

## **Research Report No. 07-2**

**Washington State Board for Community and  
Technical Colleges**

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# **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 2006-07**

December 2007

### **Key Findings**

- Fifty-two (52) percent of community and technical college students who graduated from high school in 2006 took pre-college (also known as remedial) classes in 2006-07. These students – totaling 12,468 – enrolled in pre-college math, English or reading.
- Forty-five (45) percent of community and technical college students who graduated from high school in 2006 took pre-college math courses.
- Thirty-four (34) percent of 2006 high school graduates enrolled in the community and technical colleges in 2006-07 took no math or other quantitative reasoning course 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 assure that more students take math early in their time at college.
- Within three years of high school graduation, about half (47 percent) of all high school graduates have enrolled at a community or technical college in Washington. Each year about 37 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 information on these enrollment trends as required by RCW 28B.10.685. This system summary highlights the high school graduates who attended a community or technical college in the year following graduation (Part A and B). Part C provides information on the students who delayed enrollment at the college for one or two years after high school graduation. Part D describes the expenditures for pre-college courses.



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**Part A**  
**College Going Pattern of High School Graduates**

Each year about 37 percent of Washington’s new high school graduates enroll at community or technical colleges in the year following high school<sup>1</sup>. About 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\***

	2003	2004	2005	2006
Statewide Graduates				
Public & Private High Schools	64,097	64,857	64,000	64,971
Enrolled (estimates 2001 to 2003)	24,679	24,131	23,724	24,127
% of Statewide Graduates	39%	37%	37%	37%

\* Most enter in summer or fall after high school

**Part B**  
**Statewide Trends in Pre-College**  
**Course Taking at Community and Technical Colleges**

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

	2003-04	2004-05	2005-06	2006-07
Pre-College Math	11,507	11,439	10,855	10,970
% Taking Pre-College Math	47%	47%	46%	45%
Pre-College Writing	4,676	4,471	4,083	3,964
% Taking Pre-College Writing	19%	19%	17%	16%
Pre-College Reading	2,579	2,561	2,254	2,353
% Taking Pre-College Reading	10%	11%	10%	10%
Any Pre-College Course	13,190	13,098	12,328	12,468
% Taking Any Pre-College	53%	54%	52%	52%

<sup>1</sup> Due to less comprehensive checks for high school graduates at college, the **Washington State Graduate Follow-up Study: Class of 2005 All Graduates First Year after Graduation - Statewide Results** <http://www.sesrc.wsu.edu/gfs/pdfpapers/Class2005Y1AllGrads.pdf> reports a substantially lower rate of high school graduates attending the CTCs. That study, based on data for about two-thirds of high school graduates, found that 29 percent of public high school graduates attended private career schools and community and technical colleges (from the class of 2005). That is an estimated 18,300 students participating in private and public two-year institutions, substantially less than the 23,724 shown in this report for the 2005-06 college year at the public community and technical colleges alone.

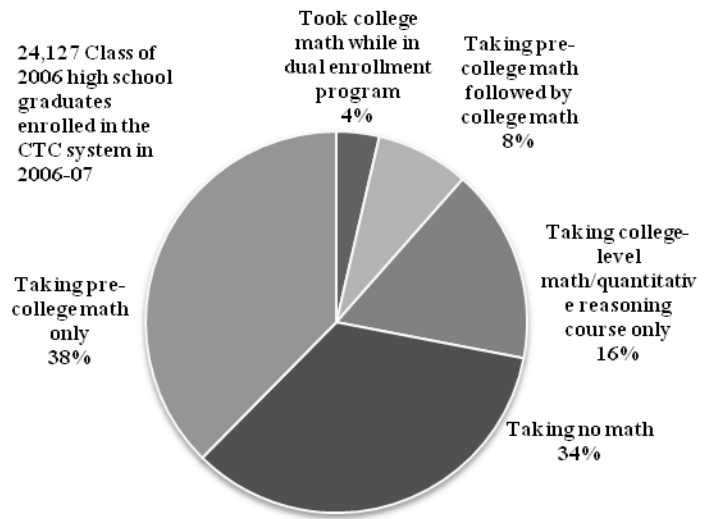
**Math Enrollment in First Year of College:**

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 courses during their first year of college.

While 66 percent of community and technical college students from the class of 2006 either already had completed math in their dual enrollment program or were completing math classes during the first year after high school, 34 percent of high school graduates took no math of any kind during the first year at college.

**High School Graduates by Math Choices in First Year at CTC**



**Variation by Demographic Characteristics:**

Female and students of color high school graduates are slightly more likely than males and whites to enroll in pre-college courses.

**Pre-College Course Taking Pattern by Demographic Characteristics**

	Females	Males	Asian/ Pacific Islander	African American	Native American	Latino	Other Race	White
Enrolled	12,587	11,463	2,394	1,151	631	2,159	543	17,090
% of Total Enrolled	52%	48%	10%	5%	3%	9%	2%	71%
In Any Pre-College	6,790	5,658	1,338	678	327	1,323	294	8,605
% Taking Any Pre-College	54%	49%	56%	59%	52%	61%	54%	50%
In Pre-College Math	6,035	4,905	1,125	584	286	1,113	248	7,706
% Taking Pre-College Math	48%	43%	47%	51%	45%	52%	46%	45%

**College-to-College Variation:** Some 52 percent of 2006 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 39 percent at Centralia College to 67 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 2006 High School Graduates Attending College  
Number and Percent Enrolled in Pre-College Courses – 2006-07**

<b>College</b>	<b>Public and Private High School Graduates Enrolled</b>	<b>Taking at Least 1 Pre- College Course</b>	<b>% in Pre- College Courses</b>	<b>Taking Pre-College Math</b>	<b>% Taking Pre-College Math</b>
Bates	319	113	35%	75	24%
Bellevue	2,014	860	43%	677	34%
Bellingham	180	11	6%	8	4%
Big Bend	343	223	65%	196	57%
Cascadia	507	245	48%	239	47%
Centralia	446	172	39%	157	35%
Clark	1,546	888	57%	773	50%
Clover Park	302	153	51%	137	45%
Columbia Basin	991	542	55%	471	48%
Edmonds	1,147	663	58%	596	52%
Everett	1,102	653	59%	523	47%
Grays Harbor	327	201	61%	161	49%
Green River	1,314	684	52%	637	48%
Highline	902	432	48%	379	42%
Lake Washington	288	140	49%	135	47%
Lower Columbia	419	225	54%	190	45%
Olympic	1,052	592	56%	554	53%
Peninsula	307	120	39%	111	36%
Pierce / Fort Steilacoom	710	388	55%	351	49%
Pierce / Puyallup	631	333	53%	286	45%
Renton	214	6	3%	4	2%
Seattle Central	634	277	44%	259	41%
Seattle North	416	201	48%	186	45%
Seattle South	429	181	42%	161	38%
Seattle Voc Institute	116	66	57%	66	57%
Shoreline	865	379	44%	346	40%
Skagit Valley	685	367	54%	338	49%
South Puget Sound	922	447	48%	399	43%
Spokane	794	435	55%	399	50%
Spokane Falls	1,475	755	51%	690	47%
Tacoma	936	628	67%	518	55%
Walla Walla	360	195	54%	182	51%
Wenatchee Valley	552	353	64%	298	54%
Whatcom	731	453	62%	427	58%
Yakima Valley	819	460	56%	373	46%
System Total*	24,127	12,468	52%	10,970	45%

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

**Pre-College Math:** The number of recent high school students taking pre-college math is high – some 10,970 students in 2006-07. While the percentage of these students taking pre-college math has declined slightly in recent years, due in part to increased attention to the issue in school districts all across the state, more improvement is needed and is possible given the array of efforts underway attempting to address the problem.

One major effort is the Transition Math Project, 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 more 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. More information about these partnerships can be found at [http://www.transitionmathproject.org/partners/local\\_partnerships.asp](http://www.transitionmathproject.org/partners/local_partnerships.asp).

Because the 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 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 will provide a clear and consistent performance target for math college readiness across the state and is slated to be available to high school juniors and seniors beginning in fall 2009. For more information about this work see [http://www.transitionmathproject.org/highlights/math\\_placement.asp](http://www.transitionmathproject.org/highlights/math_placement.asp).

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. These 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
1 <sup>st</sup> 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 CTC transfers with pre-college course, 3.03 for younger CTC transfers without pre-college courses, and 2.98 for direct-entry students).

High school graduates enrolled with a transfer goal were more likely than those enrolled for workforce purposes to take pre-college math. While 69 percent of the class of 2006 enrolled in the CTC system had a transfer goal, that group accounted for 80 percent of the high school graduates enrolled in pre-college math classes. The math expectations for students with a workforce goal have grown in recent years, thus a significant proportion of workforce student (between 44 and 46 percent) also enroll in pre-college math.

**Pre-College Course Enrollments by Purpose for Attending their CTC**

	2003-04	2004-05	2005-06	2006-07
Transfer goal*	17,863	17,302	16,694	16,716
Pre College Math	9,367	9,303	8,743	8,804
% Taking Pre-College Math	52%	54%	52%	53%
Workforce goal*	9,285	9,408	9,225	9,074
Pre College Math	4,260	4,289	4,130	3,997
% Taking Pre-College Math	46%	46%	45%	44%

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

**Pre-College Writing and Reading:** Statewide, 16 percent of recent high school graduates take pre-college writing at a community or technical college before taking college-level writing courses. Statewide, 10 percent of recent high school graduates take pre-college reading classes at a community or technical college. 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. The draft standards are available at: <http://www.learningconnections.org/clc/hecb.htm>.

**Part C**  
**Statewide Trends in Students Who Delayed Entering College for**  
**One or Two Years After High School Enrollment in Pre-College Courses**

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, some who start at a university enter a community college a year or two after high school (reverse transfer) and a smaller number of high school graduates wait one to two years to attend college. Students who attend community and technical colleges with a delay of one or two years after high school graduation include:

- Twenty-one (21) percent who had not attended college immediately after high school and now were enrolled to prepare for transfer. Half of that group (54 percent) took at least one pre-college course.
- Twenty-four (24) percent who had not attended college immediately after high school and enrolled in two-year colleges for short-term programs such as workforce certificates not requiring college-level skills in math. Two-thirds of these students (67 percent) do not take pre-college courses.
- About half (54 percent) started at a Washington baccalaureate institution or out-of state college or university and transferred in with some credits already earned. These students may have already completed college-level math and English courses. Most students in this group (81 percent) do not take pre-college courses.

The high school graduates who take a year off from school before attending a community or technical colleges and who plan to transfer enroll in pre-college courses in a pattern that mirrors the students who come directly from high school (Part B). The other delayed-entry high school graduates are less likely to enroll in pre-college courses.

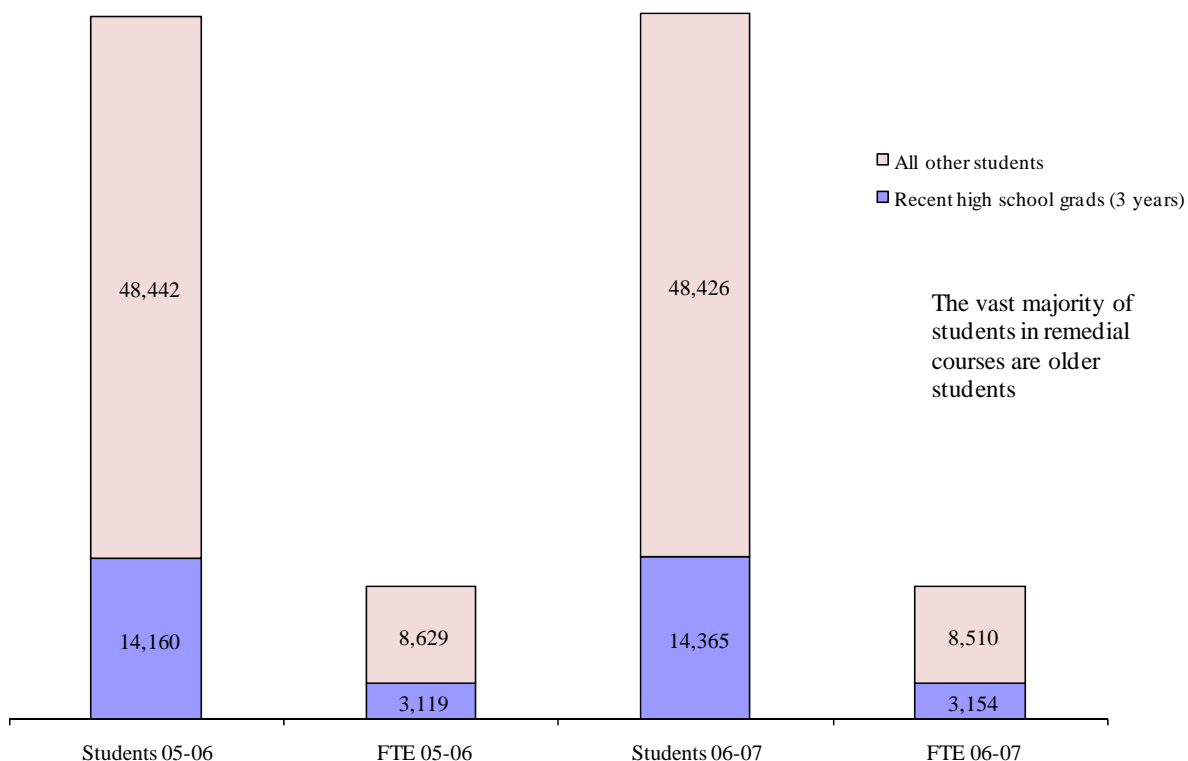
**Statewide Trend in Pre-College Course Taking for Students Who Delayed Enrollment at**  
**CTCs for 1 or 2 Years after High School**

	<b>2003-04</b>	<b>2004-05</b>	<b>2005-06</b>	<b>2006-07</b>
<b>1 or 2 Years Later to CTC</b>	6,939	5,965	6,234	6,559
% of Prior Year Graduates	11%	9%	10%	10%
<b>Took Pre-College Math</b>	1,621	1,515	1,586	1,671
% Taking Pre-College Math	23%	25%	25%	25%
<b>Took Pre-College Writing</b>	532	517	536	467
% Taking Pre-College Writing	8%	9%	9%	7%
<b>Took Pre-College Reading</b>	325	320	283	267
% Taking Pre-College Reading	5%	5%	5%	4%
<b>Any Pre-College Course</b>	1,861	1,766	1,832	1,897
% Taking Any Pre-College	27%	30%	29%	29%

**Part D**  
**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 73 percent of the total pre-college FTE.

**Students and FTE in Pre-College Courses By Recent High School and All Other  
 2005-06 and 2006-07**



**Expenditures Related to Pre-College Course Taking:** In 2006-07, colleges spent on average \$5,563 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 \$17.5 million (3,154 FTE at \$5,563 per FTE). The cost for all pre-college course work was \$64.8 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.