



Research Report No. 06-1

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

PRE-COLLEGE (REMEDIAL) COURSE TAKING BY RECENT HIGH SCHOOL GRADUATES WHO ATTEND WASHINGTON COMMUNITY AND TECHNICAL COLLEGES

SYSTEM SUMMARY UPDATED FOR THE HIGH SCHOOL GRADUATING CLASS OF 2004, ENROLLED IN COLLEGE IN 2004-05

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Key Findings

- Fifty-four (54) percent of community and technical college students who graduated from high school in 2004 took pre-college (also known as remedial) classes in 2004-05. These students – totaling 13,098 – enrolled in pre-college math, English or reading.
- Forty-seven (47) percent of community and technical college students who graduated from high school in 2004 took pre-college math courses.
- Within three years of high school graduation, about half (47 to 49 percent) of all high school graduates have enrolled at a community or technical college in Washington. Each year about 37 to 39 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 and college-level expectations regarding math and English.



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Part A

College Going Pattern of High School Graduates

Each year some 37 to 39 percent of Washington's new high school graduates enroll at community or technical colleges in the year following high school. Another 28 percent of graduates go directly to baccalaureate institutions in Washington (20 percent) or enroll out of state in two-year or baccalaureate institutions (8 percent). 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.

College-Going Pattern for High School Classes of 1998 to 2004

	1998	1999	2000	2001	2002	2003	2004
Statewide Graduates							
Public & Private High Schools	57,650	57,900	59,400	60,700	61,900	64,100	64,900

Straight to Community and Technical Colleges After High School^{1*}

	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05
Enrolled (estimates 1999 to 2003)	22,400	22,600	22,800	24,300	23,580	24,679	24,131
% of Statewide Graduates	39%	39%	38%	40%	38%	39%	37%

* Most enter in summer or fall after high school

Most high school graduates enroll in a two-year college to prepare to transfer to a university. The number and portion of high school graduates attending with the goal of completing applied associate degrees and certificates is increasing each year. Last year 39 percent of the new high school graduates coming straight to the colleges enrolled with a workforce education goal.

High School Graduates Straight to Community and Technical Colleges By Goal

	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04 ²	2004-05
Transfer goal*	13,558	13,401	13,727	14,830	14,223	17,863	17,302
% graduates enrolled	79%	78%	79%	80%	79%	72%	72%
Workforce goal*	6,042	6,470	6,187	6,550	6,488	9,285	9,408
% graduates enrolled	35%	37%	35%	35%	36%	38%	39%

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

¹ Starting in 2004-05 SBCTC improved its data system regarding identification of recent high school graduates. In prior years the reported graduates represented about 76 percent of the actual number of high school graduates entering directly to the community or technical colleges. The 1998 through 2003 estimates were based on the number of graduates identified by the SBCTC data system: 1998-99: 17,123; 1999-00 17,261; 2000-01 17,441; 2001-02 18,587; 2002-03 18,022.

² In this and subsequent tables, the increase between 2002-03 and 2003-04 mostly reflects the improved data on enrolled high school graduates results for 2003-04 and 2004-05 years. There was about a 1 percent increase in actual high school graduates attending between the two years.

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

	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04 ³	2004-05
Pre-College Math	8,005	8,365	8,557	8,938	9,013	11,507	11,439
% Taking Pre-College Math	47%	48%	49%	48%	50%	47%	47%
Pre-College Writing	3,510	3,711	3,608	3,715	3,639	4,676	4,471
% Taking Pre-College Writing	20%	21%	21%	20%	20%	19%	19%
Pre-College Reading	1,657	1,792	1,779	1,832	1,781	2,579	2,561
% Taking Pre-College Reading	10%	10%	10%	10%	10%	10%	11%
Any Pre-College Course	9,252	9,648	9,817	10,219	10,232	13,190	13,098
% Taking Any Pre-College	54%	56%	56%	55%	57%	53%	54%

Pre-College Math: The number of recent high school students taking pre-college math is high – some 11,400 students in 2004-05. Joint efforts of K-16 leaders should lead to an eventual decline in the rate of pre-college math course taking by recent graduates and that decline may already be evident in the trend shown here.

Community and technical colleges, like baccalaureate institutions, regard students as ready for college-level math after successful completion of **intermediate algebra** (algebra II).⁴ Students should continue with math - or a math-intensive class - during the senior year. Completing challenging courses through the senior year provides students with the best opportunity to enter college with the pre-college math skills critical to success in first-year college-level courses (for more detailed information about those skills, see <http://www.transitionmathproject.org>).

Pre-college math courses do not apply to the student's degree credits and may extend the time it takes to earn a college degree. Although this 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).

³ See footnote 2.

⁴ Some workforce programs may be completed without first taking intermediate algebra, but many workforce degrees and all programs designed to prepare students for baccalaureate institutions require math or other quantitative skills above the level of intermediate algebra.

Intermediate algebra is above the level of math currently required for a high school diploma. Thus, many high school graduates may be taking the pre-college, intermediate algebra course for the first time. High school graduates may complete their minimum required math studies as early as their junior year and discontinue math study. Thus many high school graduates may have lost their math skills in the two years between the last high school math class and the start of college.

High School Graduates By College Goal and Pre-College Math							
	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04⁵	2004-05
Transfer goal*	13,558	13,401	13,727	14,830	14,223	17,863	17,302
Pre College Math	6,939	7,126	7,393	7,716	7,699	9,367	9,303
% Taking Pre-College Math	51%	53%	54%	52%	54%	52%	54%
Workforce goal*	6,042	6,470	6,187	6,550	6,488	9,285	9,408
Pre College Math	2,583	2,866	2,766	2,953	3,054	4,260	4,289
% Taking Pre-College Math	43%	44%	45%	45%	47%	46%	46%

The rate of taking pre-college math was highest for students with a transfer goal, but increasing for students with a workforce goal. Two factors impact the pre-college math pattern of students with a workforce goal: 1) increasing math skill requirements in the professional and technical occupations for which the colleges provide training and 2) increasing number of students majoring in the middle and higher wage occupations that generally require higher level math than do workforce programs geared at occupations that typically offer lower wages.. High school graduates may not be aware of the need to complete intermediate algebra in preparation for most workforce programs.

Pre-College Writing: Statewide, 19 percent of recent high school graduates take **pre-college writing** at a community or technical college before taking college-level writing courses. Community and technical colleges expect the following skills as evidence of college-level writing:

Ability to use an effective writing process that includes strategies for generating and organizing ideas and for independent revision and editing. Ability to compose essays and other written materials (lab reports, summaries, etc.) that follow conventions of focus, organization, development and correctness.

Pre-College Reading: Statewide, 11 percent of recent high school graduates take **pre-college reading** classes at a community or technical college. Community and technical colleges expect the following skills as evidence of college-level reading:

Ability to read a variety of college entry-level academic, technical and/or online texts, identify the main ideas and major details, and organize the information in a way that demonstrates they understand what they have read. Students use appropriate skills and strategies such as pre-reading, marking texts, outlining, etc., to understand what is read.

⁵ See Footnote 2.

College-to-College Variation: Some 54 percent of 2004 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 41 percent at Centralia College to 68 percent at several colleges. 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. Centralia College has a consistent pattern of serving more top students from area high school than other community colleges. The unique mix of the very high performing students as well as all other high school graduates may explain their consistently lower rate of enrollment in pre-college courses. (See the table by college on page 6.)

**Number of 2004 High School Graduates Attending College, Number & Percent
Enrolled in Pre-College Courses - 2004-05**

College	Public and Private High School Graduates Enrolled	Graduates in at Least 1 Pre-College Course	% in At Least 1 Pre- College Course
Bates	213	43	20%
Bellevue	1,855	887	48%
Bellingham	167	21	13%
Big Bend	353	231	65%
Cascadia	494	237	48%
Centralia	483	197	41%
Clark	1,543	931	60%
Clover Park	291	150	52%
Columbia Basin	1,042	652	63%
Edmonds	1,103	647	59%
Everett	1,138	673	59%
Grays Harbor	320	196	61%
Green River	1,338	718	54%
Highline	1,004	502	50%
Lake Washington	312	160	51%
Lower Columbia	430	254	59%
Olympic	1,023	545	53%
Peninsula	285	138	48%
Pierce / Fort Steilacoom	709	481	68%
Pierce / Puyallup	585	391	67%
Renton	192	7	4%
Seattle Central	705	369	52%
Seattle North	398	168	42%
Seattle South	402	186	46%
Seattle Voc Institute	68	2	3%
Shoreline	1,012	469	46%
Skagit Valley	726	422	58%
South Puget Sound	779	436	56%
Spokane	809	440	54%
Spokane Falls	1,408	751	53%
Tacoma	965	573	59%
Walla Walla	428	242	57%
Wenatchee Valley	634	430	68%
Whatcom	774	458	59%
Yakima Valley	822	491	60%
System Total*	24,131	13,098	54%

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

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 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:

- 23 percent who had not attended college immediately after high school and now were enrolled to prepare for transfer. Half of that group (50 percent) took at least one pre-college course.
- 25 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. Most students in this group (65 percent) do not take pre-college courses.
- About half (52 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 (83 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 prep-college course 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 School⁶

	2003-04	2004-05
1 or 2 Years Later to CTC	6,939	5,965
% of Prior Year Graduates	28%	25%
Took Pre-College Math	1,621	1,515
% Taking Pre-College Math	23%	25%
Took Pre-College Writing	532	517
% Taking Pre-College Writing	8%	9%
Took Pre-College Reading	325	320
% Taking Pre-College Reading	5%	5%
Any Pre-College Course	1,861	1,766
% Taking Any Pre-College	27%	30%

⁶ Due to limits in the SBCTC data system prior to 2003-04, the data on students who entered college after one or two years is shown here only for the two most recent years.

Part D

Expenses for Pre-College Course Taking and College Expectations

Expenditures Related to Pre-College Course Taking: Most of the 64,950 students taking pre-college courses have been out of school for some years. The 14,864 recent high school graduates taking pre-college courses as they started college in 2004-05 represent just 23 percent of the students taking pre-college courses (13,098 students attending immediately after high school plus 1,766 recent graduates who delayed enrollment in college until one or two years after high school). All these students enrolled in pre-college courses pay the same tuition per course as for college-level courses. The college system in 2004 spent an estimated \$55.5million on pre-college courses for all students – those directly from high school and the vast majority of older students in pre-college classes. With 12,054 state-supported pre-college FTEs served last year for students of all ages, the average expenditure per FTE equaled \$4,411. These are tuition-paying students and these cost figures include both state general funds and operating fees (tuition).

The recent high school graduates (both those attending immediately after high school and those attending after a one or two year delay) took 3,260 FTE in pre-college courses – 27 percent of the total pre-college FTE. Total expenditure for the recent high school graduate pre-college course taking equaled \$14.4 million or 26 percent of the total pre-college expenditures.

Community and Technical College Expectations for Entering Students: As “open door” institutions, community and technical colleges provide educational opportunities for all adults regardless of their educational background and are committed to helping all students succeed. To help students begin their college coursework at a level of challenge most appropriate to their academic preparation, access to many required courses may depend upon successful completion of pre-college course work, either in high school or at the college. To that end, colleges ask all entering degree-seeking students to take one or more “placement” exams prior to taking math and English classes. These tests include The College Board’s Accuplacer (<http://www.collegeboard.org/accuplacer/html/accupla1.html>) and COMPASS/ASSET (<http://www.act.org/asset/index.html> and <http://www.act.org/compass/index.html>) developed by ACT, plus tests designed by college faculty.

A substantial number of entering students “place” in pre-college courses, especially in pre-college math - math equal to middle and high school Algebra I and Algebra II courses. While most such students are able to learn the pre-college skills and successfully complete the college-level courses, the additional coursework can add significantly to the time and cost of completing a degree or certificate.

The colleges and universities in Washington - two-year and baccalaureate alike - agree that high school graduates can complete their college programs in the least amount of time and at the lowest cost by following the recommended college-bound course requirements while in high school. Completing the college-bound course requirements begins by doing well on the Washington Assessment of Student Learning (WASL) in the 10th grade and then building on that foundation by taking challenging coursework with a continued emphasis on reading, writing, and mathematical reasoning. This curricular recommendation applies to students planning to complete a professional technical associate degree as well as those planning to complete a bachelor’s degree.