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Florida's College System
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Zoom

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Traversing the Academic Pipeline

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INTRODUCTION

Previous research published by the Division of Community Colleges has investigated various points in the academic pipeline for selected groups of students[1]. However, these reports did not follow a single cohort through the pipeline. This report differs in that it tracks a single cohort through the Florida College System (FCS) for six years to provide a more comprehensive picture of what was taking place at the various academic career points.

The academic pipeline, as depicted in Exhibit 1, represents the milestones along the pathway for a degree-seeking student at a community college. The first step along the academic pipeline is for a student to be "college ready". To determine if a student is "college ready", the student must take the College-level Placement Test (CPT) or present ACT or SAT scores for placement purposes. If the student has scores above the requisite cut scores[2] in reading, writing, and mathematics the student is considered "college ready." If the student scores below the cut score in at least one area, the student must take developmental education courses (also known as "College Prep" or remediation) for that area.

When the student completes the College Prep courses and passes the requisite exit exam[3] in all areas necessary, the student becomes college ready and is prepared for college credit courses[4].

The final step along the pipeline is defined as academic success. Students are deemed "academically successful" if they (1) earned an award, (2) transferred to the State University System (SUS), or (3) are still enrolled by the end of the study period.

The Division of Community Colleges in conjunction with Jobs for the Future and the Community College Research Center has been examining additional milestones in the academic pipeline such as (a) successfully completing the

[1] See *Fast Facts* #69, 71, 73, 74, 85; *Data Trends* #23, 28; *Fast Facts: Student Success Series* #2007-02, 2007-05, 2007-07.
[2] See Rule 6A-10.0315, Florida Administrative Code (F.A.C.), for more information on requisite cut scores.
[3] See Section 1008.30, Florida Statutes, for more information on exit exam requirements.
[4] Students may take up to 12 credit hours not in subject requiring remediation prior to completing College Prep or maintain continuous enrollment in College Prep. See Rule 6A-10.0315, F.A.C., for more information.

English and math gatekeeper courses (English Composition I - ENC1101, College Algebra - MAC1105, or Liberal Arts Math I - MGF1106), and (b) completing 15 or more credit hours. However, this research is still underway at the time of this publication. Therefore, this study deals with the entrance and exit patterns of students.

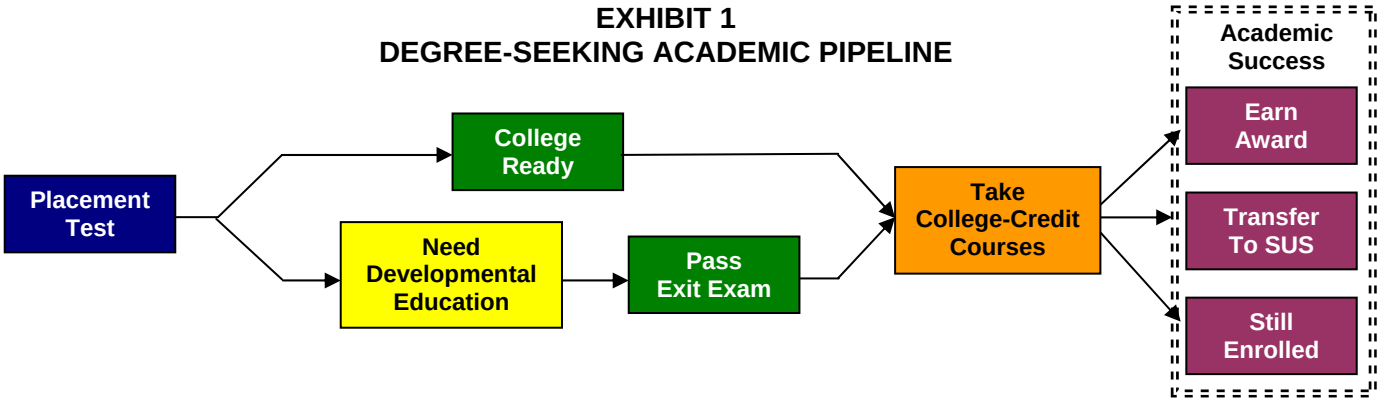
METHODOLOGY

The cohort defined for this study met several criteria:

(1) Reported in the Florida Community College Student Data Base as first-time-in-college (FTIC) students in Fall 2001.
(2) Presented placement scores in reading, writing, and mathematics. A student may present ACT, SAT, and/or CPT placement scores for each area. The highest placing score is used.
(3) Classified either as "degree-seeking" or as "General Freshman" by the end of the Fall 2001 term. Degree-seeking is defined as Associate of Arts, Associate in Science, or Associate in Applied Science.[5]

Using data from the Florida Community College Student Data Base, the original cohort contained 38,425 students. These students were followed from Fall 2001 through Spring 2007 (a total of six years). Community college students may attend full-time or part-time. In Fall 2007, 62% of students attended part-time. Frequently, a student's full-time status varies from academic term to academic term. Therefore, students in this study are followed for six years to allow time for a part-time student to be academically successful.

EXHIBIT 1
DEGREE-SEEKING ACADEMIC PIPELINE



ACCESS AND SUCCESS RESULTS FOR THE COHORT

Approximately 25% of the original cohort successfully passed all three sections (reading, writing, and math) and were classified as being "college ready," which is defined as a student who meets the cut scores in all three areas provided in Rule 6A-10.0315, F.A.C. and shown below in Exhibit 2.

[5] A student meets this criterion either through self declaration of their intended program of study (Student Data Base Data Element 2001) or the institution's determination of the student's intention for their program of study (Student Data Base Data Element 2005).

EXHIBIT 2
MINIMUM PLACEMENT SCORES FOR ENTRY-LEVEL TEST

Test	Reading	Writing	Mathematics
CPT	83	83	72
ACT	18	17	19
SAT	440	440	440

Source: Rule 6A-10.0315, F.A.C.

While fitting the definition of "college ready" for this study, students scoring near, but above the cut score may need additional preparation for success in courses required for Associate degree completion. In math, it is recommended that students scoring 72-86 be placed into Intermediate Algebra[6] (MAT1033), which is a college-credit math course that is counted as elective credit and not eligible to meet the general education requirements. Upon successful completion of this course, students may enroll in College Algebra (MAC1105) which is eligible to meet the general education requirements. Colleges are also permitted to advise a student scoring near the cut score to take the highest level of College Prep math to hone their skills enhancing chances of success in MAT1033 and beyond.

Students not scoring above the cut score are placed into College Prep for that area. Each College Prep area has two or three levels depending on the institution. Students scoring in the lower range of the College-level Placement Test are placed into the lowest level of College Prep. Students scoring in the highest range (still below the cut score) are placed into the highest level of College Prep. Placement into the level of College Prep is determined locally at the institution. There is no statewide predetermined range for each level of College Prep. Regardless of the level of College Prep into which a student is placed, the student must complete through the highest level of College Prep and pass the College Prep exit exam to move forward to MAT1033 and on to the degree-seeking academic pipeline.

The goal for associate degree-seeking students is to take college-level courses to move toward completing the degree requirements and earning the associate degree. College developmental courses are classified as pre-college level courses. Since this report is being presented in a timeline fashion, and "college ready" students do not have to take developmental courses, this paper will first examine the group of students who needed remediation before continuing along the academic pipeline.

An examination of College Prep in the area of mathematics was chosen due to the large percentage of students who needed remediation in that area (see Exhibit 3). While 75% of the entire cohort required remediation in at least one area, the greatest need was in mathematics. Combining all students who needed math remediation (highlighted in blue in Exhibit 3) reveals 67% of the 2001 FTIC cohort needed some level of College Prep math. That means 88% of the students who needed remediation needed it in math.

[6] For more information see the *CPT Cut Score Committee Final Report*, Department of Education, 2006.

EXHIBIT 3
LEVEL OF COLLEGE READINESS

Level of Readiness	Number of Students	Percentage of Students
College Ready	9,231	24.02%
Need only math	***9,156***	***23.83%***
reading	1,513	3.94%
writing	515	1.34%
Need mathematics and reading	***4,984***	***12.97%***
mathematics and writing	***2,091***	***5.44%***
reading and writing	1,392	3.62%
Need all three areas	***9,543***	***24.84%***
Total Cohort	38,425	100.00%

As Exhibit 4 indicates many students who tested into remedial math did not attempt a College Prep math course[7] during the six years this cohort was tracked. Statewide about 17% of students needing this area of College Prep did not attempt a developmental education course and thus were not able to pursue a degree. Exhibit 4 brings to light the need for further analysis of the 17% who do not attempt College Prep math to determine if they are (1) exiting the Florida College System, (2) remaining in the Florida College System and becoming academically successful by pursuing a certificate (such as a Technical Certificate or Career and Technical Certificate[8]) rather than a degree, (3) remaining in the Florida College System and re-taking the CPT at a later date and passing the cut score requirement, or (4) some other reason.

Of the 83% who did attempt the course, 72% passed. This means when students enroll in a College Prep math course, they are likely to pass it allowing them to continue their path along the degree-seeking academic pipeline.

EXHIBIT 4
STUDENTS WHO NEEDED, ATTEMPTED AND PASSED
COLLEGE PREPARATORY MATH WITHIN SIX YEARS

Level of Readiness	Need College Prep Math	Attempted College Prep Math	Percent who Attempted	Passed College Prep Math	Percent who Passed
Need only math	9,156	7,510	82.02%	5,749	76.55%
Need mathematics and reading	4,984	4,379	87.86%	3,226	73.67%
Need mathematics and writing	2,091	1,692	80.92%	1,167	68.97%
Need all three areas	9,543	7,808	81.82%	5,329	68.25%
Total Need Math Remediation	***25,744***	***21,389***	***82.99%***	***15,471***	***72.33%***

[7] College Prep math is defined as a course with the prefix "MAT" and an Information Classification Structure (ICS) Code of 1.31.01 (College Prep).
[8] For more information on instructional awards in a community college see Rule 6A-14.030, F.A.C.

Once students successfully complete their College Prep sequence, they take college-level courses along with their "college ready" peers. Mathematics was again used for analysis since it is part of the 36-hour general education requirement for an Associate in Arts degree. Less than half of the original cohort attempted a college-level mathematics course, defined as College Algebra (MAC1105) or Liberal Arts Math I (MGF1106), during the six years of follow-up (see Exhibit 5). One explanation may be that this includes students who within the six year study period had to complete College Prep math and Intermediate Algebra (MAT1033) prior to enrolling in a college-level math course that is eligible to satisfy the general education requirement. Exhibit 5 shows that 73% of students who did not need math remediation attempted a college-level math course compared with 31% of those needing math remediation. There may be procedural reasons for students not attempting a college-level math course. For instance, these students include students with documented disabilities who are eligible for a course substitution if documentation shows that the disability directly impacts the ability to perform in math.

On the positive side, those needing math remediation who took a college-level math course within the tracking period were almost as likely to pass the course as those who needed no math remediation. This indicates that developmental education courses are fulfilling their mission of enhancing the skills and knowledge of students testing into College Prep to a level of preparedness for college-credit coursework.

EXHIBIT 5
STUDENTS WHO ATTEMPTED AND PASSED
COLLEGE-LEVEL MATH WITHIN SIX YEARS

Level of Readiness	Original Cohort	Attempted College Level Math	Percent who Attempted	Passed College Level Math	Percent who Passed
Need no math remediation*	12,651	9,269	73.27%	7,641	82.44%
Need only math remediation	9,156	3,449	37.67%	2,764	80.14%
Need mathematics and reading	4,984	1,627	32.64%	1,269	78.00%
Need mathematics and writing	2,091	651	31.13%	468	71.89%
Need all three areas	9,543	2,375	24.89%	1,749	73.64%
Total Cohort	***38,425***	***17,795***	***46.31%***	***13,891***	***78.06%***

*Includes students who are (a) college ready, (b) need only reading remediation, (c) need only writing remediation, or (d) need reading and writing remediation.

Once students begin college-level courses, their final point along the pipeline is academic success. Academic success is defined as earning an award[9], transferring to the SUS, or still being enrolled at the end of the tracking period. By the end of the six-year study period more than one-quarter of the original cohort had earned an award (see Exhibit 6).

[9] An award is defined as an Associate of Arts (AA), Associate in Science (AS), Associate in Applied Science (AAS), Technical Certificate, or Career & Technical Certificate.

As expected, students who came to the postsecondary institution "college ready" were the most likely to earn an award. These students did not need to take developmental education courses; therefore, they could begin college-credit courses immediately.

Students needing only reading remediation, only writing remediation, or both reading and writing remediation had award rates close to "college ready" students. Awards rates begin to decline when students require College Prep math. Whether it is math only or in some combination with reading and writing remediation, award rates decrease a minimum of twenty percentage points when compared to "college ready" students.

EXHIBIT 6
STUDENTS WHO EARNED AN AWARD WITHIN SIX YEARS

Level of Readiness	Original Cohort	Earned an Award	
		Number of Students	Percentage of Students
College Ready	9,231	4,128	44.72%
Need only math	9,156	2,255	24.63%
reading	1,513	632	41.77%
writing	515	189	36.70%
Need mathematics and reading	4,984	1,048	21.03%
mathematics and writing	2,091	382	18.27%
reading and writing	1,392	491	35.27%
Need all three areas	9,543	1,353	14.18%
Total Needing Math	***25,774***	***5,038***	***19.55%***
Total Cohort	***38,425***	***10,478***	***27.27%***

Another academically successful outcome for students initially seeking an associate degree is to transfer to the State University System (SUS). About 17% of the original cohort had done this within the six years they were followed (Exhibit 7). As with the successful outcome of earning an award, those needing any math remediation were less likely to transfer to the SUS within the six year time period than those who required no math remediation. Between achieving an award and transferring to the SUS, about 30% of the cohort was academically successful (Exhibit 8).

Consistently, students who require math remediation are not achieving the academic success milestones at the same rate as those who need no math remediation. As mentioned earlier, students who need math remediation need to complete the College Prep math sequence and Intermediate Algebra before they begin the college-level math courses that satisfy the general education requirements of the Associate degree. If a student scores into the lowest level of College Prep math, it can mean that the student needs to take up to three College Prep math courses before beginning the Intermediate Algebra course. If a student took and successfully completed one of these courses each major academic term, it would take two years before the student could enroll in College

Algebra. This makes earning an award or transferring to the SUS[10] within six years more difficult, particularly if a student attends part-time.

EXHIBIT 7
STUDENTS WHO TRANSFERRED TO THE SUS WITHIN SIX YEARS

Level of Readiness	Original Cohort	Transferred to SUS	
		Number of Students	Percentage of Students
College Ready	9,231	2,973	32.21%
Need only math	9,156	1,318	14.39%
reading	1,513	416	27.50%
writing	515	128	24.85%
Need mathematics and reading	4,984	576	11.56%
mathematics and writing	2,091	196	9.37%
reading and writing	1,392	320	22.99%
Need all three areas	9,543	714	7.48%
Total Needing Math	***25,774***	***2,804***	***10.88%***
Total Cohort	***38,425***	***6,641***	***17.28%***

EXHIBIT 8
STUDENTS WHO EARNED AN AWARD OR TRANSFERRED TO THE SUS WITHIN SIX YEARS

Level of Readiness	Original Cohort	Earned Award or Transferred to SUS	
		Number of Students	Percentage of Students
College Ready	9,231	4,522	48.99%
Need only math	9,156	2,459	26.86%
reading	1,513	671	44.35%
writing	515	208	40.39%
Need mathematics and reading	4,984	1,163	23.33%
mathematics and writing	2,091	410	19.61%
reading and writing	1,392	531	38.15%
Need all three areas	9,543	1,492	15.63%
Total Needing Math	***25,774***	***5,524***	***21.43%***
Total Cohort	***38,425***	***11,456***	***29.81%***

*Note: This is an unduplicated count. Students who earned an award and transferred are counted only once.

[10] Per Rule 6A-10.0315, F.A.C., College Prep is only offered at the community colleges and Florida Agriculture & Mechanical University (FAMU). Therefore, a student must successfully complete the College Prep sequence prior to transfer.

Although only 30% of the cohort had earned an award or transferred to the SUS by the end of the study, this does not mean the other 70% were unsuccessful. Indeed, 20% of the original cohort was still enrolled at some point during year six (Exhibit 9). This means that 42% of the original cohort had either earned an award, transferred, were still enrolled or some combination thereof (Exhibit 10).

EXHIBIT 9
STUDENTS WHO WERE STILL ENROLLED
AT THE END OF SIX YEARS

Level of Readiness	Original Cohort	Still Enrolled	
		Number of Students	Percentage of Students
College Ready	9,231	1,714	18.57%
Need only math	9,156	1,810	19.77%
reading	1,513	333	22.01%
writing	515	107	20.78%
Need mathematics and reading	4,984	1,097	22.01%
mathematics and writing	2,091	398	19.03%
reading and writing	1,392	307	22.05%
Need all three areas	9,543	1,947	20.40%
Total Cohort	***38,425***	***7,713***	***20.07%***

EXHIBIT 10
STUDENTS WHO WERE ACADEMICALLY SUCCESSFUL*
WITHIN SIX YEARS

Level of Readiness	Original Cohort	Academic Success	
		Number of Students	Percentage of Students
College Ready	9,231	5,401	58.51%
Need only math	9,156	3,613	39.46%
reading	1,513	842	55.65%
writing	515	264	51.26%
Need mathematics and reading	4,984	1,880	37.72%
mathematics and writing	2,091	670	32.04%
reading and writing	1,392	707	50.79%
Need all three areas	9,543	2,893	30.32%
Total Cohort	***38,425***	***16,270***	***42.34%***

*"Academic success" is defined as earning an award, transferring to the SUS, or still enrolled by the end of the six-year tracking period.

Colleges need to focus attention on those students who leave prior to enrolling in the required College Prep courses to determine if another academic path would be more

appropriate for them or if some other type of support could be provided. For those students attempting College Prep courses, support needs to be provided so that these students feel confident they are ready for college-level courses once the College Prep sequences are completed.

Institutions should review work done with the Achieving the Dream national initiative that has indicated the importance of successfully completing college-level mathematics courses in the pursuit of an associate degree. Institutions should also review research regarding the value of completing Student Life Skills courses on student success, specifically *Data Trend #31: Taking Student Life Skills Course Increases Academic Success*[11], *Student Success Courses in the Community College: An Exploratory Study of Student Perspectives*[12], and *Do Student Success Courses Actually Help Community College Students Succeed?*[13]

ACCESS AND SUCCESS RESULTS BY MAJOR RACIAL/ETHNIC GROUP

The analysis presented above depicts an overall picture of student success. Further analysis was conducted to determine if there were different success outcomes for different racial/ethnic groups. The same cohort was tracked through all of the same milestones just with race/ethnicity disaggregating the results.

For purposes of this study, the racial/ethnic groups analyzed are limited to white, African-American and Hispanic. The Florida College System (FCS) also serves Asian and Native American students but the numbers in this cohort are small relative to the main groups listed above and would need to be masked due to *Family Educational Rights and Privacy Act Regulations* (34 CFR Part 99). Therefore, they are excluded from the tables and charts presented in this publication.

While the full cohort had approximately 25% defined as being "college ready," the white group had 29.91%, Hispanics 20.28% and African-American 9.40%. The proportion needing all three areas of remediation was 17.19% of whites, 29.31% for Hispanics and 43.95% for African-American (see Exhibit 11).

[11] *Data Trend #31* may be found at http://www.fldoe.org/cc/OSAS/DataTrendsResearch/PDF/DT31.pdf.
[12] *Student Success Courses in the Community College* may be found at http://ccrc.tc.columbia.edu/Publication.asp?UID=614.
[13] *Do Student Success Courses Actually Help Community College Students Succeed?* may be found at http://ccrc.tc.columbia.edu/Publication.asp?UID=531.

EXHIBIT 11
LEVEL OF COLLEGE READINESS FOR MAJOR RACIAL/ETHNIC GROUPS

Level of Readiness	White		African-American		Hispanic	
	Number	Percent	Number	Percent	Number	Percent
College Ready	***6,598***	***29.91%***	***657***	***9.40%***	***1,532***	***20.28%***
Need only math	6,185	28.04%	1,113	15.93%	1,544	20.44%
reading	771	3.50%	264	3.78%	356	4.71%
writing	299	1.36%	55	0.79%	132	1.75%
Need mathematics and reading	2,558	11.60%	1,176	16.83%	1,059	14.02%
mathematics and writing	1,274	5.78%	363	5.20%	352	4.66%
reading and writing	582	2.64%	288	4.12%	364	4.82%
Need all three areas	***3,792***	***17.19%***	***3,071***	***43.95%***	***2,214***	***29.31%***
Total Cohort	22,059		6,987		7,553	

The large proportion of minority students needing all three areas of remediation implies that minority students beginning their college careers at community colleges are generally less prepared than white students and thus tend to have a harder time achieving success. This tendency is also seen in the percentage of African-American students passing College Prep mathematics. Both whites and Hispanics had a passing rate of 74% while African-Americans had a rate of 66% (see Exhibit 12). While they did have a lower pass rate, the African-American group had a larger percentage of its students who needed more than just math remediation attempt a College Prep math course during the six years than either the white group or Hispanic group. The pass rates are lowest for students who needed remediation in all three College Prep areas.

EXHIBIT 12
ATTEMPT AND PASS RATES OF COLLEGE PREPARATORY MATH
BY MAJOR RACIAL/ETHNIC GROUPS

Level of Readiness	White		African-American		Hispanic	
	Attempt	Pass	Attempt	Pass	Attempt	Pass
Need only math	81.02%	77.27%	82.93%	71.18%	85.95%	76.87%
Need mathematics and reading	87.02%	75.16%	89.20%	69.59%	88.48%	73.32%
Need mathematics and writing	80.30%	68.23%	80.44%	64.04%	84.09%	78.72%
Need all three areas	82.17%	69.80%	82.55%	63.20%	81.03%	71.94%
Total needing math	***82.38%***	***74.00%***	***83.85%***	***66.18%***	***84.35%***	***74.20%***

Overall, the cohort had about 44% attempting college-level mathematics within the six year tracking period. While both whites and Hispanics attempted at a rate of about 48%, again African-Americans were less at a level of 34% (see Exhibit 13). However, this is not surprising given that almost half of the African-American group needed remediation in all three areas. Students in this group face quite a few challenges in that they need to take and successfully complete College Prep in reading, writing, and math. Once they complete the math, they must successfully complete Intermediate Algebra before taking the first college-level math that can be applied towards the general education requirements. While all students needing math remediation must follow along this same

path, based upon research students needing College Prep in all three areas are more likely to begin the reading and writing portions of remediation immediately and delay the math sequence. That means that within a six year timeframe, these students are less likely to attempt a college-level math course.

One important finding is that of those who attempted a College Prep math course, three-quarters were successful. This means that once these students complete the developmental education sequence, they are successful at the college-level at rates comparable to students who needed no math remediation.

EXHIBIT 13
ATTEMPT AND PASS RATES OF COLLEGE-LEVEL MATH
BY MAJOR RACIAL/ETHNIC GROUPS

	White		African-American		Hispanic	
Level of Readiness	**Attempt**	**Pass**	**Attempt**	**Pass**	**Attempt**	**Pass**
Need no math remediation*	73.31%	82.46%	69.78%	79.48%	75.42%	83.37%
Need only math	37.09%	80.86%	33.78%	76.86%	42.16%	80.34%
Need mathematics and reading	32.60%	79.02%	27.38%	75.16%	36.92%	79.80%
Need mathematics and writing	30.14%	70.31%	30.85%	71.43%	34.66%	74.59%
Need all three areas	24.68%	75.64%	21.91%	69.39%	28.18%	73.88%
Total Cohort	***47.58%***	***80.78%***	***33.85%***	***75.22%***	***47.48%***	***80.48%***

*Includes students who are (a) college ready, (b) need only reading remediation, (c) need only writing remediation, or (d) need reading and writing remediation.

As discussed earlier, once students begin on the college-level track, their final academic milestone is to achieve academic success. Several options exist at the community college for academic success: (1) earn an award, (2) transfer to the SUS, or (3) still be enrolled at the end of the tracking period.

Exhibits 6 through 10 displayed the academic success for the Florida College System with 42% of the original cohort achieving academic success within six years. When disaggregated by race/ethnicity, the white group (43%) is slightly more successful than the system as a whole, and the Hispanic group is more successful than the white group or the system as a whole (45%). However, the African-American group is slightly less successful than the system as a whole (37%).

Transfer rates to the SUS were lower for all groups than awards earned. White students had a transfer rate of 18%, Hispanics a rate of 19% and African-Americans a rate of 11%. The combination of lower award and transfer rates for African-Americans resulted in a lower successful outcome rate (the combination of awards and/or transfers) of 21.7% compared to more than 30% for both whites and Hispanics.

EXHIBIT 14
SIX YEAR ACADEMIC SUCCESS RATE FOR MAJOR RACIAL/ETHNIC GROUPS

	White		African-American		Hispanic	
Academic Success	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Earn Award and/or Transfer	6,982	31.65%	1,517	21.71%	2,328	30.82%
Earn an Award	6,478	29.37%	1,330	19.04%	2,094	27.72%
Transfer to the SUS	4,011	18.18%	802	11.48%	1,447	19.16%
Still Enrolled	4,169	18.90%	1,494	21.38%	1,682	22.27%
Academic Success*	***9,502***	***43.08%***	***2,552***	***36.52%***	***3,380***	***44.75%***

*"Academic success" is the unduplicated number of students who earned an award, transferred to the SUS, or were still enrolled by the end of the six-year tracking period.

The good news is that minority students were still enrolled in the FCS during the last year of the tracking period at slightly higher rates than white students. Hispanic and African-American students were enrolled at rates of 22% and 21%, respectively, while whites were enrolled at the rate of 19%. Combining these outcomes—awards, transfer, and/or still enrolled—yielded overall success rates of 43% for white students, 45% for Hispanics and 37% for African-Americans.

Within each of the racial/ethnic groups, the academic success rate for "college ready" students was at least 11 points higher than for all students within that group. For example, 48% of African-American students originally categorized as "college ready" were academically successful compared to 37% of African-American students overall. Thus incoming preparation has a rather dramatic effect on the probability of being successful in the FCS. Regardless of the racial/ethnic group of the student, the more remediation needed, the less likely the student will be academically successful within six years. While it is harder for students needing all three areas of remediation to be academically successful in such a short time frame, the analysis reveals it is not impossible.

EXHIBIT 15
SIX YEAR ACADEMIC SUCCESS* RATE FOR MAJOR RACIAL/ETHNIC GROUPS
BY ORIGINAL LEVEL OF READINESS

	White		African-American		Hispanic	
Level of Readiness	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
College Ready	3,869	58.64%	318	48.40%	938	61.23%
Need only math	2,373	38.37%	424	38.10%	692	44.82%
reading	416	53.96%	142	53.79%	214	60.11%
writing	147	49.16%	23	41.82%	72	54.55%
Need mathematics and reading	933	36.47%	424	36.05%	439	41.45%
mathematics and writing	400	31.40%	120	33.06%	122	34.66%
reading and writing	290	49.83%	150	52.08%	185	50.82%
Need all three areas	1,074	28.32%	951	30.97%	718	32.43%
Total Cohort	***9,502***	***43.08%***	***2,552***	***36.52%***	***3,380***	***44.75%***

*"Academic success" is the unduplicated number of students who earned an award, transferred to the SUS, or were still enrolled by the end of the six-year tracking period.

CONCLUSIONS

The analyses presented in this publication have shown that students need to move through the academic pipeline one milestone at a time and that academic success is attainable. Additionally, the analyses have demonstrated that students who need no remediation (regardless of race/ethnicity) are more likely to attain successful outcomes than those who need remediation.

These results establish the importance of students coming to college academically prepared for college-level coursework. As colleges work with incoming students and with their K-12 partners this impact of preparation needs to be stressed and strategies devised to ensure as many students as possible arrive at the FCS ready to take advantage of the college-level coursework available.

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