

Bachelor of Applied Sciences: Outcomes Evaluation

August 2013

Introduction

Community and technical colleges (CTCs) play an important role in producing baccalaureate degree graduates in Washington State. Baccalaureate degrees that build upon the professional-technical associate degree provide expanded opportunities for both graduates and employers by providing the upper-division coursework in an applied field. Programs developed at the CTCs provide a clear pathway for students who may be place-bound or have difficulty finding a transfer opportunity for their applied baccalaureate degree. The programs also help to address the gap found by some employers of successfully recruiting qualified applicants who have the job-specific technical skills as well as the skills learned through a baccalaureate program.¹ In addition to recruiting new personnel, BAS programs are beneficial to employees already working in a technical field who wish to be promoted to higher level management or specialized positions which may require a bachelor's degree.

The Washington State Board for Community & Technical Colleges (SBCTC) advocated for CTC applied baccalaureate programs because it would help:

- Meet state goals for increasing the total number of baccalaureate degrees awarded by 2019 to 42,400 per year. The community and technical college system will need to increase the number of students who transfer to a baccalaureate program, which includes increasing the number of applied baccalaureate programs at the CTCs.
- Expand the workforce mission of CTCs to serve the needs of local and state employers.
- Increase educational pathways for professional-technical associate graduates who have been limited in their ability to apply credits toward a bachelor degree. The workforce student population is comprised of a large portion of people of color, older working adults, and people (primarily women) who are place-bound with family responsibilities.

Applied baccalaureate programs originated from the 2005 Legislature passing E2SHB 1794, giving the State Board authority to select pilot programs at designated CTCs. Subsequently, the 2010 legislature passed Substitute House Bill 2655 giving the SBCTC authority to approve CTC applied baccalaureate degree programs. This removed the pilot status of the CTC applied baccalaureate programs.

As of the conclusion of academic year 2012-13, seventeen programs in ten colleges have been approved for applied baccalaureate degrees, with students enrolled in ten programs in eight colleges (seven programs are in development). The following evaluation describes the outcomes

¹ Workforce Training and Education Coordinating Board, *Employer Survey 2004*.

of students in the programs, such as enrollments and demographics over time, completions, and employment outcomes for students who have graduated and entered the workforce following their program. The ten programs described in this paper include:

- Bellevue College – Bachelor of Applied Science in Radiation and Imaging Sciences, 2007; Bachelor of Applied Arts in Interior Design, 2009; Bachelor of Applied Science in Health Care Technology and Management, 2011
- Centralia College – Bachelor of Applied Science in Applied Management, 2012
- Columbia Basin College – Bachelor of Applied Science in Applied Management, 2009
- Lake Washington Institute of Technology – Bachelor of Technology in Applied Design, 2009
- Olympic College – Bachelor of Science Nursing, 2007
- Peninsula College – Bachelor of Applied Science in Applied Management, 2007
- Seattle Central Community College – Bachelor of Applied Behavioral Science, 2009
- South Seattle Community College – Bachelor of Applied Science in Hospitality Management, 2007

Key Findings

Key findings for enrollments and graduates through 2013 show programs are growing by reaching out to their local communities. Employment and earnings for first graduates demonstrate strong gains made even more significant by occurring in the midst of the recession.

Programs are growing by meeting their local community needs:

- In 2013, colleges enrolled 475 full-time equivalents (FTE), 729 headcount enrollments. This is an increase from 77 FTES, 141 students in 2008, the first year that programs were offered.
- The number of BAS programs has increased from four to ten in the past six years.
- Throughout the recession, more students attended full-time.
- Student diversity in the BAS programs has increased over time and the gender gap is decreasing. Both populations of students who identify as African American and Hispanic represent a larger share of the enrollment. The percent of males has also increased as more programs in technical fields have been added. Along with these shifts, the average age of BAS students has come down to 34 years old from 37 at the start of the programs. The majority begin their baccalaureate studies already having earned an associate's degree from a WA CTC.
- Bellevue has been one of the most active colleges to offer programs within the CTC system, having placed an additional three programs under development, which should go online by fall 2014, bringing their total to eight programs.
- The management program at Columbia Basin College (CBC) has quadrupled since 2007 making it the largest BAS program. As a Hispanic serving institution, CBC has played an important role in increasing enrollments for this group. CBC has developed a model that centers on their initial BAS program in Applied Management. Through this, CBC has developed BAS programs in Cyber Security, Project Management, and soon Nursing.
- Lake Washington's Applied Design program has over time increased enrollments substantially for male students and students who identify as Hispanic. Lake Washington currently has five new programs in the queue for enrollment starting fall 2014.

- Peninsula's Applied Management program (one of the first BAS programs), continues to grow at a significant rate. One of the ways it has grown is by increasing the percent of students identifying as Native American from zero percent in 2008 to 11 percent in 2013. The percent of males has also increased.
- Seattle Central's Behavioral Science program serves a majority of students of color; more than one-third identify as African American. Additionally, nearly 90 percent of Central's students begin the program with an associate degree from a WA CTC. This suggests that the program provides a strong pathway to a baccalaureate degree for historically underserved students from the CTC system. The college has three more programs scheduled for implementation in fall 2014.

First Graduates have strong employment and earnings gains

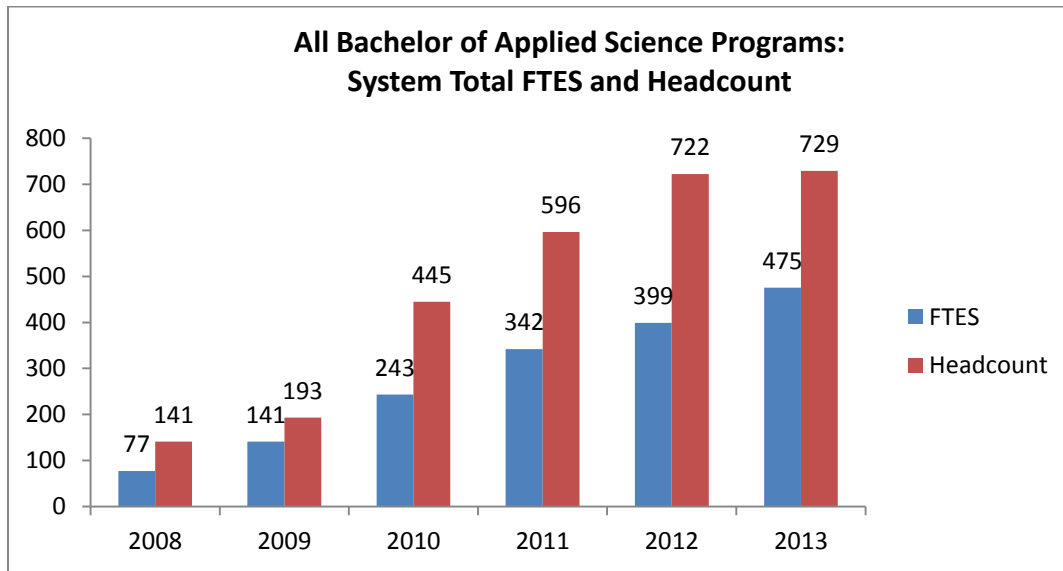
- The number of graduates in BAS programs has more than tripled from 52 in 2010 to 160 in 2012, due in part to high retention rates throughout the programs. Each year colleges retain or graduate an average of 86 percent of their fall enrollment by the end of the academic year. Centralia College, which started its first program in Applied Management in 2012, had a 100 percent retention rate for the year.
- The overall employment rate for BAS graduates in 2010 and 2011, seven quarters after graduating, was 82 percent. Columbia Basin had a 100 percent employment rate. The median annualized earnings for all BAS graduates is \$32,253, with the highest earners coming from Bellevue's Radiology program (\$85,936) and the lowest from Lake Washington's Applied Design program (\$25,631)
- Graduates who were employed at the time of graduation were also evaluated for increases in median earnings seven quarters following their last quarter enrolled. For the graduates who had both pre and post earnings (Interior Design, Applied Management, Hospitality Management, Management, and Radiology), the earnings gain was \$8,495 (26 percent), including a 48 percent increase for Bellevue's Interior Design program.
- These outcomes are made significantly more promising because the economy was in recession, hindering both employment and earnings.

Section One. Historical Enrollments and Demographics: All Programs

System Enrollments

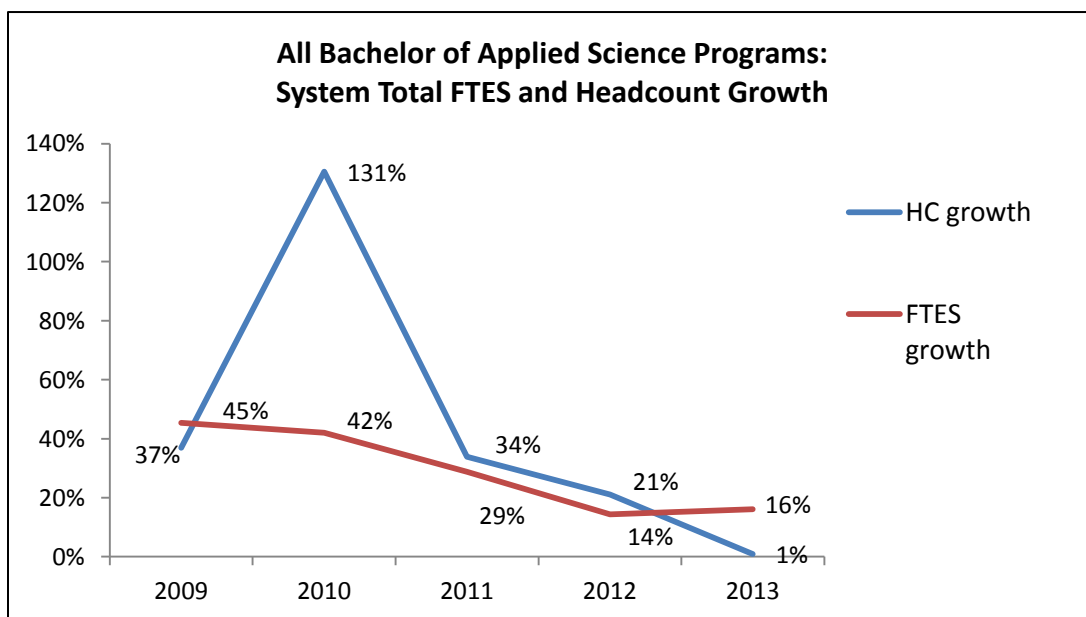
The first applied baccalaureate programs (BAS) were introduced in 2007. Over the six years that the programs have been in place, FTES and headcount have increased substantially. Figure 1 below shows the headcount and FTE of all matriculated² students in the system.

Figure 1



In comparing the patterns of headcount and FTE growth, the most significant growth of the BAS programs occurred between 2007 and 2010, after which growth has slowed. Figure 2 below shows the annual growth rates in both headcount and FTE between 2007 and 2013.

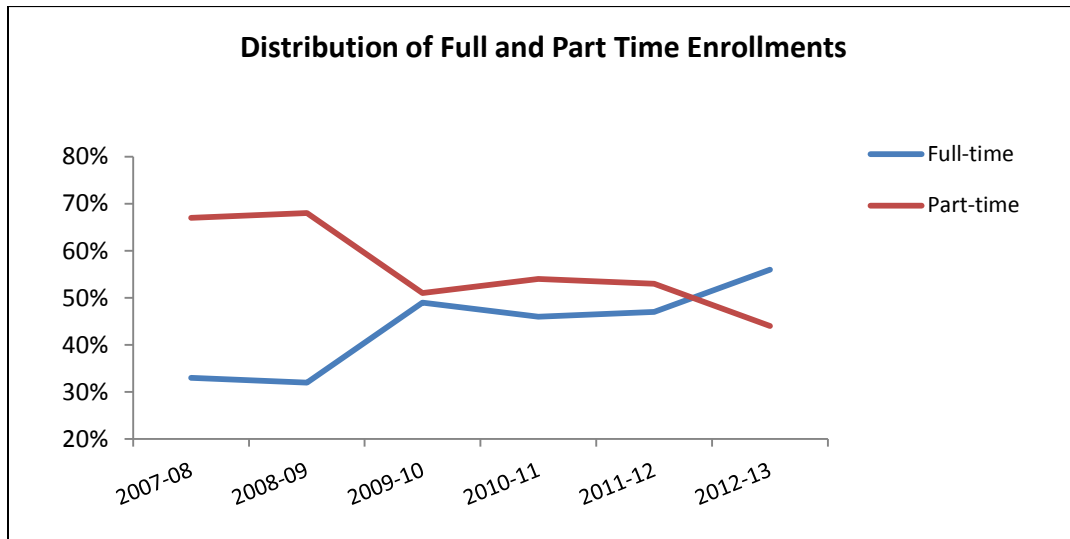
Figure 2



² "Matriculated" students are those who in a BAS program through meeting admission requirements and under the baccalaureate tuition schedule. Additional FTE are served to students not in a program, but who take upper division courses.

Of significant note is the growth in headcount is flat as of 2013, while FTES' growth rate have begun to increase after three years of decline. This can be explained in part by a major shift in enrollment status since the inception of the BAS programs. The average number of quarters attended in a year by students has not changed significantly over this time; however, the distribution of part time to full time has changed. When the BAS programs first began enrolling students in 2007, two-thirds of the enrollments were of part-time status. In 2009-10 that number decreased to 50 percent, then decreased to 44 percent of enrollments by 2012-13. This shift is demonstrated below in Figure 3.

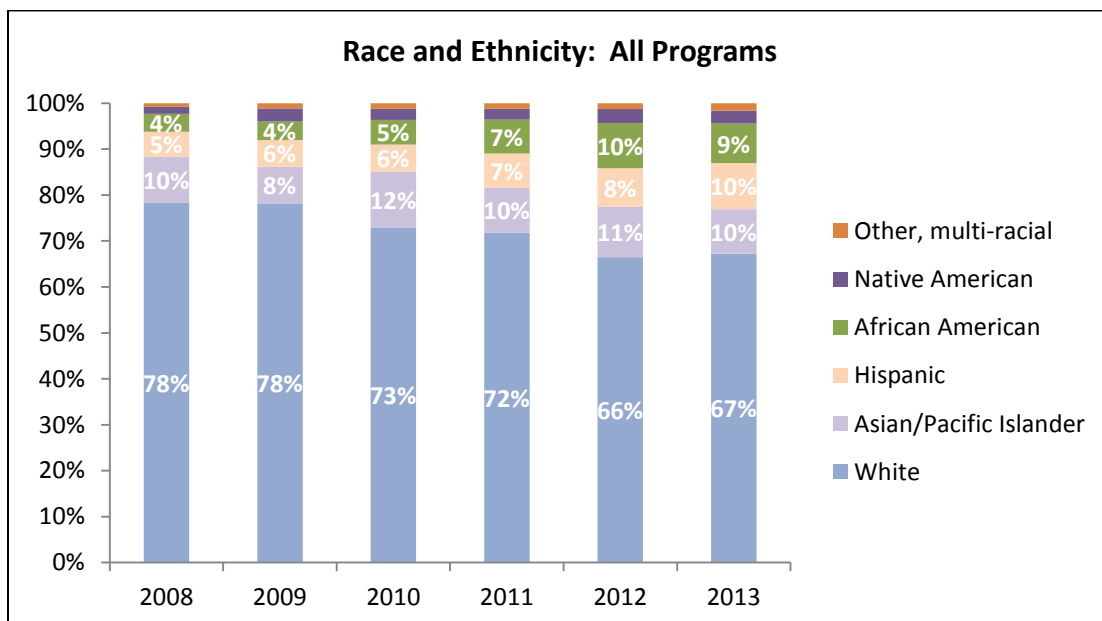
Figure 3



System Demographics

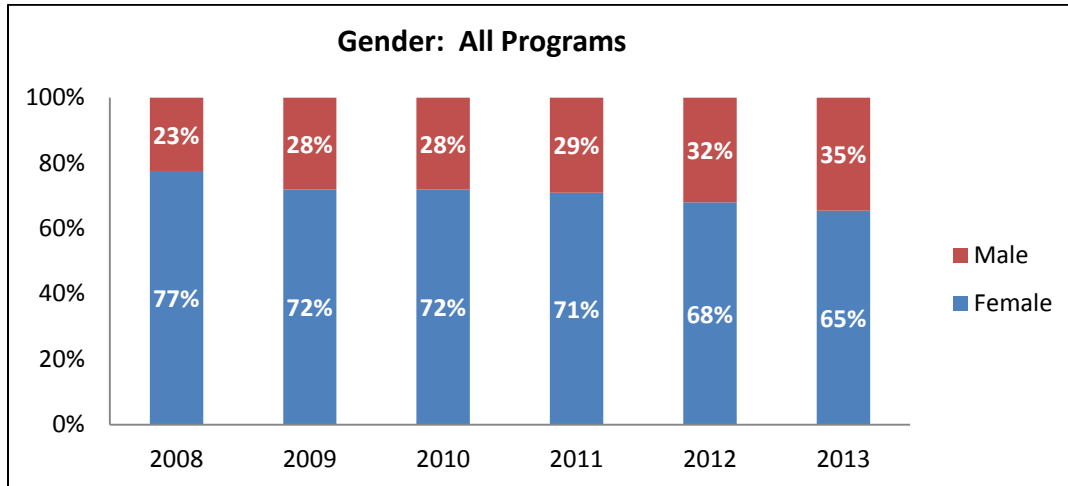
The next figures summarize the overall demographics of all BAS students in the years since the programs began.

Figure 4



Diversity of students in BAS programs has increased³. In 2007, students identifying as White made up 78 percent of all enrolled students, which has dropped to 67 percent as of 2013. The percent of participation for students identifying as African American and Hispanic has doubled between 2007 and 2013 for both groups, from 4% to 9% and 5% to 10%, respectively.

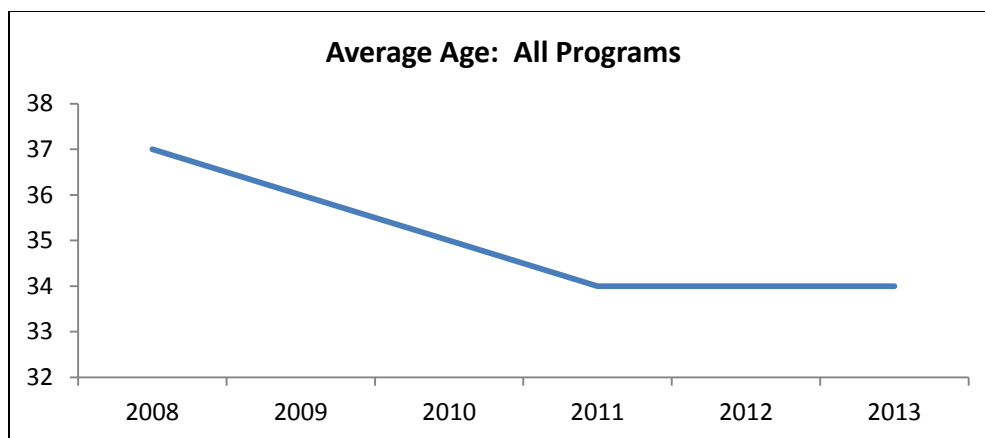
Figure 5



As noted in the introductory goals of BAS programs, one of the service populations of the programs is place bound females with family responsibilities. This is demonstrated by females making up more than three-fourths of the students in 2007. However, as new programs have come on board, particularly in the technical colleges, the diversity in gender has increased by the percent of female students served decreasing to two-thirds in 2013.

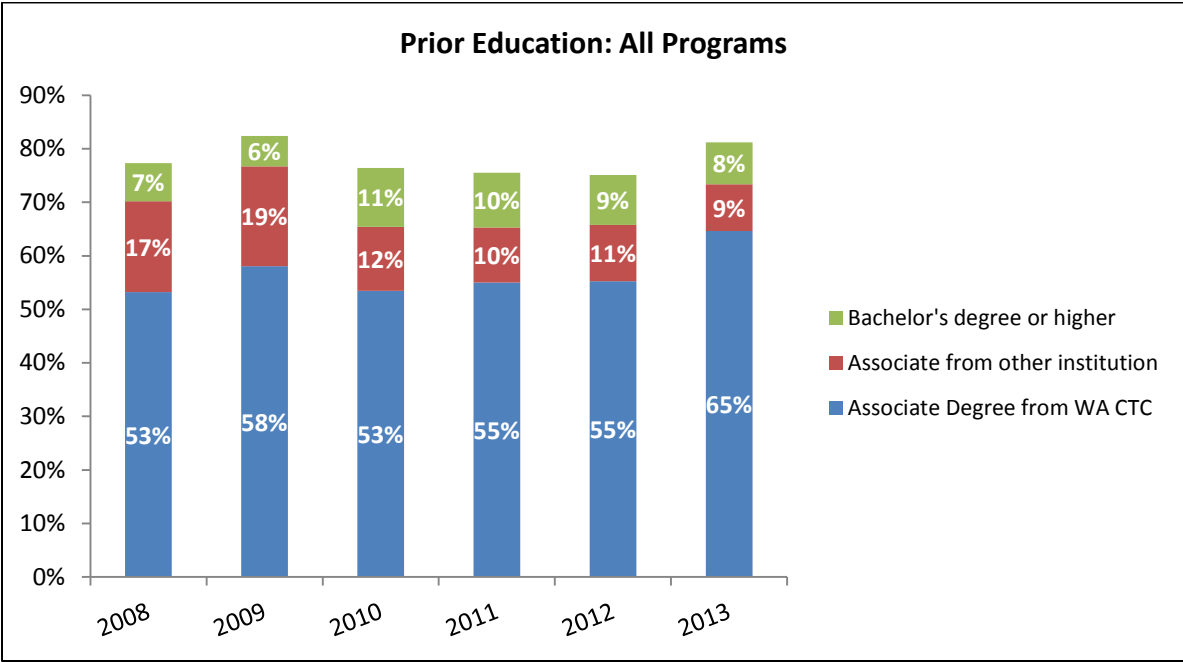
BAS students are typically older, although the average age dropped from 37 to 34 between 2007 and 2011. All students accepted into BAS programs are required to have at least an associate's degree. The data on prior education of BAS students shows that the majority of BAS students come into the program with an associate degree from a WA CTC.

Figure 6



³ Students are counted in up to two reported race/ethnicities for the entirety of the report.

Figure 7



Section Two: Program Historical Enrollments and Demographics

The following section summarizes the enrollment and demographic trends for each of the eight programs who have had enrollments for a minimum of three years. Figures 8 and 9 begin with the headcount and FTES for all programs with enrollments up through 2012-13.

Figure 8

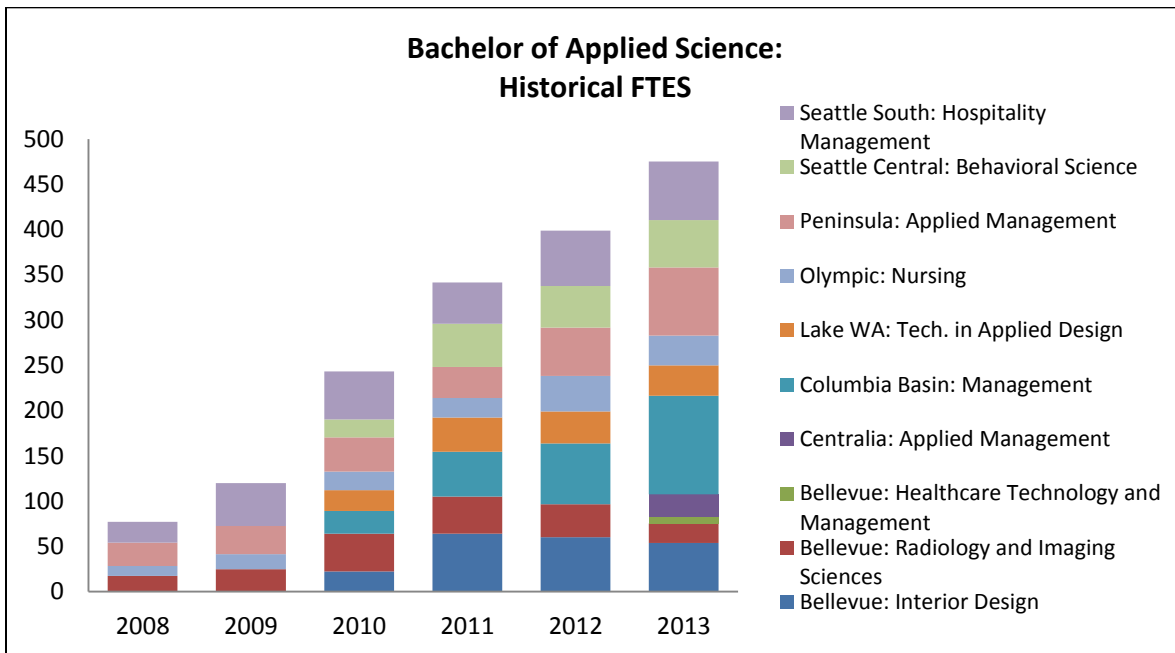
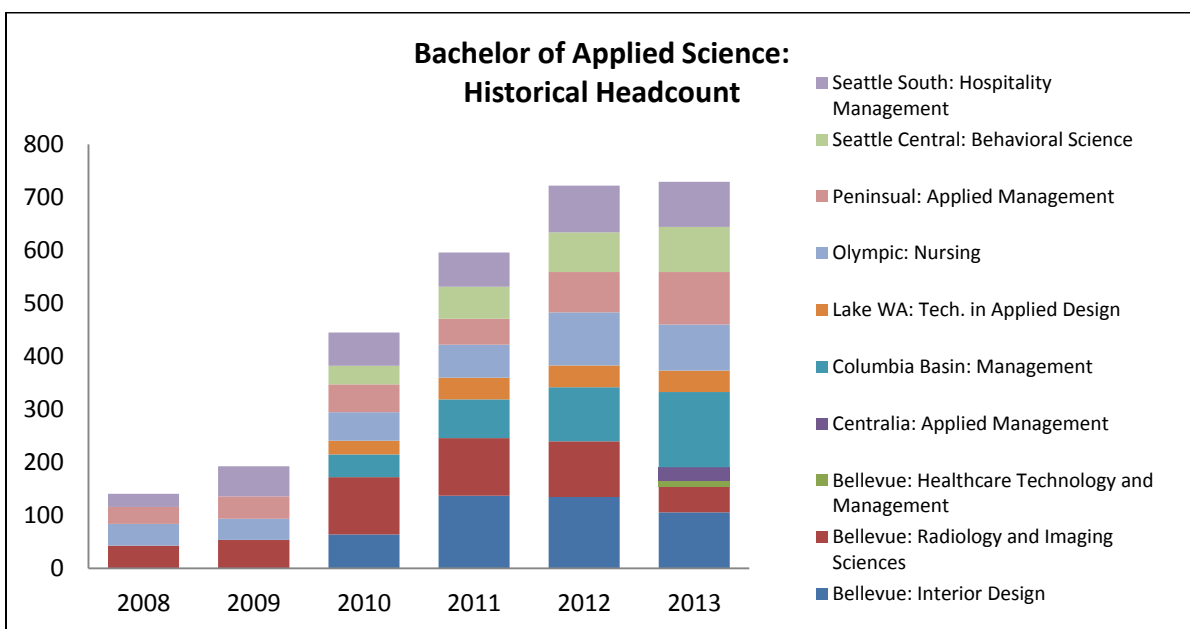


Figure 9



Bellevue College: Bachelor of Applied Arts in Interior Design

Bellevue's Bachelor of Applied Arts in Interior Design program began in 2010. Enrollments increased drastically in 2011, but began declining over the last two years. The program serves a relatively high percentage of students who identify as Asian, and a high percentage of females. Students are slightly younger than students in other BAS programs in the state, and also unlike other BAS programs, only about one-quarter come to the program with an associate degree from a WA CTC.

Figure 10

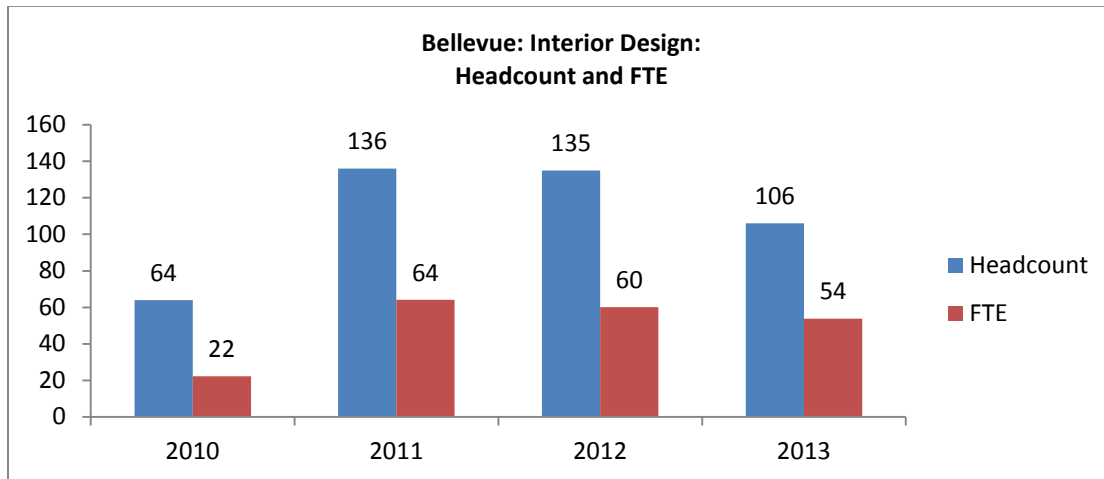


Figure 11

Race/Ethnicity	2010	2011	2012	2013
Asian/Pacific Islander	19%	13%	16%	22%
African American	2%	2%	0%	0%
Native American	0%	2%	2%	0%
Hispanic	3%	5%	9%	5%
Other, multi-racial	0%	1%	1%	1%
White	76%	78%	73%	72%
Gender				
Female	91%	95%	94%	90%
Male	9%	5%	6%	10%
Average age	34	32	31	32
Prior education				
Associate Degree from WA CTC	28%	24%	21%	31%
Associate from other institution	8%	7%	9%	7%
Bachelor's degree or higher	31%	24%	21%	23%
Other	33%	45%	50%	40%
Total Headcount	64	136	135	106

Bellevue College: Bachelor of Applied Arts Radiology and Imaging Services

Bellevue’s Bachelor of Applied Arts in Radiology and Imaging Services program began in 2008. Enrollments increased drastically in 2010, but began declining in 2010-11. However, as enrollments have declined, the diversity in the program has increased, especially for students who identify as African American. The gender distribution of the students in the program has changed drastically since 2008, going from nearly three-fourths female to only about 40 percent of the enrollment in 2013. The average age of students has gone down from 37 in 2008 to 34 in 2013, and about half had an associate degree from a WA CTC.

Figure 12

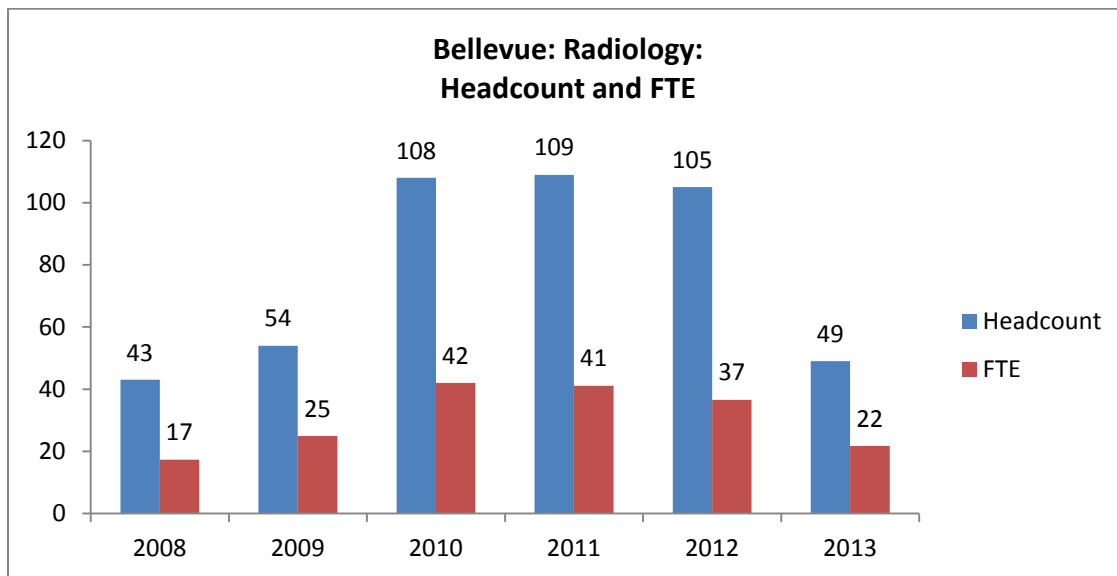


Figure 13

Race/Ethnicity	2008	2009	2010	2011	2012	2013
Asian/Pacific Islander	4%	6%	16%	15%	22%	15%
African American	0%	0%	5%	7%	6%	6%
Native American	0%	2%	0%	0%	0%	0%
Hispanic	7%	4%	6%	8%	5%	4%
Other, multi-racial	0%	0%	1%	1%	1%	0%
White	89%	88%	72%	70%	67%	74%
Gender						
Female	72%	70%	67%	63%	59%	41%
Male	28%	30%	33%	37%	41%	59%
Average age	37	36	33	33	31	34
Prior education						
Associate Degree from WA CTC	56%	59%	32%	35%	35%	49%
Associate from other institution	19%	31%	17%	18%	15%	31%
Bachelor's degree or higher	2%	2%	10%	11%	10%	6%
Other	23%	7%	41%	36%	40%	14%
Total Headcount	43	54	108	109	105	49

Columbia Basin College (CBC): Bachelor of Applied Science in Management

Columbia Basin’s Bachelor of Applied Science in Management program began in 2010. Enrollment in the program has quadrupled, making it the largest BAS program in the system as of 2013. As the program has grown, so has the percentage of students of color, most notably students who identify as Hispanic (14 percent in 2010 to 27 percent in 2013). The gender distribution of the students in the program has not changed significantly, and the average age of students has gone down slightly. In 2013 more than three-fourths of students in the program had come in with an associate degree from a WA CTC.

CBC has been able to leverage significant support with its business community, such as the Department of Energy (DOE). With a strong internal BAS infrastructure, CBC has remained consistent with program and enrollment growth.

Figure 14

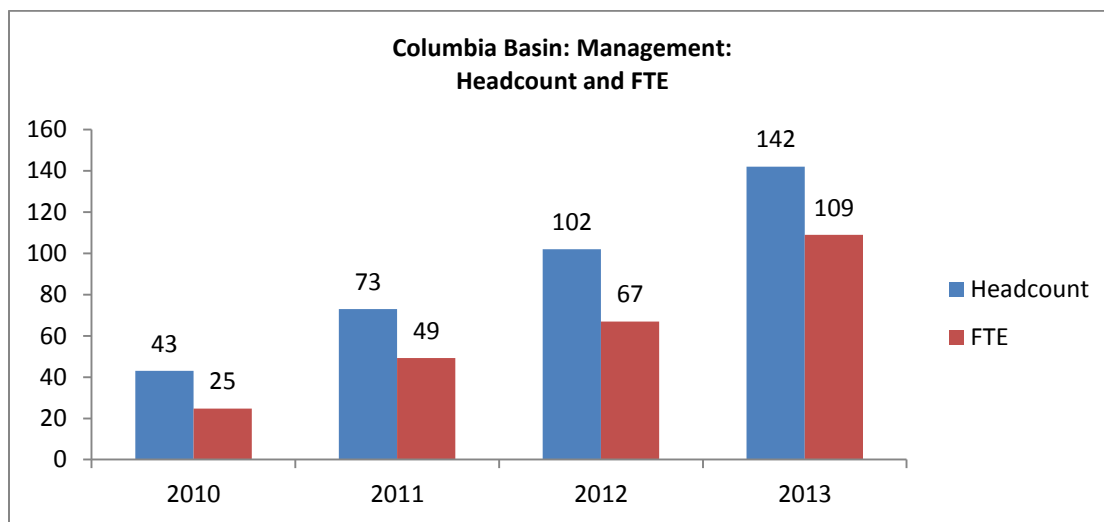


Figure 15

Race/Ethnicity	2010	2011	2012	2013
Asian/Pacific Islander	0%	3%	3%	2%
African American	0%	4%	3%	4%
Native American	0%	1%	2%	2%
Hispanic	14%	20%	24%	27%
Other, multi-racial	0%	1%	2%	3%
White	86%	70%	67%	63%
Gender				
Female	58%	52%	50%	55%
Male	42%	48%	50%	45%
Average age				
	36	36	34	34
Prior education				
Associate Degree from WA CTC	72%	78%	77%	77%
Associate from other institution	12%	12%	10%	6%
Bachelor's degree or higher	5%	1%	2%	1%
Other	12%	8%	11%	16%
Total Headcount	43	73	102	142

Lake Washington Institute of Technology: Bachelor of Technology in Applied Design

Lake Washington’s Bachelor of Technology in Applied Science in Management program began in 2010. Enrollment in the program doubled in 2011 and has remained steady. The race/ethnic makeup of students has changed. In 2013, students who identify as African American, Native American, and Hispanic comprised 17 percent of the students in the program, whereas there were none at the start. The largest change in student characteristics is the increase in the percentage of male students from 42 percent in 2010 to 65 percent in 2013. The program has also begun serving a larger percentage of students with an associate degree earned outside of the WA CTC system.

Figure 16

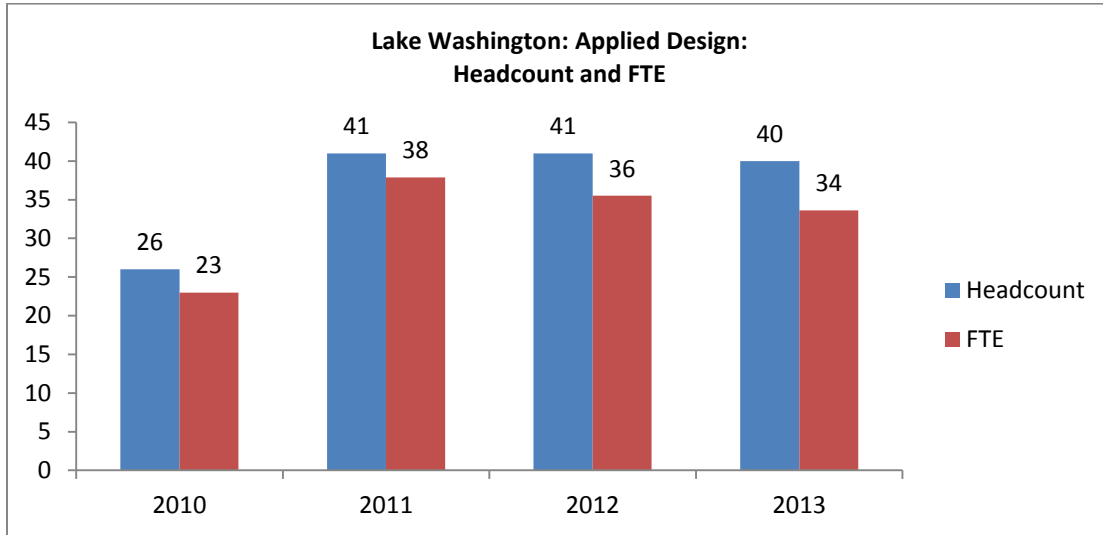


Figure 17

Race/Ethnicity	2010	2011	2012	2013
Asian/Pacific Islander	18%	19%	14%	6%
African American	0%	3%	2%	3%
Native American	0%	0%	2%	3%
Hispanic	0%	3%	5%	11%
Other, multi-racial	0%	0%	0%	0%
White	82%	76%	76%	78%
Gender				
Female	58%	46%	34%	35%
Male	42%	54%	66%	65%
Average age				
	31	32	34	32
Prior education				
Associate Degree from WA CTC	88%	83%	71%	73%
Associate from other institution	4%	5%	12%	10%
Bachelor's degree or higher	8%	5%	7%	8%
Other	0%	7%	10%	10%
Total Headcount	26	41	41	40

Olympic College: Bachelor of Science in Nursing

Olympic College's Bachelor of Science in Nursing program was one of the first beginning in 2007-08. Enrollment in the program rose steadily until 2013, and then began declining. The student characteristics have fluctuated over time, but in general the student body is comprised of students who identify as White, and are predominantly female. Sixty-three (63) percent of students in 2013 had earned an associate degree from a WA CTC.

Figure 18

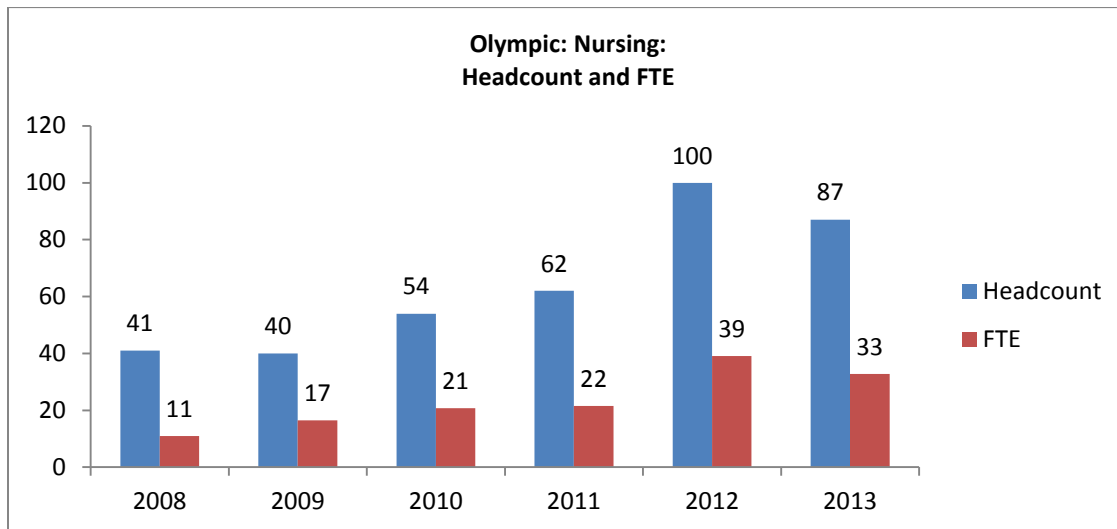


Figure 19

Race/Ethnicity	2008	2009	2010	2011	2012	2013
Asian/Pacific Islander	13%	5%	6%	0%	8%	12%
African American	5%	5%	0%	0%	9%	5%
Native American	0%	3%	0%	0%	3%	2%
Hispanic	5%	3%	10%	9%	10%	10%
Other, multi-racial	3%	5%	4%	4%	1%	2%
White	74%	78%	80%	88%	70%	68%
Gender						
Female	88%	88%	80%	85%	85%	86%
Male	12%	10%	20%	15%	15%	14%
Average age						
	38	39	38	37	36	34
Prior education						
Associate Degree from WA CTC	41%	45%	54%	61%	52%	63%
Associate from other institution	7%	15%	9%	11%	11%	8%
Bachelor's degree or higher	12%	8%	7%	5%	16%	11%
Other	39%	33%	30%	23%	21%	17%
Total Headcount	41	40	54	62	100	87

Peninsula College: Bachelor of Applied Science in Applied Management

Peninsula College’s Bachelor of Applied Science in Applied Management was one of the first programs beginning in 2007-08. After a slight dip in 2011, enrollment in the program has increased substantially. Diversity has increased over time, particularly for students who identify as Native American, increasing from zero percent at the start of the program to 11 percent in 2013. Peninsula’s program serves more than half of all students in BAS programs who identify as Native American, thus this growth accounts for much of the increase in diversity for this population for the system. The percent of male students has increased from 25 percent in 2008 to nearly 40 percent in 2013, and nearly three-fourths of students in the program had entered with an associate degree from a WA CTC.

Figure 20

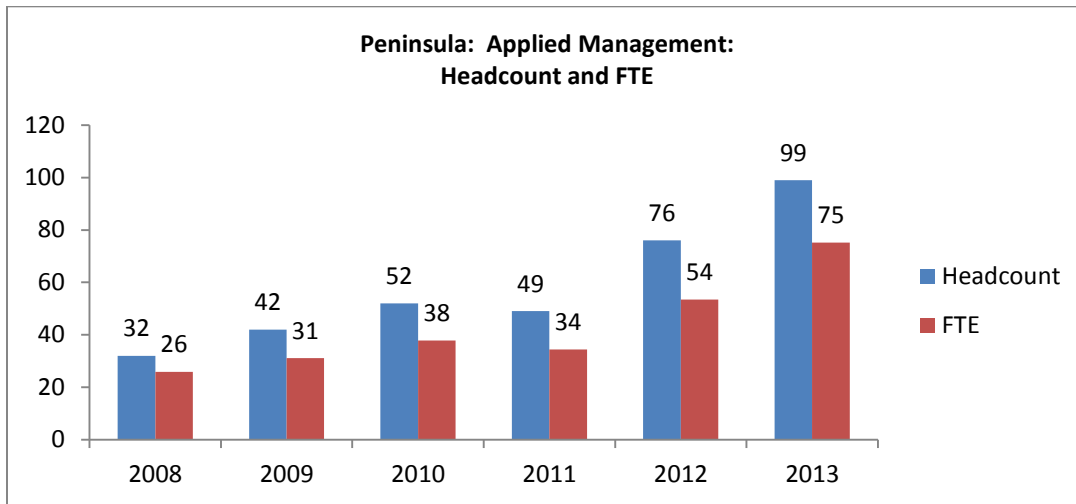


Figure 21

Race/Ethnicity	2008	2009	2010	2011	2012	2013
Asian/Pacific Islander	4%	5%	6%	2%	0%	1%
African American	0%	0%	0%	0%	6%	4%
Native American	0%	8%	9%	9%	14%	11%
Hispanic	7%	5%	4%	4%	1%	4%
Other, multi-racial	0%	0%	0%	0%	3%	3%
White	89%	83%	81%	85%	76%	75%
Gender						
Female	75%	69%	67%	51%	54%	61%
Male	25%	31%	33%	49%	46%	39%
Average age						
	40	35	38	36	35	34
Prior education						
Associate Degree from WA CTC	78%	76%	67%	76%	75%	73%
Associate from other institution	13%	10%	15%	10%	11%	11%
Bachelor's degree or higher	0%	0%	4%	2%	1%	1%
Other	9%	14%	13%	12%	13%	15%
Total Headcount	32	42	52	49	76	99

Seattle Central Community College: Bachelor of Applied Science in Behavioral Science
 Seattle Central Community College's Bachelor of Applied Science in Behavioral Science began in 2010. In the four years the program has been in place, enrollment has more than doubled. The college has developed innovative student support practices that encourage student participation and retention from under-represented populations in their BAS programs. The program is currently the only program in the system that serves a majority students of color, more than one-third being students who identify as African American. Additionally, nearly 90 percent of Central's students begin the program with an associate degree from a WA CTC.

Figure 22

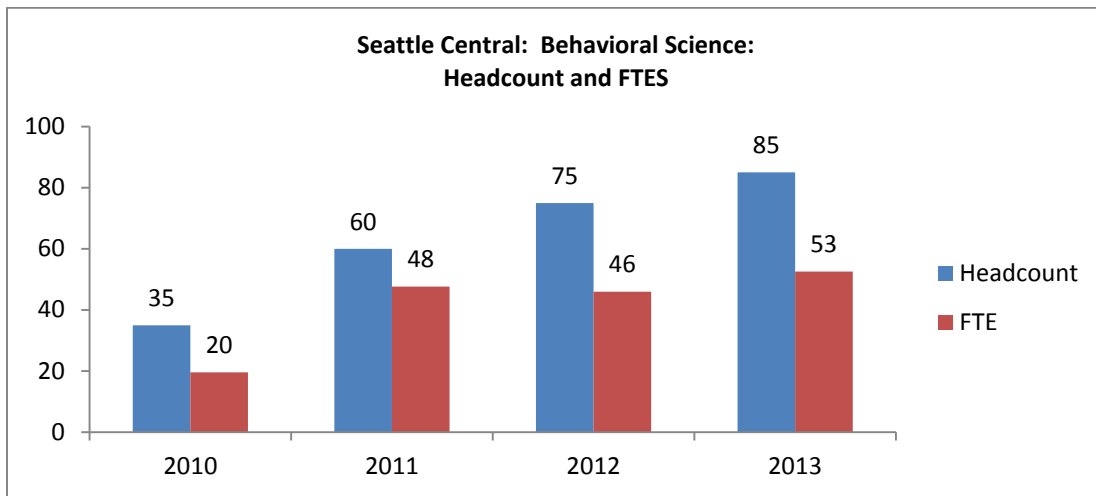


Figure 23

Race/Ethnicity	2010	2011	2012	2013
Asian/Pacific Islander	8%	3%	4%	4%
African American	33%	35%	45%	39%
Native American	6%	3%	1%	1%
Hispanic	3%	5%	7%	6%
Other, multi-racial	6%	2%	1%	1%
White	44%	52%	41%	49%
Gender				
Female	91%	80%	80%	78%
Male	9%	20%	20%	22%
Average age				
	39	41	40	39
Prior education				
Associate Degree from WA CTC	86%	87%	87%	88%
Associate from other institution	6%	5%	4%	2%
Bachelor's degree or higher	0%	0%	0%	2%
Other	9%	8%	9%	7%
Total Headcount	35	60	75	85

Seattle South Community College: Bachelor of Applied Science in Hospitality Management

Seattle South Community College's Bachelor of Applied Science in Hospitality Management was one of the first programs that began in 2007-08. Enrollment in the program has stair-stepped up, with a large increase in 2012. The program currently serves more than one-fifth students who identify as Asian and 14 percent students who identify as African American. The percent of students who identify as Hispanic has decreased substantially over time, down to just one percent in 2013 from 15 percent at the start of the program. The percent of male students has increased from 28 percent in 2008 to 44 percent in 2013. Currently, less than half of students in the program had come in with an associate degree from a WA CTC. South Seattle has made a concerted effort to develop a student mentoring program as to support retention for its program participants.

Figure 24

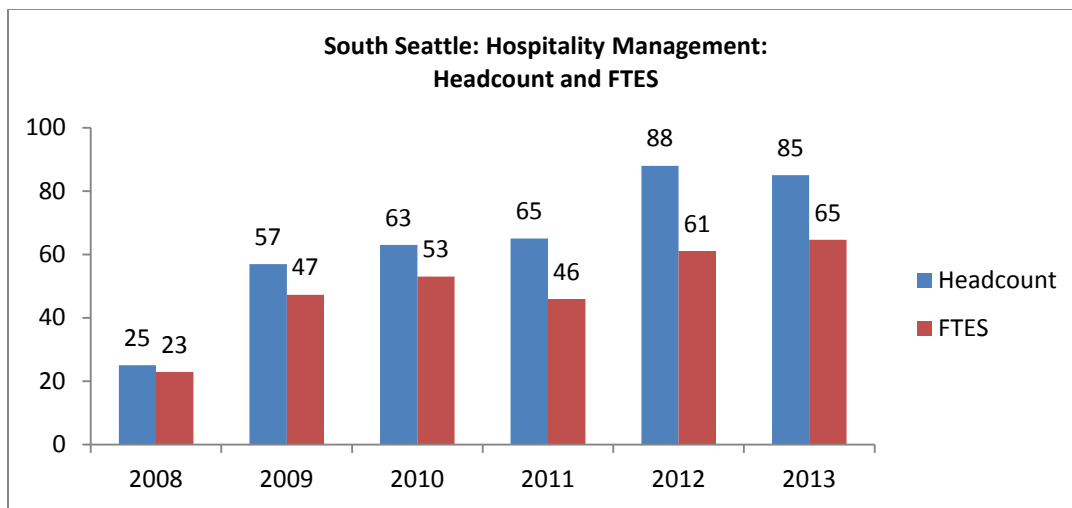


Figure 25

Race/Ethnicity	2008	2009	2010	2011	2012	2013
Asian/Pacific Islander	15%	15%	19%	19%	19%	21%
African American	15%	11%	8%	15%	14%	14%
Native American	5%	2%	6%	6%	3%	3%
Hispanic	15%	11%	4%	4%	1%	1%
Other, multi-racial	0%	0%	0%	2%	1%	0%
White	50%	62%	63%	56%	62%	61%
Gender						
Female	72%	63%	63%	63%	58%	56%
Male	28%	37%	37%	37%	42%	44%
Average age	34	32	30	28	30	32
Prior education						
Associate Degree from WA CTC	36%	53%	65%	62%	59%	49%
Associate from other institution	16%	16%	8%	8%	13%	11%
Bachelor's degree or higher	12%	12%	13%	14%	8%	11%
Other	36%	19%	14%	17%	20%	29%
Total headcount	25	57	63	65	88	85

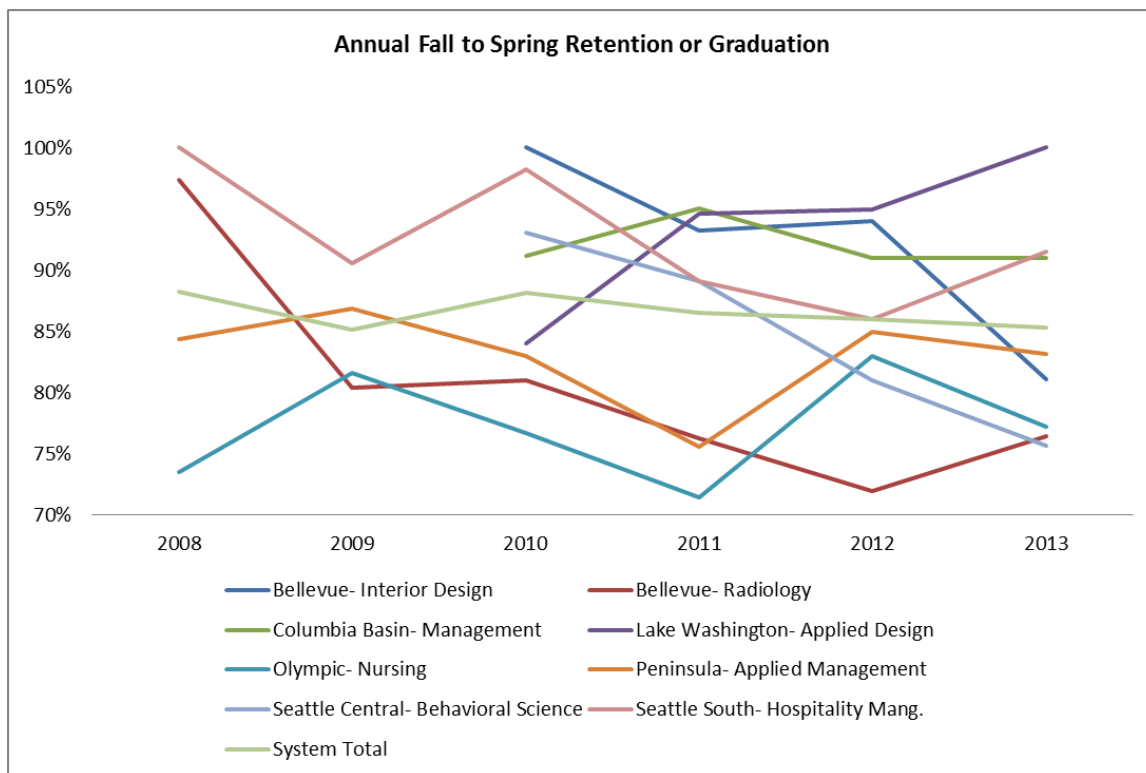
Section Three: Retention and Graduations

With some programs beginning in 2007, colleges began graduating students with applied baccalaureate degrees in 2010 (Figure 26). The number of graduates each year continues to grow, due in part to high retention rates throughout the programs. As show in Figure 27, each year colleges retain or graduate an average of 86% of their fall enrollment by the end of the academic year. Centralia College, who started their first program in Applied Management in 2012, had a 100 percent retention rate for the year.

Figure 26 Graduates by Program

College	Program	2010	2011	2012
Bellevue	Applied Arts in Inter. Design	0	39	38
	Radiology and Imaging Sciences	12	10	13
Columbia Basin	Management	0	23	17
Lake Washington	Applied Design	0	14	14
Olympic	Nursing	6	7	27
Peninsula	Applied Management	14	10	14
Seattle Central	Behavioral Science	0	16	16
Seattle South	Hospitality Management	20	22	21
System Total		52	141	160

Figure 27



Section Four: Employment and Earning of Applied Baccalaureate Degree Completers

Graduates from 2010 and 2011 were matched for employment rates as of seven quarters (two years) after completing their programs. The total employment rate for BAS graduates is 82%, with Columbia Basin having a 100 percent employment rate. The median annualized earnings for all BAS graduates is \$32,253, with the highest earners coming from Bellevue’s Radiology program (\$85,936) and the lowest from Lake Washington’s Applied Design program (\$25,631).

Figure 28 Employment Rate and Earnings 7 Quarters after Graduation

	Graduates	Number Employed within 2 Years	Percent Employed	Median Adjusted Earnings
Bellevue- Interior Design	27	21	78%	\$29,528
Bellevue- Radiology	21	17	81%	\$85,936
Columbia Basin- Management	17	17	100%	\$40,298
Lake Washington- Applied Design	13	11	85%	\$25,631
Olympic- Nursing	13	10	77%	\$49,857
Peninsula- Applied Management	22	21	95%	\$27,420
Seattle Central- Behavioral Science	11	8	73%	*
Seattle South- Hospitality Mang.	39	28	72%	\$27,431
Total	163	133	82%	\$32,253
Average Annual Wages				\$39,951
<i>*Redacted due to group size</i>				

Graduates who were employed at the time of graduation were also evaluated for increases in median earnings seven quarters following their last quarter enrolled. For the graduates who had both pre and post earnings (Interior Design, Applied Management, Hospitality Management, Management, and Radiology), the earnings gain was \$8,495 (26 percent), including a 48 percent increase for Bellevue’s Interior Design program.

Figure 29 Earnings at Graduation and Two Years Following Graduation

	Graduates	Median Annualized Earnings at Graduation	Median Annualized Earnings 7 Quarters After Graduation	Percent Increase in Earnings
Bellevue- Interior Design	17	\$15,319	\$29,388	48%
Peninsula- Applied Management	12	\$17,691	\$30,594	42%
Seattle South- Hospitality Mang.	25	\$17,563	\$27,965	37%
Columbia Basin- Management	14	\$31,630	\$39,239	19%
Bellevue- Radiology	11	\$67,042	\$82,934	19%
Total	79	\$23,753	\$32,248	26%