their responses indicated that Shoreline competes with several different public and private programs in Washington and across the country including:

- Lake Washington Institute of Technology
- Bellevue College
- Skagit College

- Edmonds College
- Everett College
- University of Phoenix
- ITT
- Seattle Central College
- North Seattle College
- UW Bothell
- Fox Valley Technical College
- Portland State University
- Washington State University

Students are quite likely to recommend this program to others, giving it a 4.67 on a scale of 1 (definitely not) to 5 (definitely) (N=18).

LABOR MARKET OPPORTUNITIES

The Program Advisory Committee members shared that the SOC codes linked to this program seem limited. They are Industrial Production Managers (SOC 11-3051) and Transportation, Storage, and Distribution Managers (SOC 11-3071). Because these two codes are related to management positions there was concern that students with little or no experience in the field might not be reflected in these figures.

The SOC titles the Advisory Committee should be added include (presented here with 2016-2018 King County growth projections):

SOC Code	Occupation Title	2015-2020 Annual Growth Rate	Annual Openings Due to Growth	Annual Total Openings
13-1022	**Purchasing Agents**	3.33%	11	1,018
43-3061	**Procurement Clerks**	1.45%	4	75
13-1081	**Logisticians**	-2.81	-80	304
43-5011	**Cargo and Freight Agents**	1.34%	14	335
43-5061	**Production, Planning, and Expediting Clerks**	0.62%	30	1,147
43-5071	**Shipping, Receiving, and Traffic Clerks**	0.57%	29	1,440

The following table displays the labor market projections for the existing SOC codes:

SOC Code	Occupation Title	2015-2020 Annual Growth Rate	Annual Openings Due to Growth	Annual Total Openings
11-3051	**Industrial Production Managers**	-0.49%	-5	198
11-3071	**Transportation, Storage, and Distribution Managers**	0.97%	11	302

While the growth rate for these occupations is more limited than normally seen in a professional-technical program, the annual openings figures are significant and indicate demand for graduates of this program will continue to remain strong over the foreseeable future.

The PSCM program should consider examining the SOC codes linked to this program and update them to ensure a strong fit with job opportunities for graduates.

The Program Advisory Committee indicated a relatively strong alignment between program and employer expectations. However, they noted a few emerging skills that could help boost employability: critical thinking, soft skills, applied data analysis, and project management. Adding these skills could be advantageous and help differentiate Shoreline from competitors, but further research is necessary to confirm these initial findings from the Program Advisory Committee.