

Growing Enrollment in Precalculus and Calculus Courses

“Lack of math attainment is a key barrier to students’ ability to complete job training and academic degree programs. Math is a particular roadblock to academic success and higher lifetime earnings for students of color and students from low income families – the students whose needs are most often left unmet by traditional structures and practices.”

— 2015 Math Strategic Plan

Precalculus and Calculus

Math can be a barrier for students in general. Upper level math courses like precalculus and calculus can be a particular barrier for students interested in pursuing STEM courses and programs. The purpose of this issue brief is to help explain recent enrollment growth in precalculus and calculus courses to help identify strategies that are effectively helping students to overcome this barrier. This brief focuses on enrollment growth because course completion rates have remained fairly consistent, meaning that more students are completing precalculus and calculus courses primarily because more students are enrolling in these courses.

Growing Enrollment

While general CTC enrollment has been declining, annual CTC precalculus and calculus course enrollments have increased by 29% (11,056 course enrollments) over the last five school years, 2010-11 to 2014-15.

	2010-11	2011-12	2012-13	2013-14	2014-15	5yr change	% change
Precalculus Course	22,072	22,981	23,809	25,865	27,612	5,540	25%
Calculus Courses	16,263	17,120	18,298	20,131	21,779	5,516	34%
Total	38,335	40,101	42,107	45,996	49,391	11,056	29%

A significant portion of the growth in precalculus/calculus course enrollments was among student groups who are more likely to come to college academically prepared for precalculus/calculus courses. Precalculus/calculus enrollment growth for these student groups can be explained by more of these students enrolling at the CTCs in general.

	2010-11	2011-12	2012-13	2013-14	2014-15	5yr change	% change
Dual Enroll High School Students*	8,168	7,778	8,437	11,216	13,161	4,993	61%
International Students	3,796	4,479	5,737	6,810	7,750	3,954	104%
Total	11,964	12,257	14,174	18,026	20,911	8,947	75%

*Dual Enroll High School Students includes Running Start, College in the High School, and Alternative High School students



For information about this research paper contact:
 Devin Dupree, policy research associate
 Phone: 360-704-4384 | email: ddupree@sbctc.edu

For the remaining students*, enrollment growth in precalculus/calculus courses was slower overall and much slower for students who also took a precollege math course. Although growth was slower for students starting in a precollege math course, note that a large number of precalculus/calculus students did start out in precollege math.

	2010-11	2011-12	2012-13	2013-14	2014-15	5yr change	% change
Took a precollege math course	13,940	14,099	14,040	14,356	14,256	316	2%
Did not take any precollege math	12,431	13,745	13,893	13,614	14,224	1,793	14%
Total	26,371	27,844	27,933	27,970	28,480	2,109	8%

*counts exclude Dual Enroll High School students and international students

Underrepresented Minority Students

The large majority of precalculus/calculus enrollment growth among the remaining students* was due to significant growth for underrepresented minority students (students identifying as American Indian or Alaska Native, Black or African American, Hispanic or Latino, and/or Native Hawaiian or Pacific Islander).

	2010-11	2011-12	2012-13	2013-14	2014-15	5yr change	% change
Underrepresented minority students	3,754	4,136	4,651	5,161	5,563	1,809	48%
Other students	22,617	23,708	23,282	22,809	22,917	300	1%
Total	26,371	27,844	27,933	27,970	28,480	2,109	8%

*counts exclude Dual Enroll High School students and international students

Underrepresented minority students also showed a larger percent change in precalculus/calculus enrollment among the dual enrollment high school students.

	2010-11	2011-12	2012-13	2013-14	2014-15	5yr change	% change
Dual enroll HS*: Underrepresented minority students	592	725	807	1,140	1,461	869	147%
Dual Enroll HS*: Other students	7,576	7,053	7,630	10,076	11,700	4,124	54%
Total	8,168	7,778	8,437	11,216	13,161	4,993	61%

*Dual Enroll High School Students includes Running Start, College in the High School, and Alternative High School students

Almost one third of the precalculus/calculus enrollment growth for all underrepresented minority students was from the six colleges with MESA programs.

	2010-11	2011-12	2012-13	2013-14	2014-15	5yr change	% change
Columbia Basin	277	351	383	325	382	105	38%
Edmonds	285	294	327	309	391	106	37%
Highline	249	249	290	299	294	45	18%
Olympic	227	269	323	290	339	112	49%
Seattle Central	214	223	267	337	381	167	78%
Yakima Valley	49	198	246	236	277	228	465%
Total	1,301	1,584	1,836	1,796	2,064	763	59%

Several other colleges also experienced significant enrollment growth for underrepresented minority students. Here are six of the other colleges with the highest enrollment growth for underrepresented minority students.

	2010-11	2011-12	2012-13	2013-14	2014-15	5yr change	% change
Bellevue	396	388	483	675	747	351	89%
Big Bend	30	28	38	123	186	156	520%
Everett	165	269	338	474	590	425	258%
Green River	236	273	301	324	348	112	47%
South Puget Sound	66	115	138	197	180	114	173%
Tacoma	231	229	231	276	329	98	42%
Total	1,124	1,302	1,529	2,069	2,380	1,256	81%



For information about this issue brief contact:
 Phone: 360-704-4384 | email: ddupree@sbctc.edu