SF State Remediation Study

Fall 2005 through 2009 Cohorts of Full-Time First-Time Freshmen

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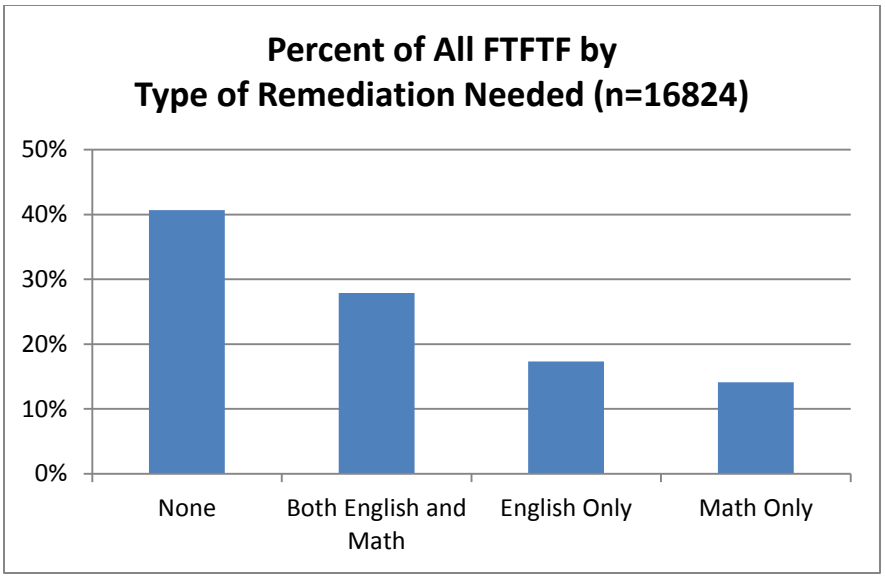
Introduction

When university budgets tighten, some institutions contemplate reducing or eliminating remedial coursework. The Alliance for Excellent Education estimates that post-secondary remedial education costs $3.6 billion annually (McClatchy Newspaper, December 28, 2011). At SF State, remediation must be completed in the freshman year. The need for remediation may delay graduation. It may also be associated with a decreased likelihood of graduation. Nationally, dropout rates are higher for students who need remediation. This study examines the need for and completion of remediation at SF State.

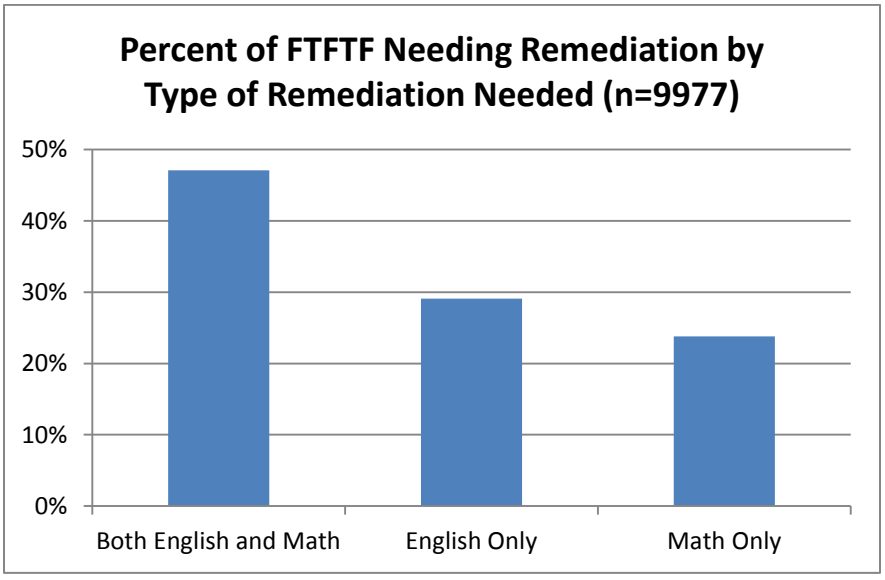
Need for Remediation

Six in ten (9977 or 59%) of the 16824 full-time first-time freshmen (FTFTF) in the Fall cohorts of 2005 through 2009 needed remediation in English, math, or both. Students significantly more likely than others in each demographic category to need any remediation were:

- Female
- African American, Asian, or Latino
- URM
- First generation college
- Enrolled in EOP
- Pell-eligible in freshman year
- Health & Social Sciences or Business majors
- “B” high school GPA (vs. “A” or “C”)
- Local area students or students from outside of California (vs. students from other California counties)

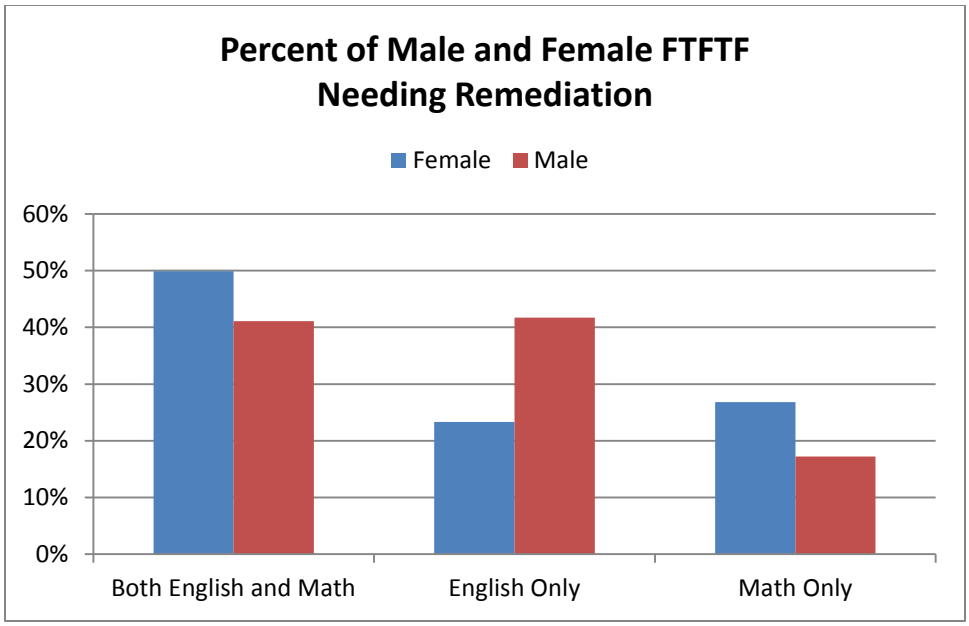


As shown in the chart above, remediation in both English and math was needed by 28% of all FTFTF in the study cohorts. Remediation in English alone was needed by 17% of all FTFTF. Remediation in math alone was needed by nearly as many students as needed English-only remediation: 14% of all FTFTF.

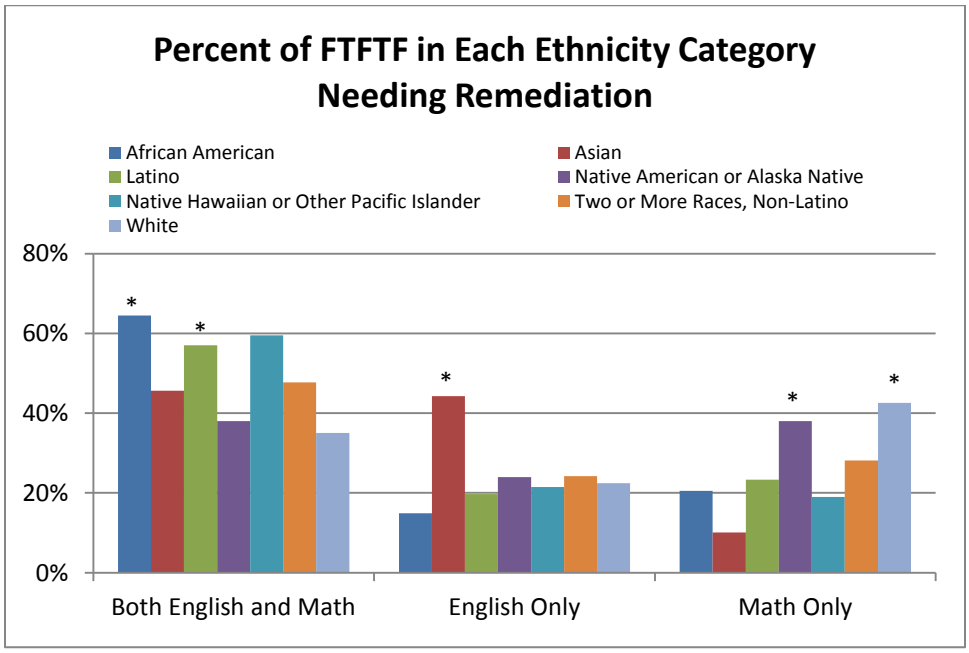


Among only the FTFTF needing any remediation, remediation in both English and math was needed by 47%. Remediation in English alone was needed by 29%. Remediation in math alone was needed by nearly as many students as needed English-only remediation: 24% of students needing remediation.

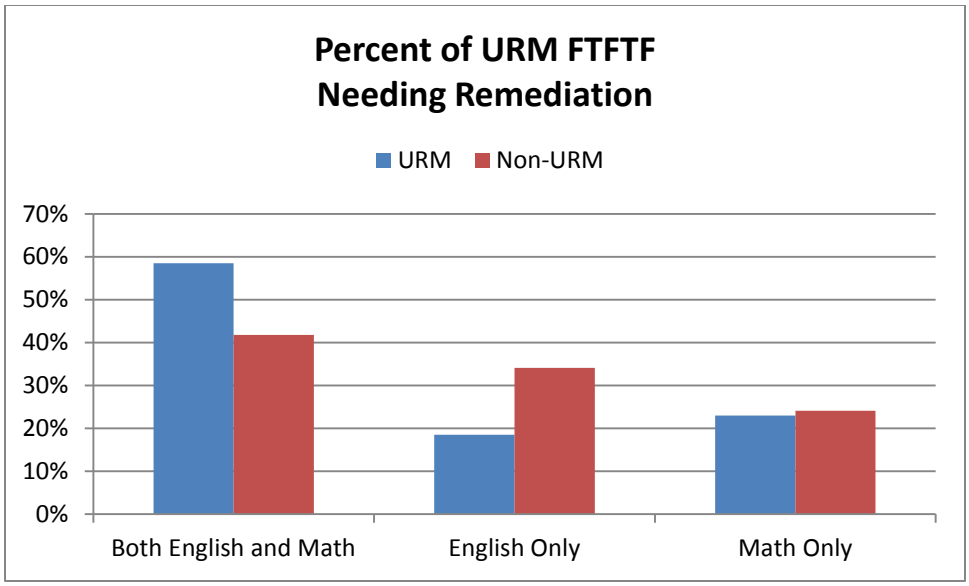
The likelihood of needing English and/or math remediation is shown below by demographic category.



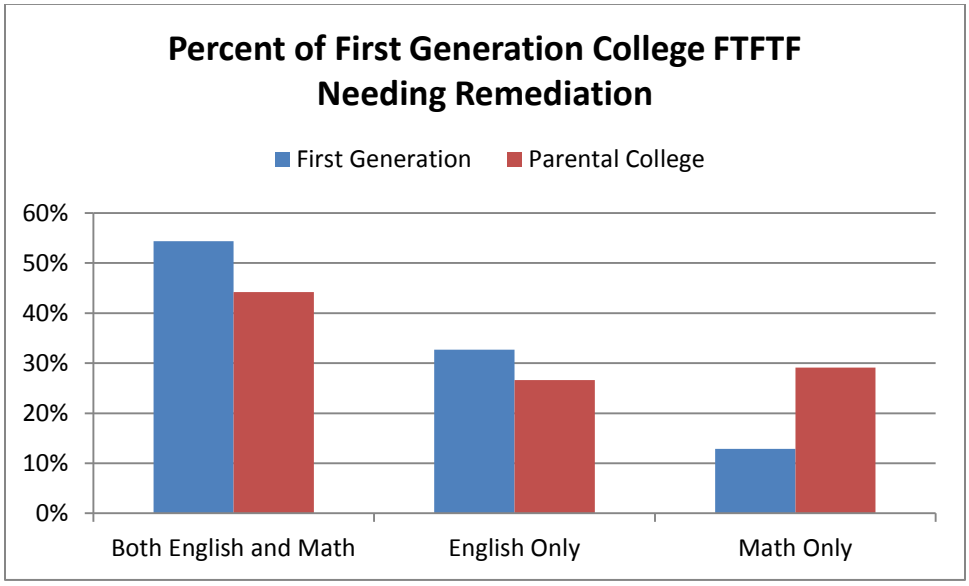
Female students were significantly more likely than were male students to need remediation in both English and math and in math alone, while male students were significantly more likely than were female students to need remediation in English alone.



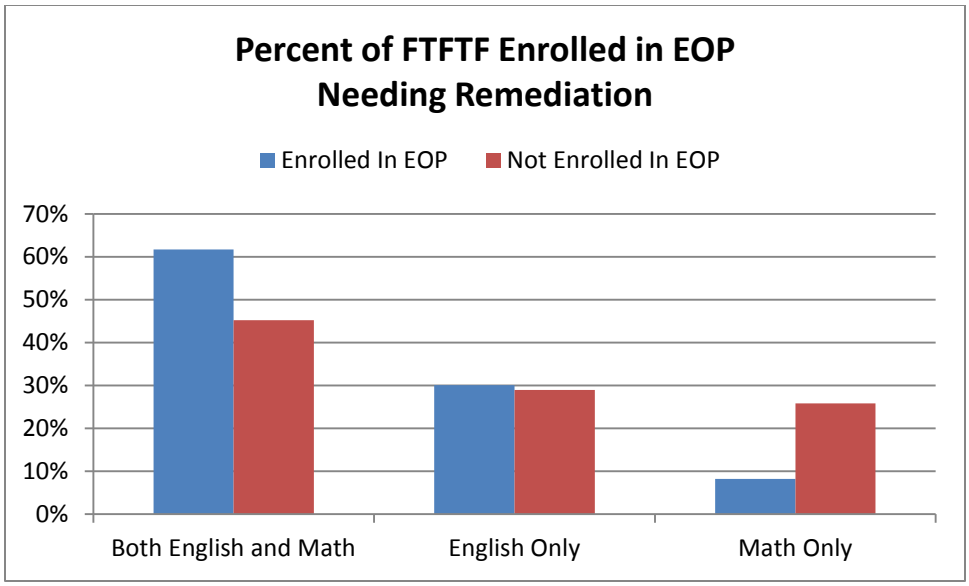
African American and Latino students were significantly more likely than were students of other ethnicities to need remediation in both English and math. Asian students were significantly more likely than were others to need remediation in English alone. White and Native American/Alaska Native students were significantly more likely than were others to need remediation in math alone. (Asterisks in the chart above indicate statistical significance.)



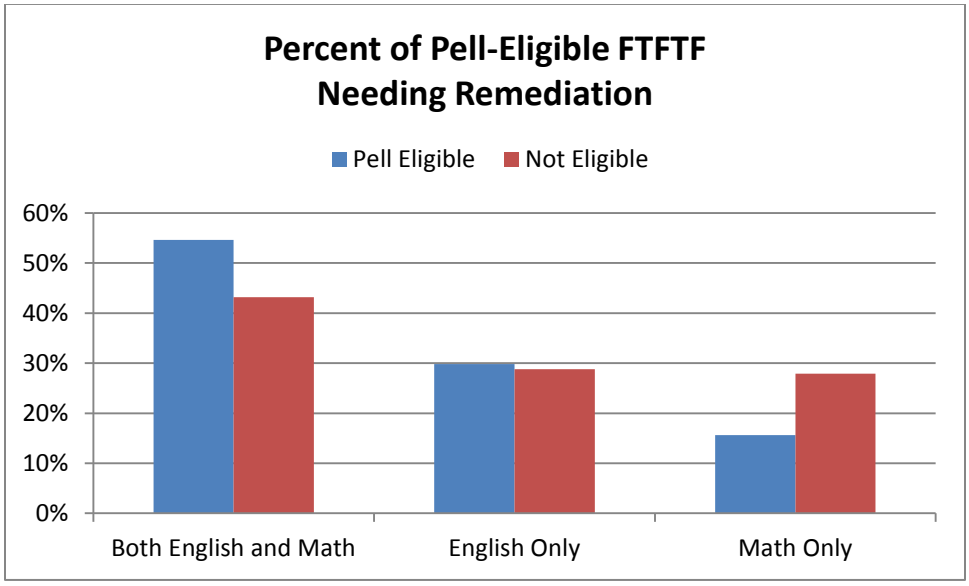
URM students were significantly more likely than were non-URM students to need remediation in both English and math, while non-URM students were significantly more likely than were URM students to need remediation in English alone.



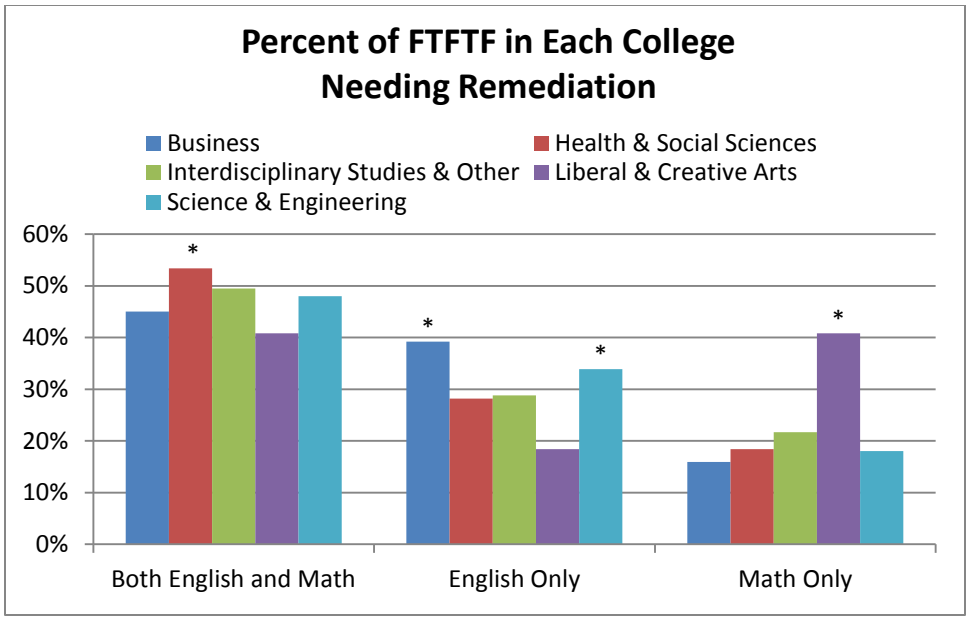
First generation college students were significantly more likely than were students whose parents attended college to need remediation in both English and math or in English alone, while students whose parents attended college were significantly more likely than were first generation students to need remediation in math alone.



Students enrolled in EOP were significantly more likely than were other students to need remediation in both English and math, while students who were not enrolled in EOP were significantly more likely than were EOP enrollees to need remediation in math alone.

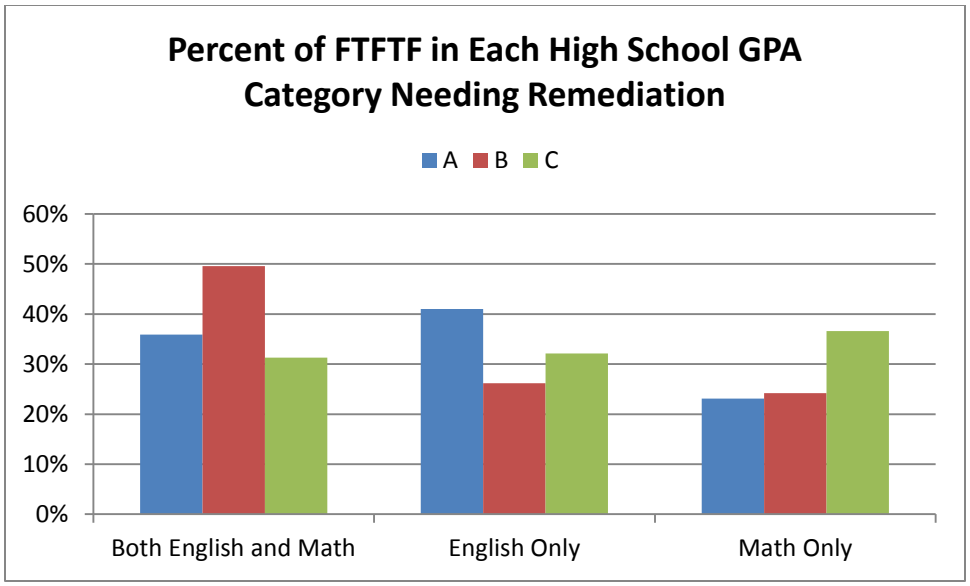


Similarly, students who were eligible for Pell grants in their freshman year were significantly more likely than were Pell-ineligible students to need remediation in both English and math, while Pell-ineligible students were significantly more likely than were Pell-eligible students to need remediation in math alone.

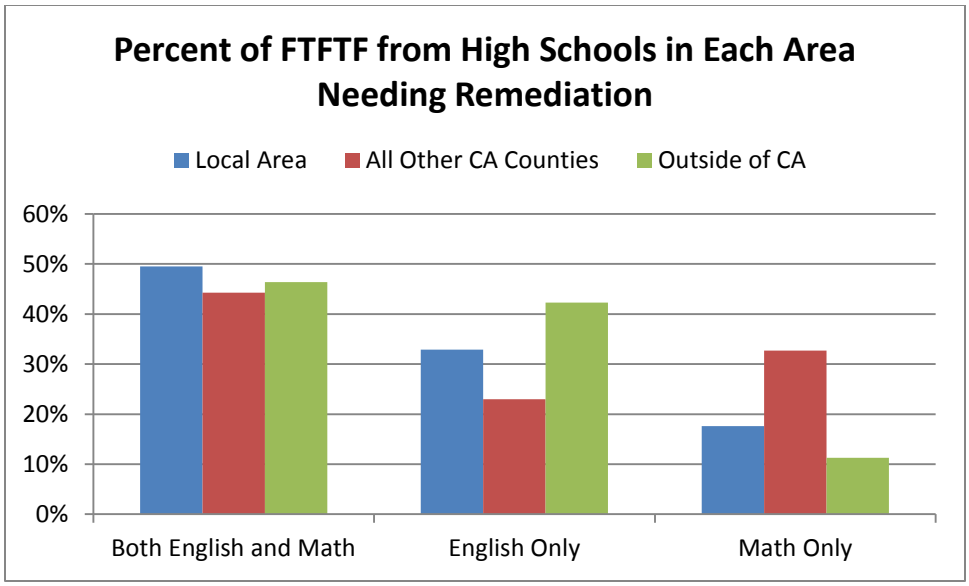


Students having majors in the College of Health & Social Sciences were significantly more likely than were students having majors in other colleges to need remediation in both English and math. Students having majors in the Colleges of Business or Science & Engineering were significantly more likely than were other students to need remediation in English alone. Students having majors in the College of Liberal & Creative Arts were significantly more likely than were other students to need remediation in math alone. (Asterisks in the chart above indicate statistical significance.)

The Colleges of Education and Ethnic Studies are not shown but are included in Appendix A. There were very small numbers of students having undergraduate majors in either college compared to the numbers of students having majors in the other colleges.



The high school GPAs of students needing remediation in math alone corresponded to the expectation that students with lower high school GPAs would have greater remediation needs. Running counter to expectations, however, were students who had a "B" GPA in high school and were significantly more likely than were students having "A" or "C" high school GPAs to need remediation in both English and math. A possible explanation is that African American and Latino students (who historically have had lower high school GPAs than have other students) were significantly more likely than were students of other ethnicities to need remediation in both English and math. They were also more likely to come from California counties outside of the local area, where higher admissions standards are imposed by SF State. So while these students who needed remediation in both English and math might have been expected to have "C" high school GPAs, perhaps the higher admissions standards yielded better students. Similarly defying expectations, students having an "A" GPA in high school were significantly more likely than were other students to need remediation in English alone. Asian students were significantly more likely than were students of other ethnicities to need remediation in English alone and to have "A" high school GPAs.



Students who attended local area high schools were significantly more likely than were students from other counties in California or from outside of California to need remediation in both English and math. Students from the local area and from outside of California were significantly more likely than were students from other California counties to need remediation in English alone. Students from other California counties were significantly more likely than were other students to need remediation in math alone. While these results are mixed, students from high schools in the local area were more likely to need remediation in four of the six comparisons (in comparing the local area to the two other geographic areas in each of the three remediation categories).

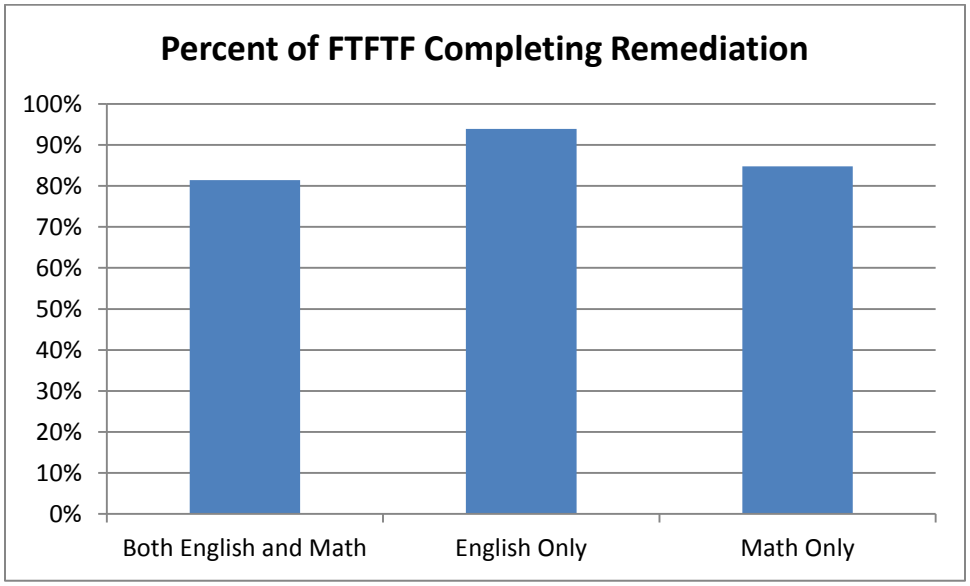
The table below summarizes the preceding analysis of remediation needed by demographic category. The characteristics of students who needed remediation varied greatly by the type of remediation the students needed. This is, in part, due to identifying three different types of remediation. Nonetheless, among the characteristics of students significantly more likely to need remediation, those who were female, first generation, and local area students were significantly more likely to need remediation of more than one type.

Demographic Characteristics of Students More Likely to Need Remediation than Others in the Same Demographic Category

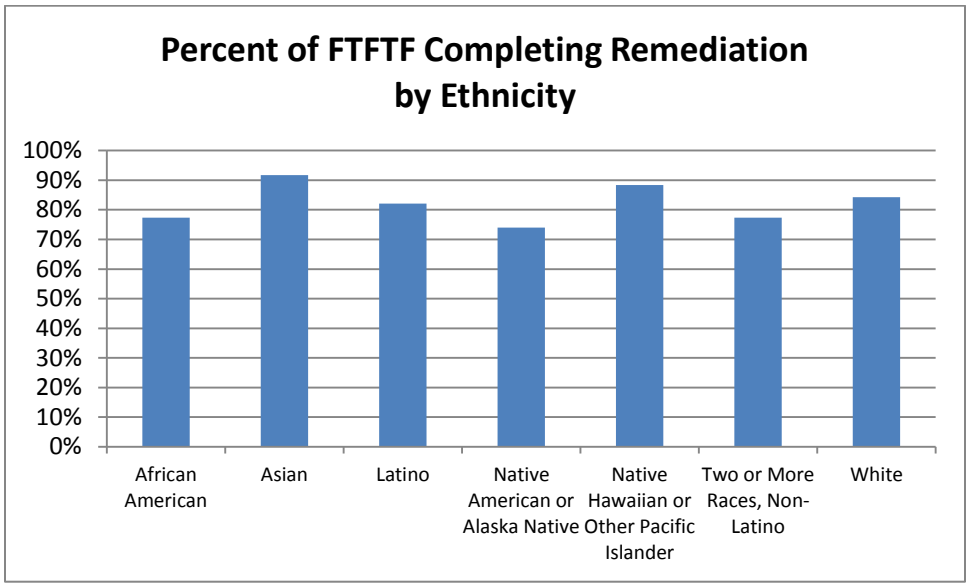
Demographic Category	Both English and Math	English Only	Math Only
Gender	Female	Male	Female
Ethnicity	African American or Latino	Asian	White or Native American/Alaska Native
URM	URM	Non-URM	(no significant difference)
First Generation College	First generation college	First generation college	Parental college experience
EOP Enrollment	Enrolled in EOP	(no significant difference)	Not enrolled in EOP
Pell Grant Eligibility in Freshman Year	Pell-eligible	(no significant difference)	Not Pell-eligible
College of Major	Health and Social Sciences	Business or Science & Engineering	Liberal & Creative Arts
High School GPA	B	A	C
Geographic Origin/ High School	Local area	Local area or outside of California	California county outside of local area

Completion of Remediation

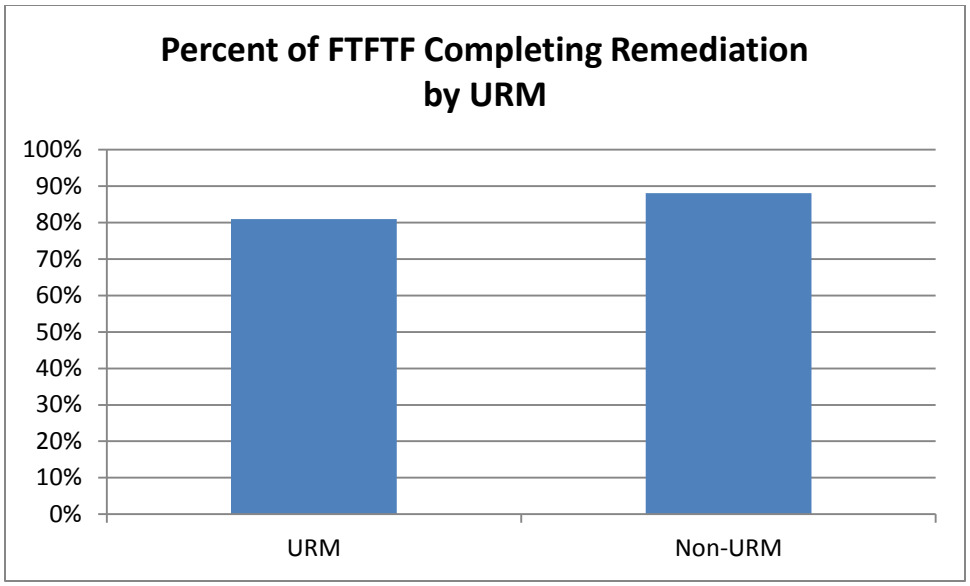
Of the 9977 FTFTF in the Fall cohorts of 2005 through 2009 who needed remediation, 8568 (86%) completed remediation while 14% did not.



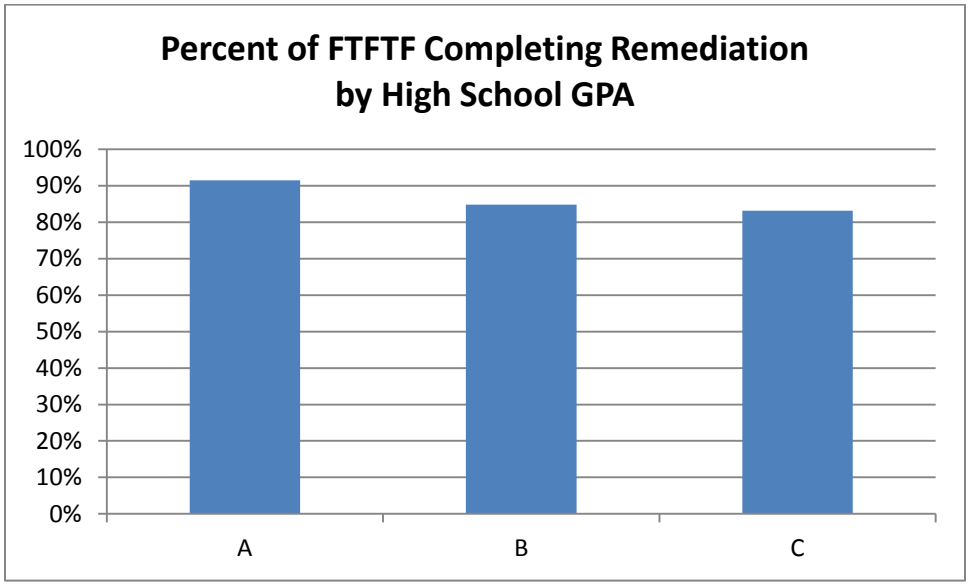
Students who needed remediation in both English and math were significantly less likely and those who needed remediation in English alone were significantly more likely than were those who needed remediation in math alone to complete remediation.



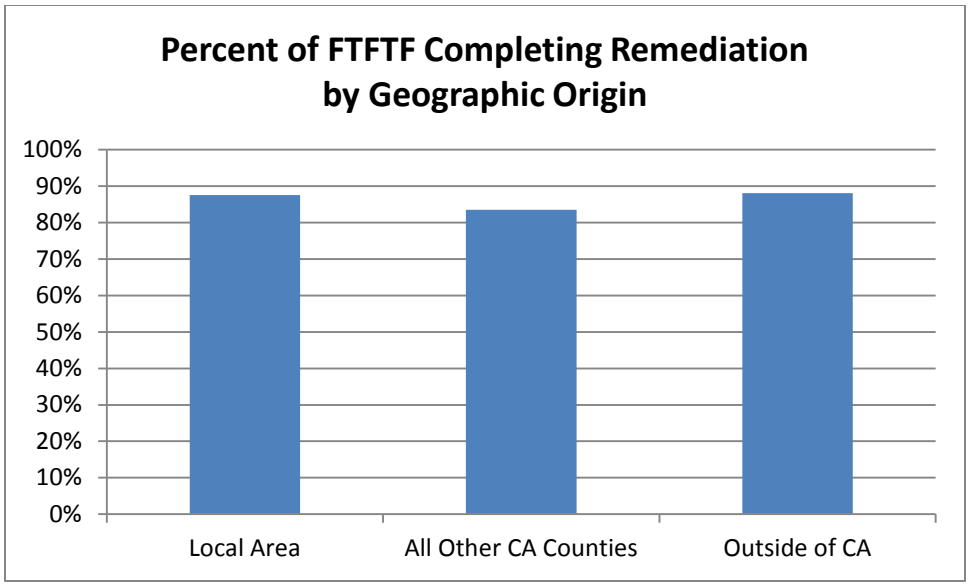
Asian students were significantly more likely than were students of other ethnicities to complete remediation.



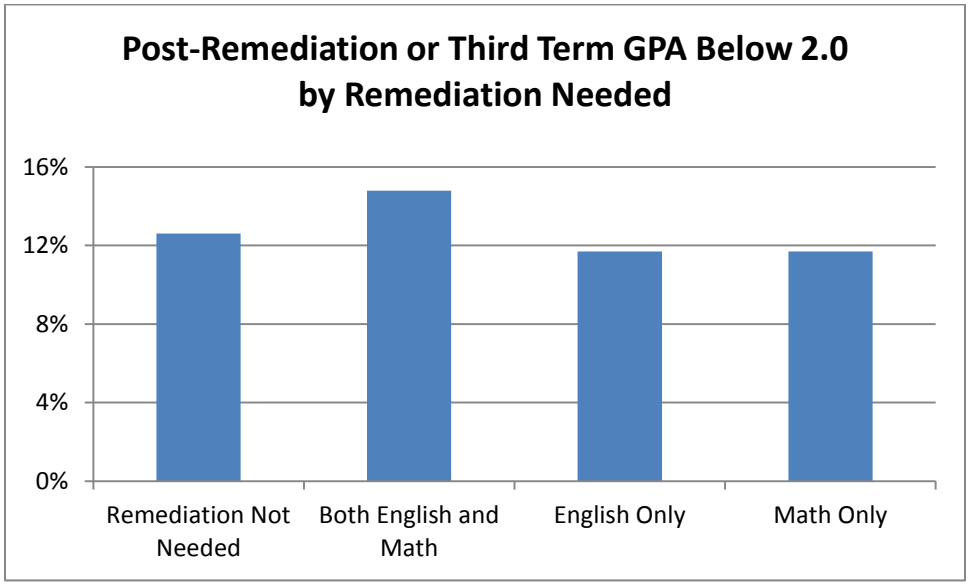
URM students were significantly less likely than were non-URM students to complete remediation.



Students who had an "A" high school GPA were significantly more likely than were students with other GPAs to complete remediation.



Students from high schools in California counties outside of the local area were significantly less likely than were students from the local area or outside of California to complete remediation.



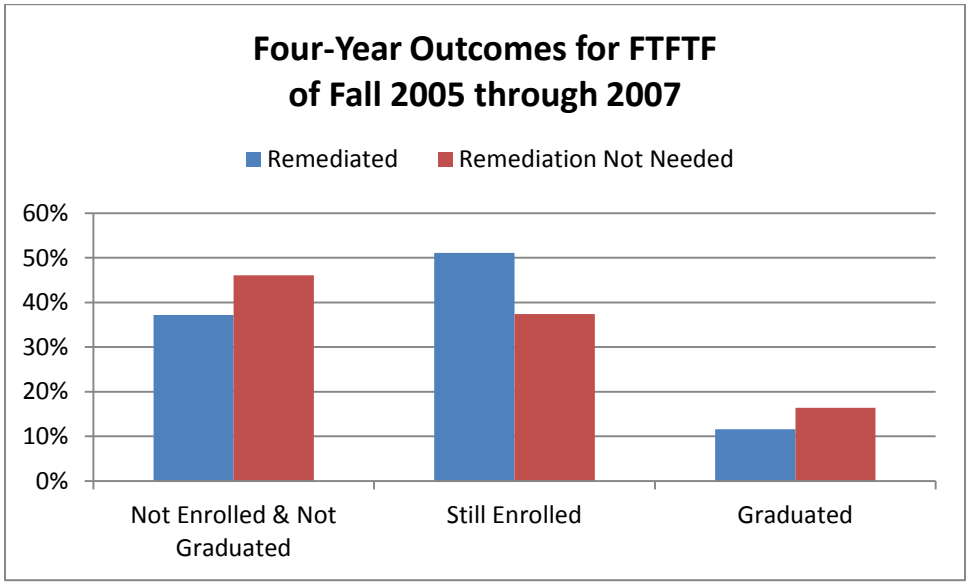
The term GPAs of students in the semester following their completion of remediation were compared to the third-term GPAs of students who did not need remediation. Students who needed and completed remediation in both English and math were significantly more likely to have term GPAs below 2.0 in the semester following their completion of remediation than were students who needed and completed remediation in either English or math alone or who did not need any remediation. It appears that the completion of remediation in both English and math did not put these students on equal footing with those not needing remediation in terms of the likelihood of achieving good academic standing. Presumably, other factors were in play.

One-Year Outcomes for FTFTF Fall Cohorts of 2005 through 2009

Students in the FTFTF Fall cohorts of 2005 through 2009 who needed but did not complete remediation in their first year were subject to an SF State policy making them ineligible to enroll in the first semester of the second year. Seventy-eight percent (78%) of the students who had not needed remediation were retained, while 75% of those who had needed remediation were retained in the third semester. In more striking contrast to the 78% retention rate of students who had not needed remediation was the 87% of students who had *completed* remediation who were enrolled in the third semester. Of the students who were not retained in the third semester, 63% had needed remediation. While the reasons for not being retained into the second year were undoubtedly many, these percentages suggest that needing remediation did not notably reduce retention.

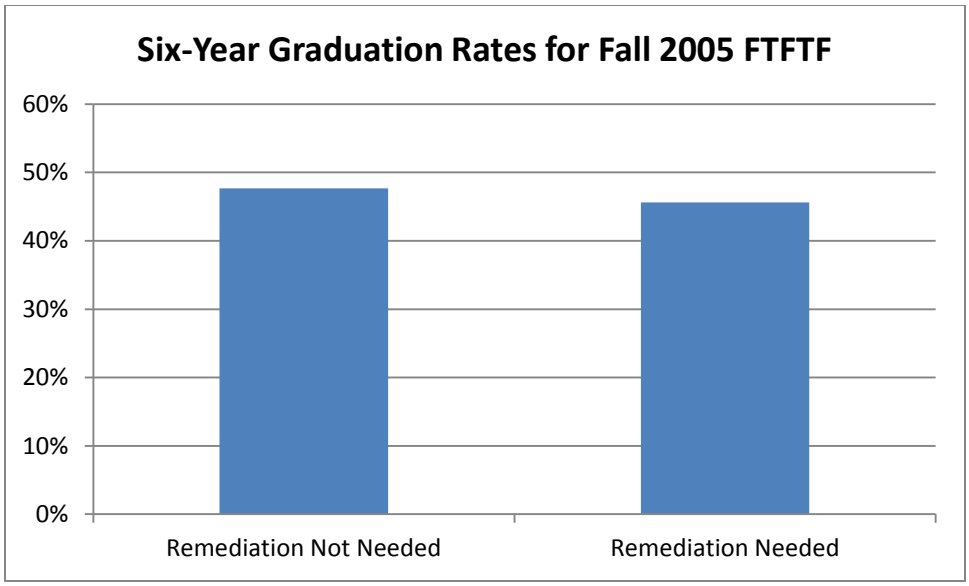
Four-Year Outcomes for FTFTF Fall Cohorts of 2005 through 2007

By the end of four years, 13% of the 9458 students from the Fall FTFTF cohorts of 2005 through 2007 had graduated. Of those who had not needed remediation, 16% had graduated, as opposed to 10% of those who had needed remediation. Twelve percent (12%) of those who *completed* remediation graduated in four years. Students who completed remediation were significantly more likely than were students who had not needed remediation to be still enrolled after four years.

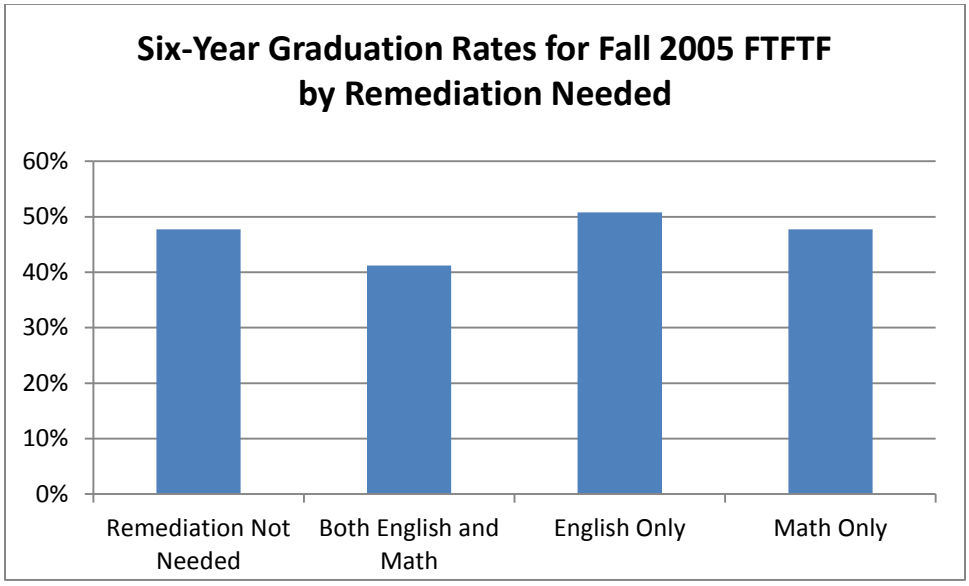


Six-Year Outcomes for the FTFTF Fall 2005 Cohort

Of the 2999 FTFTF in the Fall 2005 cohort, 1393 (46.4%) graduated from SF State by the end of six years.



Forty-eight percent (47.7%) of the students who had not needed remediation graduated in six years, as opposed to 45.6% of the students who had needed remediation. This is not a statistically significant difference.



The differences in six-year graduation rates by the type of remediation needed, however, are statistically significant. Students needing remediation in both English and math were significantly less likely than were those who needed English-only, math-only, or no remediation to graduate in six years. Less than 10% of the Fall 2005 FTFTF who did not complete remediation in their first year and, consequently, were ineligible to enroll in the third semester, returned to SF State at some point before the end of 2011. None graduated from SF State in six years.

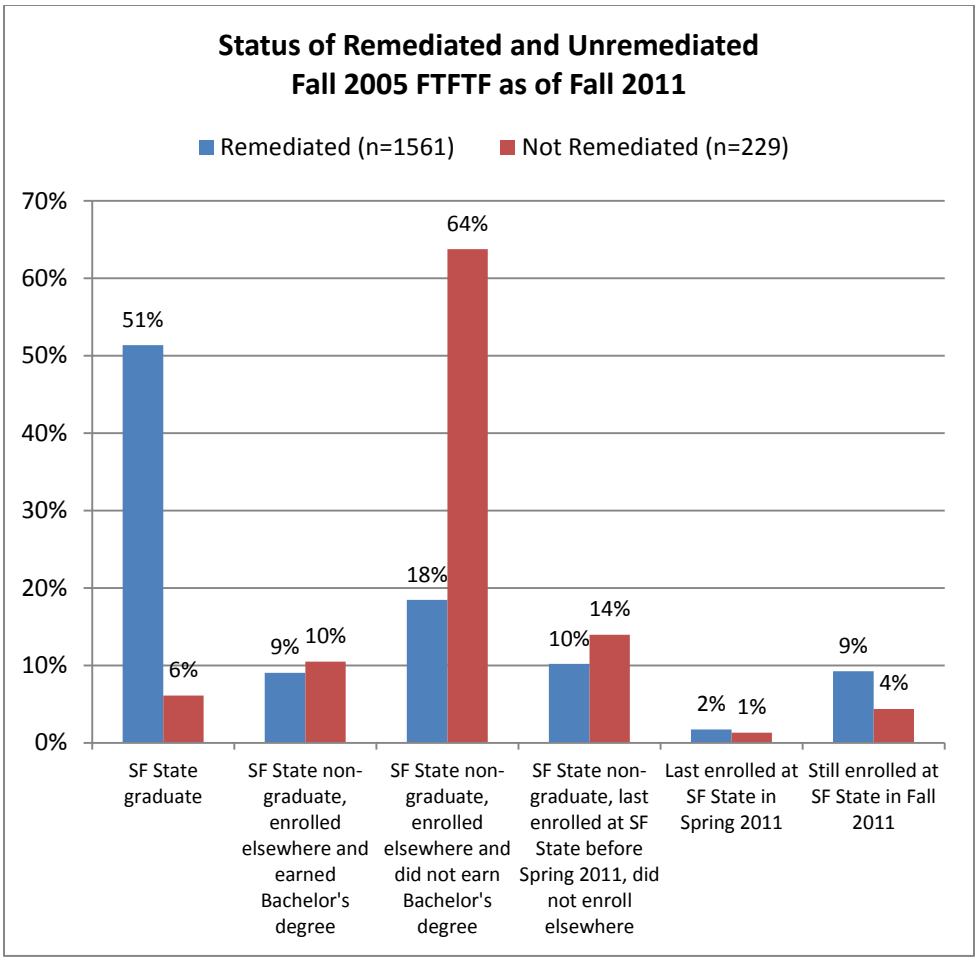
Remediated vs. Unremediated Students

Information on students' enrollment in other postsecondary institutions before January 2012 after leaving SF State was available from the National Student Clearinghouse for the FTFTF of the Fall 2005 cohort. Students who needed remediation were not significantly more or less likely than were those who did not need remediation to enroll in another college or university after attending SF State. Among the students who needed remediation, however, those who did not complete remediation at SF State were significantly more likely than were those who completed remediation to enroll elsewhere after leaving SF State. This was true for those needing remediation in English alone, math alone, and both English and math. For the Fall 2005 FTFTF cohort, at least, the failure to complete remediation at SF State did not appear to diminish a student's likelihood of continuing his or her post-secondary education.

Among students who enrolled elsewhere after leaving SF State, students who needed but did not complete remediation in both English and math or in math alone were significantly more likely than were students who completed such remediation to enroll first in a two-year institution and less likely to enroll first in a four-year institution. Perhaps these students intended to complete their remediation at the two-year institutions they chose. There was no statistically significant difference in the likelihood of remediated and unremediated students enrolling in public versus private institutions, although nine in ten students who needed remediation first enrolled in public rather than private institutions. There were no significant differences between remediated students and those who needed but did not complete remediation in English alone in the type of institution first attended after leaving SF State.

Among students who enrolled elsewhere after leaving SF State, students who needed but did not complete remediation in both English and math or in math alone were significantly less likely than were students who completed remediation to earn a two- or four-year degree elsewhere by the end of 2011. There was no significant difference in this between remediated and unremediated students who needed remediation in English alone.

Among students from the Fall 2005 FTFTF cohort who needed any type of remediation, there were distinct differences in the six-year outcomes of remediated students compared to those who did not complete remediation. Most notable is the difference in the percentages who graduated from SF State: 51% versus 6%. Also notable is the difference in the percentages of those SF State non-graduates who enrolled elsewhere and did not earn a Bachelor's degree before the end of 2011: 18% of remediated students versus 64% of students who did not complete remediation. Of the students who left SF State and enrolled elsewhere, regardless of whether they earned a degree elsewhere or not, 27% had completed remediation while 74% had not.



Conclusion

To put the need for remediation among SF State FTFTF in context, percentages of SF State FTFTF needing English or math remediation were compared to CSU system-wide percentages of the same. These numbers were obtained from the CSU Analytic Studies website. The percentages of CSU and SF State FTFTF needing remediation in English were very similar for the Fall cohorts of 2005 and 2006 at 45-46%, but for more recent cohorts the SF State percentages were slightly lower than those of the CSU system as a whole. In contrast, the percentages of FTFTF needing remediation in math at SF State were higher than were the CSU system-wide percentages for the Fall cohorts of 2005 through 2009, with SF State's percentages ranging from 41%-44% in contrast to the CSU's of 36-38%.

The demographics of students more likely to need any type of remediation corresponded to some extent to those of students who were significantly more likely not to complete it. URM and Pell-eligible students were significantly more likely than were non-URM or Pell-ineligible students both to need and not complete remediation. In contrast, while College of Business majors were significantly more likely to need remediation, they were also significantly more

likely to complete remediation. Similarly, local and non-California students were significantly more likely to need and to complete remediation than were students from California counties outside of the local area. There were no significant differences between students on the basis of gender, parental college attendance, or EOP enrollment among those who did not complete remediation.

Retention of students into their second year at SF State was very similar for students who did and did not need remediation (75% vs. 78%, respectively). On the other hand, judging by students' GPAs in the semester following their completion of remediation or, if they did not need remediation, their third semester, it appears that the completion of remediation by students who needed remediation in both English and math did not bring all of those students up to the level of readiness of students who did not need remediation or who completed English-only or math-only remediation.

Six-year graduation rates did not differ significantly between those who needed and those who did not need remediation. Significant differences appeared, however, in six-year graduation rates by the *type* of remediation needed. Students needing remediation in both English and math were significantly less likely than were those who needed English-only, math-only, or no remediation to graduate in six years.

Students needing remediation in both English and math appear less ready to be successful in post-secondary work in ways that other students are not. They are also less likely to succeed in their remediation efforts in their freshman year at SF State.

Appendix A – Remediation Needed by Demographic Category

		Remediation Needed									
		None		Both		English		Math		Total	
		n	%	n	%	n	%	n	%	n	%
Gender	Female	4099	37.6%	3399	31.1%	1590	14.6%	1825	16.7%	10913	100.0%
	Male	2748	46.5%	1300	22.0%	1318	22.3%	545	9.2%	5911	100.0%
	Total	6847	40.7%	4699	27.9%	2908	17.3%	2370	14.1%	16824	100.0%
		None		Both		English		Math		Total	
		n	%	n	%	n	%	n	%	n	%
Ethnicity	African American	249	24.4%	497	48.8%	115	11.3%	158	15.5%	1019	100.0%
	Asian	1529	30.4%	1598	31.7%	1553	30.9%	354	7.0%	5034	100.0%
	Latino	1081	31.9%	1315	38.8%	455	13.4%	537	15.9%	3388	100.0%
	Native American/Alaska Native	29	36.7%	19	24.1%	12	15.2%	19	24.1%	79	100.0%
	Native Hawaiian/Other Pacific Islander	62	33.9%	72	39.3%	26	14.2%	23	12.6%	183	100.0%
	Two or More Races, Non-Latino	138	51.9%	61	22.9%	31	11.7%	36	13.5%	266	100.0%
	White	3085	56.2%	840	15.3%	538	9.8%	1022	18.6%	5485	100.0%
	Total	6173	39.9%	4402	28.5%	2730	17.7%	2149	13.9%	15454	100.0%
		None		Both		English		Math		Total	
		n	%	n	%	n	%	n	%	n	%
Underrepresented Minority	URM	1396	30.7%	1849	40.6%	584	12.8%	725	15.9%	4554	100.0%
	Non-URM	5451	44.4%	2850	23.2%	2324	18.9%	1645	13.4%	12270	100.0%
	Total	6847	40.7%	4699	27.9%	2908	17.3%	2370	14.1%	16824	100.0%
		None		Both		English		Math		Total	
		n	%	n	%	n	%	n	%	n	%
First Generation College	First Generation	853	25.3%	1371	40.7%	824	24.4%	324	9.6%	3372	100.0%
	Parental College	5587	45.4%	2967	24.1%	1786	14.5%	1954	15.9%	12294	100.0%
	Total	6440	41.1%	4338	27.7%	2610	16.7%	2278	14.5%	15666	100.0%
		None		Both		English		Math		Total	
		n	%	n	%	n	%	n	%	n	%
EOP Enrollment	Enrolled In EOP	380	24.5%	721	46.5%	352	22.7%	96	6.2%	1549	100.0%
	Not Enrolled In EOP	6467	42.3%	3978	26.0%	2556	16.7%	2274	14.9%	15275	100.0%
	Total	6847	40.7%	4699	27.9%	2908	17.3%	2370	14.1%	16824	100.0%

		Remediation Needed									
		None		Both		English		Math		Total	
		n	%	n	%	n	%	n	%	n	%
Pell Grant Eligibility	Eligible and Received a Pell Grant	1395	29.2%	1842	38.6%	1007	21.1%	529	11.1%	4773	100.0%
	Eligible and Did Not Receive a Pell Grant	9	45.0%	8	40.0%	2	10.0%	1	5.0%	20	100.0%
	Not Eligible	5443	45.2%	2849	23.7%	1899	15.8%	1840	15.3%	12031	100.0%
	Total	6847	40.7%	4699	27.9%	2908	17.3%	2370	14.1%	16824	100.0%
		None		Both		English		Math		Total	
		n	%	n	%	n	%	n	%	n	%
College	Business	996	35.8%	805	28.9%	701	25.2%	284	10.2%	2786	100.0%
	Education	7	41.2%	6	35.3%	1	5.9%	3	17.6%	17	100.0%
	Ethnic Studies	8	25.8%	14	45.2%	3	9.7%	6	19.4%	31	100.0%
	Health & Social Sciences	792	32.4%	880	36.1%	465	19.0%	304	12.5%	2441	100.0%
	Interdisciplinary Studies & Other	1409	38.3%	1123	30.5%	652	17.7%	492	13.4%	3676	100.0%
	Liberal & Creative Arts	2303	50.4%	926	20.2%	418	9.1%	926	20.2%	4573	100.0%
	Science & Engineering	1332	40.4%	945	28.6%	668	20.2%	355	10.8%	3300	100.0%
	Total	6847	40.7%	4699	27.9%	2908	17.3%	2370	14.1%	16824	100.0%
		None		Both		English		Math		Total	
		n	%	n	%	n	%	n	%	n	%
High School GPA	A	1764	53.6%	549	16.7%	626	19.0%	353	10.7%	3292	100.0%
	B	4722	37.3%	3932	31.1%	2081	16.4%	1917	15.2%	12652	100.0%
	C	352	57.3%	82	13.4%	84	13.7%	96	15.6%	614	100.0%
	Total	6838	41.3%	4563	27.6%	2791	16.9%	2366	14.3%	16558	100.0%
		None		Both		English		Math		Total	
		n	%	n	%	n	%	n	%	n	%
Geographic Origin	Local Area	2836	35.6%	2543	31.9%	1692	21.2%	904	11.3%	7975	100.0%
	CA Counties Outside of Local Area	3782	46.8%	1906	23.6%	988	12.2%	1405	17.4%	8081	100.0%
	Outside of California	229	29.8%	250	32.6%	228	29.7%	61	7.9%	768	100.0%
	Total	6847	40.7%	4699	27.9%	2908	17.3%	2370	14.1%	16824	100.0%

Appendix B – Remediation Completed by Demographic Category

Remediation Completed

		Completed		Not Completed		Not Needed		Total	
		n	%	n	%	n	%	n	%
Remediation Needed	None	0	0.0%	0	0.0%	6847	100.0%	6847	100.0%
	Both English and Math	3826	81.4%	873	18.6%	0	0.0%	4699	100.0%
	English	2732	93.9%	176	6.1%	0	0.0%	2908	100.0%
	Math	2010	84.8%	360	15.2%	0	0.0%	2370	100.0%
	Total	8568	50.9%	1409	8.4%	6847	40.7%	16824	100.0%
		Completed		**Not Completed**		**Not Needed**		**Total**	
		n	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Gender	Female	5831	53.4%	983	9.0%	4099	37.6%	10913	100.0%
	Male	2737	46.3%	426	7.2%	2748	46.5%	5911	100.0%
	Total	8568	50.9%	1409	8.4%	6847	40.7%	16824	100.0%
		Completed		**Not Completed**		**Not Needed**		**Total**	
		n	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Ethnicity	African American	596	58.5%	174	17.1%	249	24.4%	1019	100.0%
	Asian	3213	63.8%	292	5.8%	1529	30.4%	5034	100.0%
	Latino	1894	55.9%	413	12.2%	1081	31.9%	3388	100.0%
	Native American/Alaska Native	37	46.8%	13	16.5%	29	36.7%	79	100.0%
	Native Hawaiian/Other Pacific Islander	107	58.5%	14	7.7%	62	33.9%	183	100.0%
	Two or More Races, Non-Latino	99	37.2%	29	10.9%	138	51.9%	266	100.0%
	White	2023	36.9%	377	6.9%	3085	56.2%	5485	100.0%
	Total	7969	51.6%	1312	8.5%	6173	39.9%	15454	100.0%
		Completed		**Not Completed**		**Not Needed**		**Total**	
		n	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Underrepresented Minority	URM	2559	56.2%	599	13.2%	1396	30.7%	4554	100.0%
	Non-URM	6009	49.0%	810	6.6%	5451	44.4%	12270	100.0%
	Total	8568	50.9%	1409	8.4%	6847	40.7%	16824	100.0%

		Remediation Completed							
		Completed		Not Completed		Not Needed		Total	
		n	%	n	%	n	%	n	%
First Generation College	First Generation	2166	64.2%	353	10.5%	853	25.3%	3372	100.0%
	Parental College	5733	46.6%	974	7.9%	5587	45.4%	12294	100.0%
	Total	7899	50.4%	1327	8.5%	6440	41.1%	15666	100.0%
		Completed		Not Completed		Not Needed		Total	
		n	%	n	%	n	%	n	%
EOP Enrollment	Enrolled In EOP	1000	64.6%	169	10.9%	380	24.5%	1549	100.0%
	Not Enrolled In EOP	7568	49.5%	1240	8.1%	6467	42.3%	15275	100.0%
	Total	8568	50.9%	1409	8.4%	6847	40.7%	16824	100.0%
		Completed		Not Completed		Not Needed		Total	
		n	%	n	%	n	%	n	%
Pell Grant Eligibility	Eligible and Received a Pell Grant	2862	60.0%	516	10.8%	1395	29.2%	4773	100.0%
	Eligible and Did Not Receive a Pell Grant	6	30.0%	5	25.0%	9	45.0%	20	100.0%
	Not Eligible	5700	47.4%	888	7.4%	5443	45.2%	12031	100.0%
	Total	8568	50.9%	1409	8.4%	6847	40.7%	16824	100.0%
		Completed		Not Completed		Not Needed		Total	
		n	%	n	%	n	%	n	%
College	Business	1575	56.5%	215	7.7%	996	35.8%	2786	100.0%
	Education	7	41.2%	3	17.6%	7	41.2%	17	100.0%
	Ethnic Studies	18	58.1%	5	16.1%	8	25.8%	31	100.0%
	Health & Social Sciences	1401	57.4%	248	10.2%	792	32.4%	2441	100.0%
	Interdisciplinary Studies & Other	1963	53.4%	304	8.3%	1409	38.3%	3676	100.0%
	Liberal & Creative Arts	1915	41.9%	355	7.8%	2303	50.4%	4573	100.0%
	Science & Engineering	1689	51.2%	279	8.5%	1332	40.4%	3300	100.0%
	Total	8568	50.9%	1409	8.4%	6847	40.7%	16824	100.0%

		Remediation Completed							
		Completed		Not Completed		Not Needed		Total	
		n	%	n	%	n	%	n	%
High School GPA	A	1398	42.5%	130	3.9%	1764	53.6%	3292	100.0%
	B	6721	53.1%	1209	9.6%	4722	37.3%	12652	100.0%
	C	218	35.5%	44	7.2%	352	57.3%	614	100.0%
	Total	8337	50.4%	1383	8.4%	6838	41.3%	16558	100.0%
		Completed		Not Completed		Not Needed		Total	
		n	%	n	%	n	%	n	%
Geographic Origin	Local Area	4503	56.5%	636	8.0%	2836	35.6%	7975	100.0%
	CA Counties Outside of Local Area	3590	44.4%	709	8.8%	3782	46.8%	8081	100.0%
	Outside of California	475	61.8%	64	8.3%	229	29.8%	768	100.0%
	Total	8568	50.9%	1409	8.4%	6847	40.7%	16824	100.0%