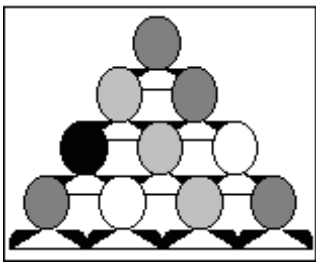

Research Report
No. 09-5

Washington State Board for Community and Technical Colleges

ROLE OF PRE-COLLEGE (DEVELOPMENTAL AND REMEDIAL) EDUCATION FOR RECENT HIGH SCHOOL GRADUATES ATTENDING WASHINGTON COMMUNITY AND TECHNICAL COLLEGES

SYSTEM SUMMARY FOR STUDENTS ENROLLED IN 2008-09

December 2009

Key Findings

- Fifty-four (54) percent of community and technical college students who graduated from high school in 2008 took pre-college (also known as remedial) classes in 2007-08. These students – totaling 13,328 – enrolled in pre-college math, English or reading.
- Forty-eight (48) percent of community and technical college students who graduated from high school in 2008 took pre-college math courses, up two percent from 2007.
- Twenty-nine (29) percent of 2008 high school graduates enrolled in the community and technical colleges in 2008-09 took no math or other quantitative reasoning courses during their first year of college and had no record of previously completing the math required for an associate degree. Colleges are implementing strategies to ensure that more students take math early in their time at college.
- Within three years of high school graduation, about half (45 percent) of all high school graduates have enrolled at a community or technical college in Washington. More than a third (35 percent) of high school graduates enroll immediately in community and technical colleges, and an additional 10 percent enroll within one or two years after high school graduation.

This report provides system-level summary highlights of pre-college course-taking behavior of high school graduates who attended a community or technical college in the year following graduation, and of those who delayed enrollment at the college for one or two years after high school graduation. The report contains information on these enrollment trends as required by RCW 28B.10.685. The report also describes the expenditures for pre-college courses.

SBCTC
WASHINGTON STATE BOARD FOR COMMUNITY & TECHNICAL COLLEGES

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College-Going Pattern of High School Graduates

Thirty-seven (37) percent of Washington's new high school graduates enrolled at community or technical colleges in the year following high school[1]. About another 5 percent enter a community or technical college after waiting a year or two and another 5 percent reverse the transfer pattern by first attending a four-year or out-of-state college and then transfer to a community or technical college within a year or two of high school graduation.

Public and Private High School Graduates
Going Straight to Community and Technical Colleges*

	2004	2005	2006	2007	2008
Statewide Graduates					
Public & Private High Schools	65,417	65,408	64,673	67,137	66,259
Statewide Graduates Enrolled in CTCs	24,131	23,724	24,127	23,561	24,792
% of Statewide Graduates Enrolled in CTCs	37%	36%	37%	35%	37%

* Most enter in summer or fall after high school

Statewide Trends in Pre-College Course Taking of Students who Enroll in Community and Technical Colleges Directly out of High School

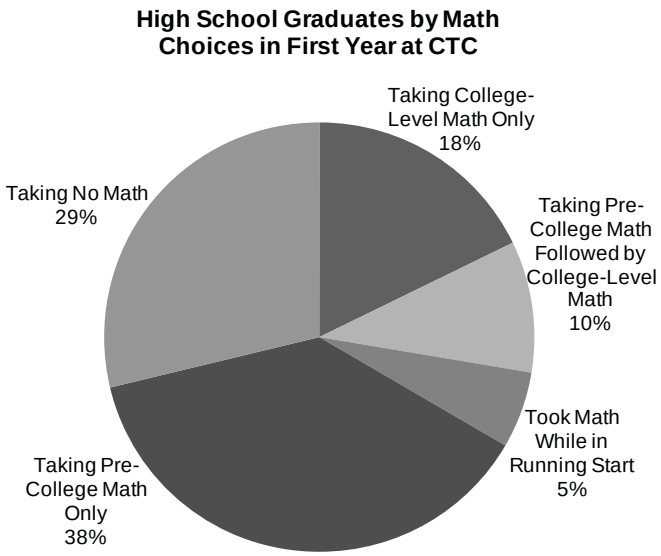
The percentage of recent high school graduates taking pre-college courses has grown slightly in the most recent year, primarily because of an increase in the percentage of students taking pre-college math.

Pre-College Course Enrollments by CTC Students
Attending Immediately After High School

	2004-05	2005-06	2006-07	2007-08	2008-09
Pre-College Math	11,439	10,855	10,970	11,071	11,830
% Taking Pre-College Math	47%	46%	45%	46%	48%
Pre-College Writing	4,471	4,083	3,964	4,075	4,372
% Taking Pre-College Writing	19%	17%	16%	17%	18%
Pre-College Reading	2,561	2,254	2,353	2,336	2,415
% Taking Pre-College Reading	11%	10%	10%	10%	10%
Any Pre-College Course	13,098	12,328	12,468	12,486	13,328
% Taking Any Pre-College	54%	52%	52%	53%	54%

[1] Students are classified as recent high school graduates by both self identification and a data probability match to the most recent graduating class of high school students. The probability match is needed because students who participate in high school and college dual enrollment programs do not always change their graduation status when returning as a college student. Beginning in 2008-09, the source of secondary data became more reliable as new technologies were obtained. Reports done prior to that year may have slightly over-counted the number of graduates enrolled.

Math Enrollment in First Year of College: Most certificate programs and all associate degrees require completion of a college-level math or quantitative reasoning course. Researchers find that students are most likely to complete their college program if they successfully complete either the highest level of pre-college math or a college-level math course during their first year of college. More than one quarter (29 percent) of 2008 high school graduates took no math of any kind in their first year of college.



Fall Pre-College Course Taking Pattern by Race/Ethnicity

	2006			2007-08			2008-09		
	Enrolled	Taking Any Pre-College	Taking Pre-College Math	Enrolled	Taking Any Pre-College	Taking Pre-College Math	Enrolled	Taking Any Pre-College	Taking Pre-College Math
Asian/ Pacific Islander	1,873	943	761	1,900	918	707	1,926	901	690
Percent[*]	10.5%	50.3%	40.6%	10.7%	48.3%	37.2%	10.3%	46.8%	35.8%
African American	839	443	360	897	500	396	875	472	374
Percent	4.7%	52.8%	42.9%	5.0%	55.7%	44.1%	4.7%	53.9%	42.7%
Native American	473	239	195	441	227	194	496	249	199
Percent	2.7%	50.5%	41.2%	2.5%	51.5%	44.0%	2.6%	50.2%	40.1%
Hispanic	1,601	879	690	1,699	968	741	1,959	1,172	937
Percent	9.0%	54.9%	43.1%	9.5%	57.0%	43.6%	10.4%	59.8%	47.8%
Other	295	142	106	304	152	115	305	140	113
Percent	1.7%	48.1%	35.9%	1.7%	50.0%	45.2%	1.6%	45.9%	37.0%
White	13,438	6,012	5,119	13,268	5,998	5,146	14,030	6,186	5,313
Percent	75.4%	44.7%	38.1%	74.6%	45.2%	38.8%	74.7%	44.1%	37.9%

[*]*For "Enrolled", percent represents percent of total students enrolled, for others, percent represents percent of ethnicity taking pre-college (either any or math).*

Variation by Demographic Characteristics: Female and students of color high school graduates are more likely than males and whites to enroll in pre-college courses. Over time, a smaller percentage of Asian and white students are taking pre-college courses, including math. A higher percentage of Hispanic students are taking pre-college courses.

Pre-College Course Taking by Gender

Fall 2008

	Females	**Males**
Enrolled	10,142	9,383
% of Total Enrolled	52%	48%
Taking Any Pre-College	6,142	5,048
% of Enrolled Taking Any Pre-College	61%	54%
Taking Pre-College Math	4,189	3,434
% of Enrolled Taking Any Pre-College Math	41%	37%

College-to-College Variation: Fifty-two (52) percent of 2008 high school graduates enrolled at the community and technical colleges took one or more pre-college courses in their first year of attendance. The rate of pre-college course taking at community colleges ranges from a low of 38 percent at Pierce College, Fort Steilacoom, to 71 percent at Tacoma Community College. Several technical colleges have a lower rate, reflecting the small percentage of high school graduates attending and the nature of the technical programs taken by those high school graduates.

Number of 2008 High School Graduates Attending College

Number and Percent Enrolled in Pre-College Courses

2008-09

College	Public and Private High School Graduates Enrolled	Taking at Least 1 Pre-College Course	% in Pre-College Courses	Taking Pre-College Math	% Taking Pre-College Math
Bates	225	57	25%	48	21%
Bellevue	2,073	869	42%	670	32%
Bellingham	221	60	27%	49	22%
Big Bend	355	236	66%	219	62%
Cascadia	614	324	53%	322	52%
Centralia	454	190	42%	182	40%
Clark	1,764	999	57%	905	51%
Clover Park	323	150	46%	141	44%
Columbia Basin	1,145	701	61%	636	56%
Edmonds	1,039	625	60%	596	57%
Everett	1,140	682	60%	555	49%
Grays Harbor	342	240	70%	188	55%
Green River	1,355	678	50%	641	47%
Highline	951	429	45%	370	39%
Lake Washington	194	107	55%	105	54%
Lower Columbia	464	249	54%	220	47%
Olympic	1,080	641	59%	597	55%
Peninsula	292	154	53%	145	50%
Pierce Fort Steilacoom	844	319	38%	254	30%
Pierce Puyallup	812	388	48%	331	41%
Renton	215	21	10%	21	10%
Seattle Central	612	262	43%	240	39%
Seattle North	305	124	41%	106	35%
Seattle South	391	174	45%	159	41%
Seattle Voc Institute	24		na		na
Shoreline	772	345	45%	323	42%
Skagit Valley	724	423	58%	388	54%
South Puget Sound	1,009	554	55%	508	50%
Spokane	813	423	52%	382	47%
Spokane Falls	1,434	784	55%	702	49%
Tacoma	915	650	71%	515	56%
Walla Walla	399	178	45%	167	42%
Wenatchee Valley	594	371	62%	329	55%
Whatcom	837	516	62%	498	59%
Yakima Valley	791	515	65%	403	51%
System Total*	24,792	13,328	54%	11,830	48%

*Each student counted only once even though they may have enrolled at two or more colleges during the year.

Pre-College Math: Students entering college with skills below the college-readiness level must take pre-college math courses before starting on their required math sequence in college. The number of recent high school students taking pre-college math is high – 11,830 students in 2008-09. Major efforts are currently underway to ensure that students who graduate from high school are better prepared and ready for college math, and to ensure that students who do take pre-college math will go on to successfully complete college-level math courses.
Six of Washington's colleges are currently participating in the Achieving the Dream initiative to help more community college students succeed, particularly among student groups that traditionally have faced significant barriers to success. One of the goals of the initiative is to help these students advance from remedial to credit-bearing courses. Additional information can be found at http://www.achievingthedream.org.

The Gates Foundation provided grant funding to Washington's community and technical college system to develop and support a coalition of colleges willing to commit to improving student math achievement by making substantive changes in core educational practices and teacher beliefs and behaviors in their pre-college math programs. The effort builds on and extends the successes of lessons learned from the Transition Math Project (TMP), shifting the focus of the intervention from high schools to the pre-college math programs in Washington's community and technical colleges. Information about the TMP can be found at http://www.transitionmathproject.org.

The Transition Math Project, started in 2004, is a joint effort of K-16 leaders to define college-readiness standards in math and to align curriculum, instruction, and assessment more effectively so that more students leaving high school will be prepared for college-level work in math. These standards for math at community and technical colleges and baccalaureate institutions (http://www.transitionmathproject.org/standards.asp) clarify the foundation of math knowledge and skills students need to be successful in entry-level college math courses.

Through sixteen cross-sector partnerships in regions all around Washington, the Transition Mathematics Project is developing model products and promising practices to help high school students gain the knowledge and skills needed for college math – to meet the College Readiness Standards. One such effort, Project TIME, in South King County has developed a new Senior Math Course (http://www.instruction.greenriver.edu/projecttime/). Other projects are focused on developing models for math teacher professional development, integrating the standards with applied math in career technical education contexts, and public outreach to students and parents about the importance of math preparation for students' next steps beyond high school.

Current College Readiness Standards are above the statewide minimum math requirements for high school graduation in Washington State. Providing greater clarity to teachers, students, and parents about these expectations can address the long-term goals of the Transition Math Project to increase students' math course-taking in high school and reduce the level of pre-college course-taking once in college. Part of the effort to provide more clarity involves the development of a new College Readiness Math Test based on the standards. This test provides a clear and consistent performance target for math college readiness across the state.

Pre-college courses do not apply to the student's degree credits and may extend the time needed to earn a college degree. College students have different college-level math sequences depending on their future major. The following are examples of these different choices:

College plans	Transfer to Business Major	Transfer to Elementary Education Major	Transfer to Engineering	Transfer to Nursing
1st year math	Finite math, Calculus for Business, Statistics	2-3 course math series designed for educators	Pre-calculus and calculus	Statistics

While pre-college course-taking extends the time and cost of college, most students who take pre-college math courses do achieve their academic goals. They successfully complete the pre-college courses and move on to complete their degrees or certificates. A study of recent baccalaureate graduates found that 48 percent of those who started at the community and technical colleges straight from high school had taken a pre-college course, most often math. Those students graduated at high rates in all major fields, and with senior-year GPAs comparable to students who did not take pre-college courses, and to students who started at the university (2.95 for younger college transfers with pre-college courses, 3.03 for younger transfers without pre-college courses, and 2.98 for direct-entry students). The latest report suggests that among community and technical college transfers to four-year institutions, 62 percent started at a remedial level and progressed to college level courses and a baccalaureate degree. Large numbers of college students transfer in all majors, including majors that rely on strong math skills such as STEM (35 percent) and business (50 percent)[2].

High school graduates enrolled with a transfer goal were more likely than those enrolled for workforce purposes to take pre-college math. Nearly two-thirds (66 percent) of the class of 2008 enrolled in the CTC system had a transfer goal. That group accounted for 71 percent of the high school graduates enrolled in pre-college math classes. The percentage of recent high school graduates with a workforce goal taking pre-college math increased substantially in 2008-09 as a result of increasing math expectations for workforce programs.

Pre-College Course Enrollments by Purpose for Attending their CTC

	2004-05	2005-06	2006-07	2007-08	2008-09
Transfer goal*	17,302	16,694	16,716	17,204	18,361
Pre College Math	8,795	8,225	8,354	8,679	9,101
% Taking Pre-College Math	51%	49%	50%	50%	50%
Workforce goal*	9,408	9,225	9,074	9,084	9,459
Pre College Math	3,443	3,338	3,214	3,177	3,650
% Taking Pre-College Math	37%	36%	35%	35%	39%

* Graduates may be enrolled for both a workforce and transfer goal in the same year.

Pre-College Writing and Reading: Statewide, 18 percent of recent high school graduates take pre-college writing and 10 percent take pre-college reading at a community or technical college

[2] Stern, Paul, Pitman, Kirby and Pavelchek, Dave. *The Role of Transfer in the Attainment of Bachelor's Degrees at Washington Public Baccalaureate Institutions, Class of 2006.* Washington State University, Social & Economic Sciences Research Center-Puget Sound Division, June 2009.

before taking college-level English courses. Teachers in K-12 and faculty at colleges and universities are in the process of finalizing college-readiness standards related to English writing and reading. Draft standards are available at: http://www.learningconnections.org/clc/hecb.htm.

Statewide Trends in Pre-College Course Taking of Students Who Delayed Entering College for One or Two Years After High School

RCW 28B.10.685 requires the State Board to report on the course-taking pattern for high school graduates from the past three years. While many high school students attend community or technical colleges in the year immediately after high school, others start initially at a university and enter a community college a year or two after high school (reverse transfer). A smaller number of high school graduates do not start at a university but wait one to two years to attend college.

As shown in the table below, these students who attend community and technical colleges with a delay of one or two years after high school graduation are less likely to enroll in a pre-college course. The majority of those who do take pre-college courses take math. The students who delay coming to college and who have no prior postsecondary education (either at a two-year or four-year institution) enroll in pre-college courses in patterns very similar to students who come directly out of high school as seen on page 7.

In 2008-09, twenty three (23) percent of students who entered college after a delay following high school and who had no prior post-secondary education were enrolled to prepare for transfer. More than half (52%) of the students in this group took at least one pre-college course.

Nineteen (19) percent of students who entered college after a delay following high school and who had no prior post-secondary education were enrolled to obtain workforce degrees and certificates. In 2008-09, thirty-seven (37) percent of these students enrolled in at least one pre-college course.

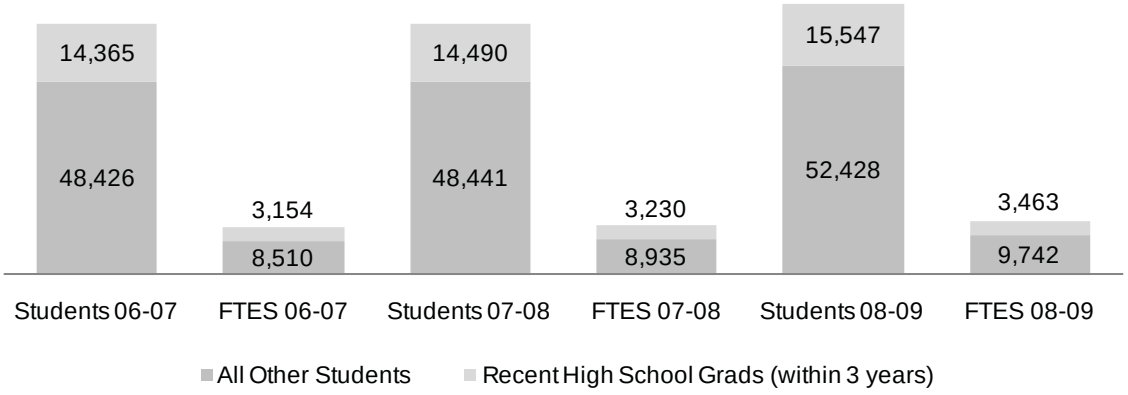
Statewide Trends in Pre-College Course Taking for Students Who Delayed Enrollment at CTCs for 1 or 2 Years after High School

	2004-05	2005-06	2006-07	2007-08	2008-09
1 or 2 Years Later to CTC	5,965	6,234	6,559	6,854	7,553
% of Prior Year Graduates	9%	10%	10%	10%	11%
Took Pre-College Math	1,515	1,586	1,671	1,730	1,893
% Taking Pre-College Math	25%	25%	25%	25%	25%
Took Pre-College Writing	517	536	467	552	598
% Taking Pre-College Writing	9%	9%	7%	8%	8%
Took Pre-College Reading	320	283	267	297	346
% Taking Pre-College Reading	5%	5%	4%	4%	5%
Any Pre-College Course	1,766	1,832	1,897	1,987	2,219
% Taking Any Pre-College	30%	29%	29%	29%	29%

Expenses for Pre-College Course Taking

Total Pre-College Course Taking and Recent High School Graduates: Most of the students in pre-college courses (77 percent) are older students who have been out of high school for at least three years before enrolling in their pre-college class. When taking pre-college courses, older students take slightly fewer courses over the year than recent high school graduates such that older students account for 74 percent of the total pre-college FTE.

Students and FTES in pre-College Courses By Recent High School and All Other 2006-07 to 2008-09



Expenditures Related to Pre-College Course Taking: In 2008-09 colleges spent on average $4,890 per FTE for pre-college courses. Thus the expenditure for recent high school graduates (those attending directly after high school or within three of years of graduation) in pre-college courses was $17.2 million (3,463 FTE at $4,890 per FTE). The cost for all pre-college course work was $65.8 million. The funding for these expenditures comes from the state general fund plus the same tuition per course paid by students as they pay for college-level courses.