



Steps Can Be Taken to Reduce Remediation Rates; 78% of Community College Students, 10% of University Students Need Remediation

at a glance

In 2003-04, 78% of students enrolling at Florida's community colleges and 10% of students enrolling at the state's public universities required remediation in mathematics, reading, and/or writing. Almost two-thirds (62%) of students in need of remediation required preparation in multiple subject areas. Students who do not take rigorous academic courses while in high school are significantly more likely to need remediation, as are students who delay their postsecondary education for several years.

The cost of remediation courses taken by students was \$118.3 million during 2004-05 (the most recent data available), with the state paying 53% (\$62.9 million) of this amount.

Over the past 10 years, Florida has implemented several initiatives and programs to help improve the academic skills of high school graduates. However, remediation rates have improved little since 1997. This is likely because the general focus of most of Florida's educational improvement initiatives has been on improving educational outcomes in the K-12 system and not specifically on improving college readiness.

To address this problem, the state could better align K-12 Sunshine State Standards with college readiness expectations, increase high school graduation requirements, and improve collaboration between Florida high schools and the state's community colleges and public universities.

Scope

As directed by the Legislature, OPPAGA examined the readiness of students entering college to take college-level coursework without requiring remediation. This report addresses the five questions below.

- How many students require remediation?
- What are the costs associated with remediation?
- Has the need for remediation changed over time?
- What factors influence the need for remediation?
- What options could the state consider to reduce the need for remediation?

A subsequent report will examine remediation practices and outcomes in Florida's post-secondary institutions.

Background

Students entering Florida's public higher education system for the first time (referred to as first-time-in-college students) are tested for their reading, writing, and mathematics proficiency.¹

¹ According to s. 1008.30(4)(a), *F.S.*, a passing score on a standardized, institutionally developed test must be achieved before a student is considered to have met basic computation and communication skills requirements.

Students who do not take the SAT or ACT examination or who score below certain minimum scores on these exams must take the Florida College Entry-Level Placement Test (also called the Common Placement Test). Students scoring below the minimum cut-off scores must enroll in remedial courses in the respective subject area(s) before taking college-level courses in those subjects.

Florida law authorizes the state’s 28 community colleges and Florida Agricultural and Mechanical University to offer remedial education courses.² The other 10 state universities are not permitted to provide remedial courses and may contract with community colleges to provide these courses for university students who need remediation. Remedial education coursework is designed to provide curriculum and instruction that students need to address their academic deficiencies so that they are successful in college-level coursework.³

Community colleges and universities receive funding for remediation from legislative appropriations and student tuition and fees. In 2004-05 (the year for which most recent expenditure data is available), the total cost of remediation was \$118.3 million. The state paid slightly over half (53%, or \$62.9 million) of these costs.⁴ Students paid \$50.5 million (43%) of remediation costs, while community colleges paid \$4.9 million (4%) with other revenue sources.⁵ (See Exhibit 1.)

Other states vary in how they provide remedial education. Several states, including Arizona, Georgia, South Carolina, and Virginia, are similar to Florida in restricting remedial education primarily to community colleges. Other states, including Alabama, Michigan, North Carolina, Ohio, and Pennsylvania, offer

remedial education at both two- and four-year institutions.

Exhibit 1
The State Paid \$62.9 Million or 53% of the Cost of Remediation in 2004-05

Remediation Fund Sources	Amount (in millions)	Percentage
General Revenue	\$ 54.1	46%
Lottery	8.8	7%
Other Revenue	4.9	4%
Matriculation and Tuition Fees	50.5	43%
Total	\$118.3	100%

Note: English for Speakers of Other Languages (ESOL) funds are not included in these figures.

Source: Total Cost of Remediation at Florida Community Colleges in 2004-05, Florida Department of Education, Division of Community Colleges, 2006.

Findings

78% of students attending community colleges and 10% attending public universities require remediation

In 2003-04, over half (55%) of the first-time-in-college students attending state public universities or community colleges required remediation.⁶ Most of these students attended community colleges. As shown in Exhibit 2, most (78%) students entering state community colleges in 2003-04 were deemed unprepared for college-level coursework, while 10% of students attending public universities needed remediation.⁷

⁶ Unless otherwise noted, the remediation rates provided in this report are based on the readiness of students enrolling in a Florida community college or public university for the first time in 2003-04. Our analysis of first-time-in-college enrollment included 137,321 students who enrolled in postsecondary programs; 83% enrolled in degree programs, 16% in certificate and diploma programs, and 1% unknown.

⁷ The largest percentage (39%) of the university students needing remediation attended Florida Agricultural and Mechanical University, which is the only university that is authorized to directly provide college remediation courses to its students. Other universities provide remediation to their students through contractual arrangements with local community colleges. New College of Florida had no students in need of remediation.

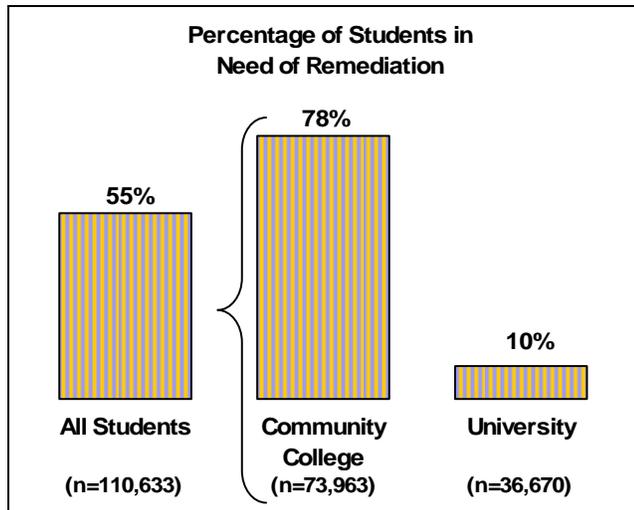
² Chapter 1008.30(4)(b), F.S.

³ Remedial education is also referred to as developmental education. Remedial coursework is commonly referred to as college preparatory coursework.

⁴ Cost of remediation does not include FAMU expenditures.

⁵ Other revenue includes institutional funds in the form of interest earned and endowments.

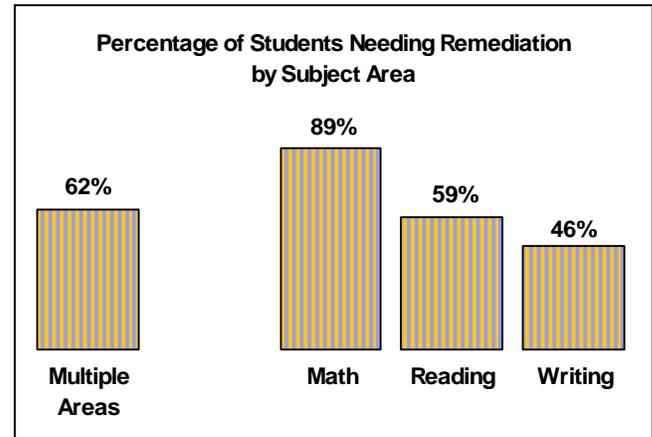
Exhibit 2
More Than Half of First-Time-in College Students Needed Remediation in at Least One Subject Area in 2003-04



Source: OPPAGA analysis of Department of Education data on students attending Florida community colleges and public universities for the first time in 2003. See footnotes 5 and 6.

Most students needing remediation were behind in multiple areas. As shown in Exhibit 3, almost two-thirds (62%) of the students needing remediation required additional preparation in multiple subject areas.⁸ The greatest need for remediation was in mathematics, as 89% of students who needed remediation required additional preparation in math. Furthermore, one-third of the students who needed remediation required additional preparation in mathematics only. Approximately 59% of students needing remediation required additional preparation in reading and slightly less than half were behind in writing.

Exhibit 3
More Than Half (62%) of Students Not Ready for College Need Remediation in Multiple Subject Areas

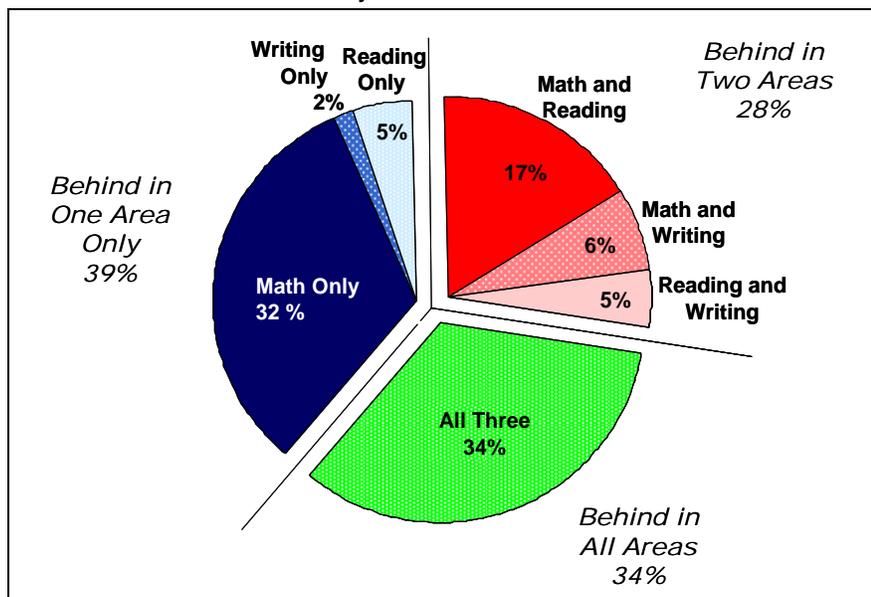


Source: OPPAGA analysis of Department of Education data on students attending Florida community colleges and public universities for the first time in 2003.

Exhibit 4 shows the percentage of students who needed remediation in one, two, or three subject areas. Fully one-third of students who needed remediation were behind in all three areas of math, reading, and writing (area shaded in green). An additional 28% of students needing remediation were behind in two subject areas (areas shaded in red). The remaining students needed remediation in one subject area only (areas shaded in blue).

⁸ Testing information was not available for 19.4% of 2003-04 students. According to Department of Education staff this percentage of missing test information is reasonable. Testing information for all students is not available for several reasons. For instance, some students who apply for non-degree programs such as certificate and diploma programs are placed using assessment criteria other than Florida College Entry-Level Placement Test scores. In addition, students whose first language is not English can be placed in college preparatory instruction prior to testing.

Exhibit 4
One-Third of Students (34%) Who Needed Remediation
Were Behind in All Three Subject Areas



Note: Percentages do not equal 100 due to rounding.
 Source: OPPAGA analysis of Department of Education data on students attending Florida community colleges and public universities for the first time in 2003.

Remediation increases the cost of college education

The need for remediation increases costs for both the state and students. The state paid \$58.8 million for remediation courses in the 2003-04 academic year. Students taking these courses paid 44% of the total cost of remediation (\$113 million), which made college more costly for these unprepared students. The amount individual students paid for remedial education varied depending on the number of remedial courses they were required to take and the institution they attended.⁹ On average, Florida high school graduates who attended community college and required remediation paid an additional \$504 in tuition for college prep

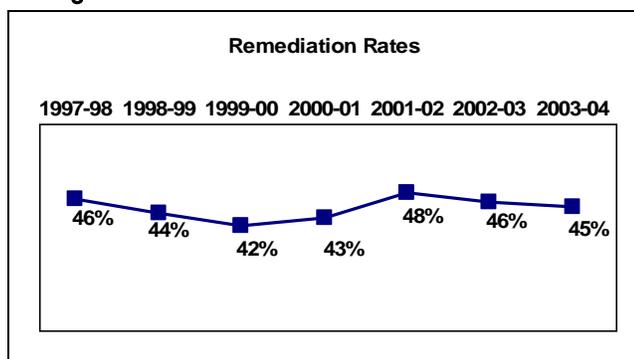
coursework during their first year of college. These students required an average of approximately nine credit hours of remedial coursework before they could take college-level courses. (For information on remediation by type of student, refer to Appendix A.)

The need for remediation has remained relatively constant since 1997

The remediation rate of recent Florida high school graduates has changed very little over the past seven years. As shown in Exhibit 5, the percentage of students who enrolled in a Florida community college or public university and needed remediation has fluctuated slightly since 1997 but has not changed materially over this period. During this period, between 42% and 48% of students who graduated from a Florida high school within one year required at least some remediation. In 2003, virtually the same percentage (45%) of students needed remediation as in 1997, when 46% of students needed remediation.

⁹ In 2003-04 the total cost per credit hour for preparatory courses ranged from \$96 to \$291 per credit hour. The average was \$129 per credit hour. Reasons for this variation include differing levels of remedial courses offered by institutions and varying levels of credit awarded; different institutional standards used to place students in remedial courses; and variations in tuition and fees charged by community colleges, which may charge between 10% below and 15% above the standard fee per credit hour recommended by the Legislature.

Exhibit 5 The Percentage of Recent Florida High School Graduates Who Need College Remediation Has Changed Little Since 1997-98



Source: OPPAGA analysis of Florida Department of Education data.

Many factors influence whether students are ready for college

Research suggests that several factors have an influence on whether students are prepared for college when leaving high school.

- Academic courses in high school should be rigorous and cover the concepts considered essential for students to be successful at the postsecondary level.
- Students need to be adequately prepared to take higher-level academic courses in high school by taking the appropriate coursework in middle school.
- Teachers must be effective.
- Struggling students should have additional instructional time to grasp academic concepts.
- Students should have information on the academic requirements for college readiness so that they can better prepare for college academically.
- Mathematics and reading need to be integrated into and reinforced in non-mathematics and non-English courses such as social studies, science, and electives.
- Students need to have information on their progress towards college readiness while in high school.

Students who took rigorous academic courses while in high school needed significantly less remediation. To examine the relationship between college readiness and rigorous high school coursework, we analyzed a cohort of students who graduated from Florida high schools in 2001-02 and subsequently enrolled in 1 of the state's 28 community colleges in 2002-03.¹⁰ Our analysis showed that students completing advanced high school mathematics courses were much less likely to need remediation than other community college students. Students who graduated from Florida high schools and met only basic graduation requirements were highly likely to need remediation before they were ready for college-level coursework. In contrast, those students who took rigorous classes while in high school were less likely to need remediation.

Exhibit 6 shows the percentages of 2001-02 Florida high school graduates who took various levels of mathematics classes before entering Florida community colleges in 2002-03 and their subsequent need for remediation in mathematics. Overall, 73% of these students needed remediation in mathematics. However, this remediation rate fell in direct correlation to the level of additional mathematics classes they took in high school.

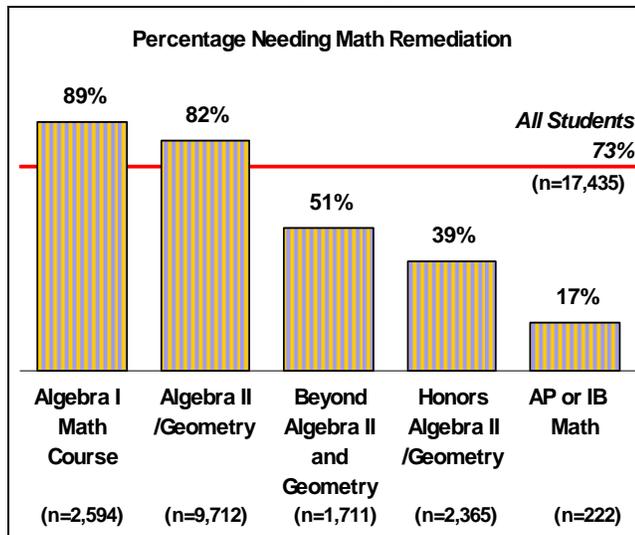
Currently, Florida law requires students to take three credits of mathematics including Algebra I or its equivalent in order to graduate from a Florida high school.¹¹ Community college students who took only this minimum level of high school mathematics had the highest remediation rates of any group of students in the cohort—89% of these students were unprepared to enroll in college-level mathematics when they entered the community college system.

¹⁰ Due to data limitations, we could not assess the remediation needs of the 2001-02 high school graduates who enrolled in one of the state's publicly funded universities or in other private postsecondary institutions.

¹¹ Section 1003.43, *F.S.*, provides additional graduation requirements including that students must earn a total of 24 credits, a passing score on the Grade 10 FCAT, and a cumulative GPA of 2.0 on a 4.0 scale.

Students who took Algebra II or Geometry had a slightly lower remediation rate (82%), while only about half (51%) of the students who completed additional high school mathematics courses such as pre-calculus, calculus, and analytical geometry needed remediation. The students who were best prepared for college-level mathematics took very rigorous mathematics courses in high school. Only about one-third (39%) of community college students who completed Honors Level Algebra II and/or Geometry needed remediation, while only 17% of the students who completed Advanced Placement (AP) or International Baccalaureate (IB) mathematics needed remediation before taking college-level math courses.¹²

Exhibit 6
High School Students Who Take Accelerated and Honors Math Less Likely to Require Remediation

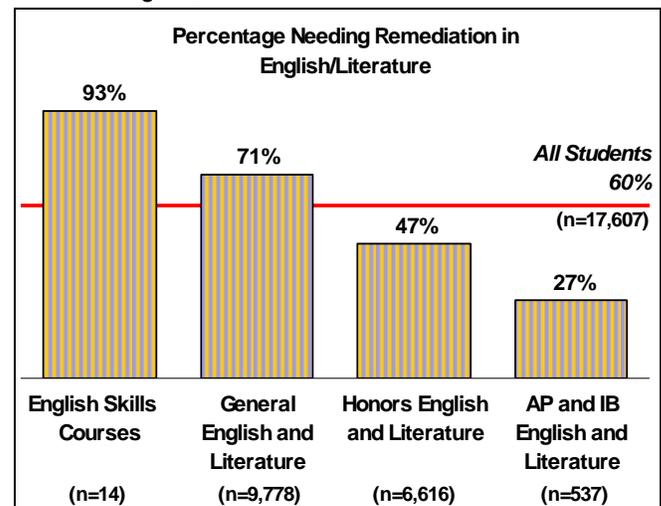


Source: OPPAGA analysis of Department of Education data on 2001-02 high school graduates attending Florida community colleges for the first time in 2002-03.

¹² Students who take AP and IB courses in high school are often eligible for college credit. For more information, refer to *Most Students Receive College Credit for Accelerated Courses; Programs Reduce University Class Time*, [OPPAGA Report No. 06-26](#), March 2006.

A similar relationship existed between high school English coursework and the need for remediation in reading; those community college students who completed more rigorous high school English courses were more likely to be prepared for college level work. Exhibit 7 shows the percentage of 2001-02 Florida high school graduates who took varying levels of high school English courses before entering Florida community colleges in 2002-03. Overall, 60% of these students needed remediation in reading.

Exhibit 7
High School Students Who Took Accelerated and Honors English/Literature Needed Less Remediation



Source: OPPAGA analysis of Department of Education data on 2001-02 high school graduates attending Florida community colleges for the first time in 2002-03.

Florida law requires students to complete four credits of English to graduate from a Florida high school. Almost all (93%) of the students who completed English skills courses, the lowest level of English courses that satisfy Florida high school graduation requirements, needed remediation.¹³ In contrast, 71% of the students who completed general English courses needed

¹³ English Skills courses are designed to enable students to develop fundamental reading and writing skills and strategies to ensure successful literacy experiences. English Skills courses meet graduation requirements for English.

remediation to be prepared for college level reading. Less than half (47%) of students who completed honors level English courses required remediation, while students who completed AP or IB English courses had the lowest remediation rates at 27%.

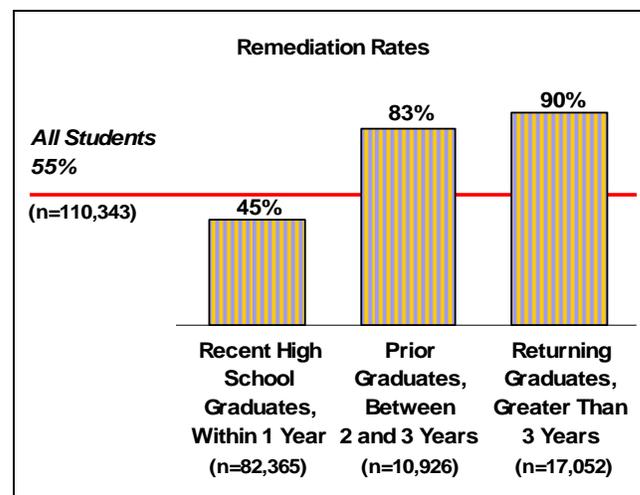
Overall, our analysis showed that high school graduates who met only the minimum graduation requirements for English and mathematics were highly likely to need remediation before they were ready for college-level coursework. Consequently, students who plan to attend college likely may need to take more advanced and rigorous mathematics and English courses than the minimum currently required for Florida high school graduation. (For descriptions of the levels of high school mathematics and English courses taken by students and student remediation rates at each level, refer to Appendix B.)

Student mastery of subjects also affects college readiness. Our analysis also showed that students who received higher grades in the courses they took in high school generally needed less remediation. For example, 88% of students who received a “C” when taking Algebra I as their highest level math course needed remediation in mathematics, compared to only 50% of similar students who earned an “A” in this course.

Students who delayed postsecondary education were more likely to need remediation. Our analysis also indicated that another key factor affecting college readiness is the length of time since a student was exposed to mathematics, English, and writing instruction. The longer students postpone postsecondary education, the more likely he or she is to need remediation.¹⁴ As illustrated in Exhibit 8, about half (45%) of high school graduates who enrolled in a community college or public university within one year of high school graduation needed

remediation in at least one subject area.¹⁵ In contrast, 83% of the students who waited two or three years before attending college needed remediation, as did fully 90% of the students who waited more than three years before attending a community college or public university. In addition, students who postponed higher education for more than three years were more likely to need remediation in mathematics than other students and to require more remedial coursework to be prepared to take college-level mathematics courses than their peers who needed remediation.¹⁶ Thus, unless the skills learned in high school are used routinely, students who postpone college are likely to need remediation.¹⁷

Exhibit 8 Recent High School Graduates Had Lower Remediation Rates



Source: OPPAGA analysis of Department of Education data on students attending Florida community colleges and public universities for the first time in 2003.

¹⁴ These conclusions are based on OPPAGA’s analysis of students entering Florida community colleges and universities for the first time during the years 1997-98 to 2003-04.

¹⁵ Recent high school graduates include students who graduated from a Florida high school within one year of entering college for the first time. If a student’s high school graduation date was not available, age was used as a proxy to estimate probable graduation year.

¹⁶ An analysis of the CPT scores of students attending community college for the first time from 1999-00 through 2001-02 revealed that because their math placement scores were often much lower than recent high school graduates, students who delayed college were more likely to require multiple math courses in order to become college ready. However, they were just as likely as recent high school graduates to need remediation in reading and writing.

¹⁷ Based on interviews of community college staff conducted by the Florida Department of Education, 2005.

Not taking math during senior year can increase need for remediation. National research also suggests that students are more prepared for college-level mathematics and less likely to need remediation if they take high school mathematics courses in their senior year.¹⁸ Currently Florida law does not require high school students to take mathematics in their senior year since they can complete the three required mathematics credits in their first three years of high school.

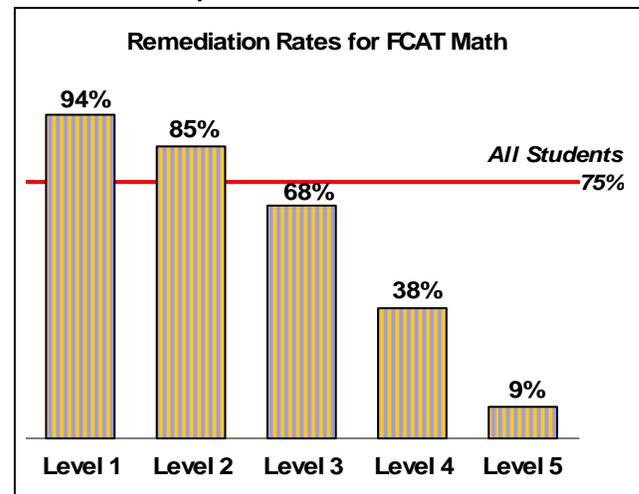
Most recent state educational improvement initiatives have not specifically focused on college readiness. Although Florida has undertaken several initiatives to improve public education in recent years, these efforts do not yet appear to have affected the percentage of students who need basic skills remediation when they reach college. (See Exhibit 5.) A primary reason for this limited impact is that the general focus of many of these initiatives has been on improving educational outcomes in the K-12 system and not specifically on improving college readiness. In addition, other programs, while focused on college readiness, are not used by most high school graduates.

The A+ Plan was enacted in 1999 to improve the academic skills of Florida K-12 students. As part of this initiative, students in grades 3-10 in public schools are tested using the Florida Comprehensive Achievement Test (FCAT) to demonstrate how well they mastered the grade-level expectations set forth by the Sunshine State Standards. Students in 10th grade who do not score at least Level 2 on the FCAT cannot graduate with a standard high school diploma.¹⁹

While scoring a Level 2 on the FCAT helps ensure that students have mastered basic academic concepts, it does not ensure that they are prepared for college level work.

As shown in Exhibits 9 and 10, students attaining higher scores on the FCAT are less likely to need remediation.²⁰ However, 85% of students who scored at level 2 on the mathematics portion of the 10th grade administration of the FCAT required remediation before they could take college-level mathematics. Furthermore, even students who achieved FCAT scores higher than the minimum necessary for high school graduation often need remediation. For instance, most students (68%) scoring at level 3 on the mathematics portion of the FCAT required remediation. In contrast, only 38% of the students scoring at level 4 and only 9% of the students scoring at level 5 on the mathematics portion of the FCAT required remediation.

Exhibit 9
Most Students Scoring at Levels 2 or 3 on FCAT Math Required Remediation



Source: OPPAGA analysis of Department of Education data on 2001-02 high school graduates attending Florida community colleges for the first time in 2002-03.

¹⁸ *Reducing Remedial Education: What Progress are States Making?* Southern Regional Education Board, Educational Benchmarks 2000 Series.

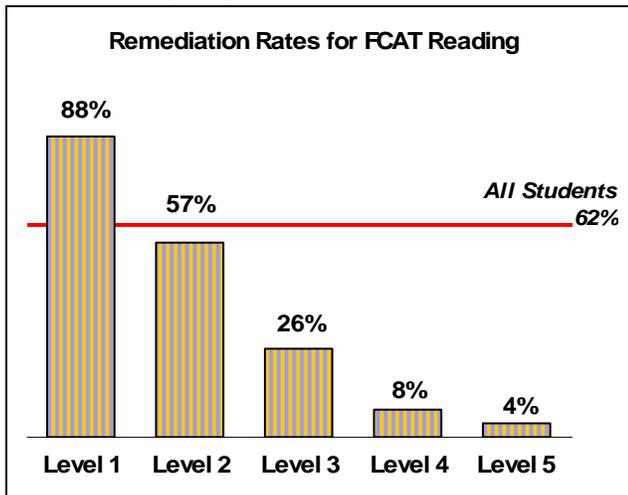
¹⁹ Students have up to six opportunities to pass the Grade 10 FCAT prior to graduation. Florida law provides that a student may also graduate from high school by receiving a score comparable to the FCAT passing score as determined by the State Board of Education on the SAT or ACT.

²⁰ The dataset OPPAGA obtained from the Florida Department of Education (Data Trend 33) did not include FCAT writing scores.

There is a similarly strong relationship between FCAT reading scores and college readiness. (See Exhibit 10.) Like math, the majority (57%) of students who achieve minimum FCAT reading scores needed for high school graduation (level 2 on the 10th grade FCAT), require remediation before they were ready for college-level coursework. However, students scoring at level 3 or above on the reading portion of the 10th grade FCAT were less likely to need any reading remediation prior to taking college-level courses.

It should be noted that the FCAT was not designed to ensure college readiness but rather to assess how well students master the Sunshine State Standards. Nonetheless, revising the Sunshine State Standards to ensure that they reflect the knowledge and skills students graduating from high school need to be prepared for college and the workforce may help ensure that students who receive scores on FCAT sufficient to graduate from high school are prepared to enroll in college-level coursework.

Exhibit 10
Over One-Half of Students Scoring at Level 2 on FCAT Reading Required Remediation



Source: OPPAGA analysis of Department of Education data on 2001-02 high school graduates attending Florida community colleges for the first time in 2002-03.

Just Read, Florida! was implemented in 2001. The goal of this program is for every Florida student to read at grade level by 2012. The program includes a number of strategies to accomplish this goal including training teachers, principals, and reading coaches using the latest reading research and providing schools with technical assistance on reading instruction and assessment. In addition, the program requires students reading below grade level to be enrolled in an intensive reading course taught by a teacher with expertise in reading instruction. The program currently covers all grades, but initially primarily targeted improvement in kindergarten through third grade. The program focused more on middle and secondary grades beginning in 2004-05. Accordingly, the improvements in reading attained through this initiative would not have been reflected in our analysis, which examined 2003-04 high school graduates.

An Algebra I requirement was instituted in 1997-98. The Legislature required students to successfully complete Algebra I in order to receive a high school diploma starting with students who entered the 9th grade in the 1997-98 school year. Our analysis showed that students who graduated in 2001-02 after taking Algebra I or its equivalent as their highest completed mathematics course had a high need for mathematics remediation in community college. This could be the result of several factors, such as the Algebra I course not covering all the mathematics concepts students need to be ready for college, students failing to master this course's content, or students forgetting the material by the time they entered a community college.

Other educational initiatives target specific students. Several state educational programs, including Florida's Bright Futures Scholars, the Advanced Placement, and the International Baccalaureate programs, have the specific goal of preparing students for college. These programs require high school students to complete rigorous course requirements and some of these programs require that students maintain higher grade point averages than the minimums needed for high school graduation.²¹

These programs generally do a good job of preparing students for college-level coursework. Only 4% of the students who entered Florida community college or public university in 2003-04 with Bright Futures Scholarships needed remediation in any area, as did only 12% of the students who participated in the Advanced Placement and the International Baccalaureate programs. However, only 38% of recent Florida high school graduates entering Florida community colleges and public universities in 2003-04 participated in these programs.

The Florida High School Reform Task Force has made several recommendations to improve high school achievement

The Florida High School Reform Task Force convened in late 2005 and early 2006 to examine the steps that the state could take to improve high school student achievement. The task force submitted its final recommendations to the Legislature in February 2006.²²

²¹ Bright Futures students must complete three mathematics courses at the Algebra I level or higher, four English (three with substantial writing), three natural science (two with a substantial lab component) in order to be eligible for the Florida Academic Scholars Award or the Florida Medallion Scholars Award. The Advanced Placement Program is designed to provide secondary students with more challenging courses intended to prepare them for college level coursework. The International Baccalaureate Program is a rigorous curriculum that provides advanced level coursework to meet various international university entrance standards. Students can earn college credit while still in high school by passing Advanced Placement and International Baccalaureate subject area exams.

²² More information on the recommendations made by the Florida High School Reform Task Force can be found in the [High School Reform Task Force Report and Recommendations](#), February 2006.

While these recommendations are focused on improving high school student achievement, they also may help improve the college readiness of Florida high school graduates. Some of these recommendations are summarized below.

- Create a new high school diploma with more rigorous core requirements, increased coursework in mathematics, area(s) of specialization, minimum grade point averages, and a passing score on the Florida Comprehensive Assessment Test at Grade 10.
- Infuse reading into all content area and elective courses, ensure that literacy benchmarks are a part of all content area expectations, and ensure that students with little or limited success in reading receive intensive reading instruction.
- Provide a strong middle school foundation which includes increasing opportunities at the middle school level for earning high school-level course credit.
- Encourage innovation in providing students with opportunities to earn a high school diploma and a higher-level degree, certification, or competency at the same time.
- Help students focus on the future by expanding academic advisement and support services.
- Help teachers and administrators meet higher expectations by providing data-driven, student-specific, research-based professional development.

There are several actions that the state can take to improve college readiness

To improve the college readiness of Florida high school graduates specifically, the Legislature may wish to consider the options listed below. The 2006 Legislature is considering several bills that include provisions that would address most of these recommendations.

Revise high school graduation requirements. Better alignment of the Sunshine State Standards with college readiness expectations may ensure that students who achieve scores on FCAT sufficient to graduate high school are prepared to take on college-level coursework. Therefore the Legislature may wish to consider

- amending s. 1001.03(1), *Florida Statutes*, to direct the State Board of Education to review and revise the Sunshine State Standards to ensure that they reflect the knowledge and skills students graduating from high school need to be prepared for college and the workforce, and
- directing the Department of Education to review current minimum FCAT scores needed for high school graduation to determine whether the current scores should be raised.

Take steps to improve mathematics preparation. Because the vast majority of students who are unprepared for college-level coursework need remediation in mathematics, the Legislature may wish to consider

- amending s. 1003.43(1)(b), *Florida Statutes*, to increase the credits in mathematics needed for graduation from three to four, and
- encouraging school districts to develop end-of-course assessments, particularly for Algebra I, to ensure that students have mastered the necessary mathematics concepts needed to be ready for college-level coursework or the workforce.

Encourage and recognize academically excellent students. Students who take additional, higher level, and more rigorous academic coursework in high school are more likely to be ready for college without remediation. Therefore, the Legislature may wish to consider

- directing the Department of Education to work with school districts to develop consistent standards and designations that school districts may use to recognize academic excellence, college readiness, and workforce readiness on high school diplomas.

Increase and improve collaboration. Many Florida high schools and community colleges are currently working together to reduce the need for remediation. For instance, some community colleges provide feedback to high schools regarding the college readiness of their graduates and/or offer the Common Placement Test to students while they are still in high school. However, this collaboration is not consistent throughout the state and could be improved. Therefore, the Legislature may wish to consider

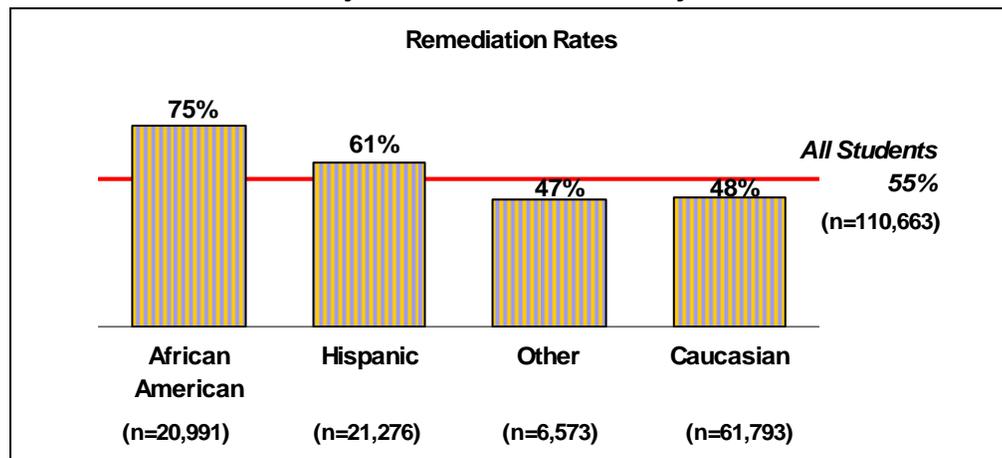
- directing the Department of Education and Board of Governors to work together to develop strategies that will encourage more collaboration and partnerships among community colleges and publicly funded universities, and high schools to ensure that students are prepared.

Appendix A

Remediation Rates and Cost Vary by Student Demographics

The need for remediation varies across racial and ethnic groups. As shown in Table A-1, in 2003-04, three-quarters (75%) of African American students needed remediation, while 61% of Hispanic students, 48% Caucasian, and 47% other students needed remediation.²³ Furthermore, about half (47%) of African American students, 38% of Hispanic, and 26% of Caucasian students needing remediation were behind in all three subject areas tested compared to 34% of all students needing remediation.

Table A-1
Remediation Rates Varied by Student Race and Ethnicity



Note: Nineteen percent of 137,321 students had no test information; "Other" includes Asian or Pacific Islanders, American Indian/Alaskan Natives, Multiracial, students classified as non-resident aliens, and students who did not report information about themselves. .

Source: OPPAGA analysis of Department of Education data on students attending Florida community colleges and universities for the first time (FTIC) in 2003.

Remediation rates varied less based on other student characteristics. For instance, in 2003-04, 63% of Limited English Proficiency students needed remediation compared to 54% for students who spoke English fluently. In addition, 58% of female students needed remediation compared to 52% of male students. The remediation rate of part-time students was 57% compared to 49% for full-time students.

²³ "Other" includes Asian or Pacific Islanders, American Indian/Alaskan Natives, Multiracial, unknown, students classified as non-resident aliens, and No Indication, Not Reported.

The cost of remediation affects certain racial and ethnic groups of students more than others. Because African American and Hispanic students and students with limited English proficiency have higher remediation rates and typically require more remediation than their peers, the overall cost of remediation for these students tends to be higher. For instance, compared to their unprepared peers, African American and Hispanic students needing remediation in 2003-04, on average, required at least one additional college prep course and paid an additional \$144 and \$89, respectively, more in tuition for college remediation than other students who were not prepared for college-level coursework.

Appendix B

Descriptions of the Levels of High School Mathematics and English/Literature Courses Taken by Students and Their Need for Remediation

To determine whether students completing higher level and advanced high school courses were less likely to need remediation than other students, we defined categories of mathematics and reading courses based on course descriptions. The tables below describe these categories. The first column of each table describes the highest level of coursework attained by students, the second column lists the courses in that category, and the last two columns show the percentage of students in that category who were college ready and in need of remediation, respectively.

**Table B-1
High School Course Leveling System for Mathematics**

Highest Level of Coursework Attained	Course Descriptions	Percentage College Ready	Percentage Needing Remediation
Algebra I and below n=2,594	Courses that are Algebra I (or its equivalent) and below. These courses include Algebra I, Algebra I Honors, Algebra IA, Algebra IB, Applied Mathematics I, II, III, Integrated Mathematics I, II, III, Intensive Mathematics, and Pre-Algebra.	11%	89%
Algebra II /Geometry n=9,712	Courses include Algebra II, Discrete Mathematics, Geometry, and Informal Geometry.	18%	82%
Beyond Algebra II and Geometry n=1,711	Courses that are Algebra II and above, but not designated as “Honors,” “AP,” or “IB.” These courses include Advanced Topics in Mathematics, Analysis of Functions, Analytic Geometry, Calculus, Calculus I, Descriptive And Inferential Statistics, Pacesetter Mathematics IV, Pre-Calculus, Pre-Calculus Algebra, Pre-Calculus Algebra/Trigonometry, Probability and Statistics With Statistical Methods I, and Trigonometry.	49%	51%
Honors Algebra II /Geometry n=2,365	Courses that are Algebra II and above and designated with the “Honors” designation, but not the “AP” or “IB” designation. These courses include Geometry Honors and Algebra II Honors.	61%	39%
Accelerated Math AP or IB Math n=222	Courses that have an “AP” or “IB” designation. These courses include Advanced Placement Calculus AB, Advanced Placement Statistics, Advanced Placement Calculus BC, Calculus-International Baccalaureate, Mathematics Studies-International Baccalaureate, Trigonometry-International Baccalaureate, and Analytic Geometry-International Baccalaureate.	83%	17%

Source: Florida Department of Education Data Trend 33; Courses taken by 2001-02 high school graduates attending Florida community colleges for the first time in 2002-03 who had CPT math scores.

**Table B-2
High School Course Leveling System for English/Literature**

Highest Level of Coursework Attained	Course Descriptions	Percentage College Ready	Percentage Needing Remediation
English Skills Courses n=14	Courses that are designated as “English Skills.” These courses include English Skills I, II, III, and IV.	7%	93%
General English /Literature n=9,778	Courses that are English I through English IV that do not have the “Honors” or “AICE” designation. ¹ These courses include American Literature, British Literature, British Literature Since 1798, Business English I, Business English II, Classical Literature, Contemporary Literature, Developmental Language Arts Through ESOL, English I, II, III, IV (Class Composed of LEP Students May Use Certifications), and World Literature.	29%	71%
Honors English /Literature n=6,616	Courses that are English I through English IV that have the “Honors” or “Pre-AICE” designation. These courses include American Literature Honors, British Literature Honors, Classical Literature Honors, Contemporary Literature Honors, English Honors I, II, III, IV, English I-Pre-International Baccalaureate, English II-Pre-International Baccalaureate, Pacesetter English I, III, IV, Pacesetter Language Arts, and World Literature Honors.	53%	47%
AP and IB English /Literature n=537	Courses that have the “AP,” “IB,” or “AICE” designation. These courses include Advanced Placement English Language and Composition, Advanced Placement English Literature and Composition, English III, IV-International Baccalaureate.	73%	27%

¹The Advanced International Certificate of Education (AICE) program was enacted by the 2002 Legislature. The program provides accelerated courses to academically able students in grades 11 and 12 and the coursework is based on an internationally developed curriculum. Because the program is new AICE courses were not available to our cohort of students.

Source: Florida Department of Education Data Trend 33; Courses taken by 2001-02 high school graduates attending Florida community colleges for the first time in 2002-03 who had CPT reading scores.

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