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# Preparing Students for Success in California's Community Colleges

## Technical Appendix

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#### Appendix A. Data and Methods

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# Appendix A. Data and Methods

## Data

The data used in this report come from the California Community College Chancellor’s Office Management Information System (MIS). Specifically, we use a longitudinal dataset of students enrolled in every college in the California Community College system. This dataset includes student demographics, course enrollment, and student outcomes. Additionally, the system has information on each course (title, credit status, transfer status, basic skills status, subject, etc.).

We restricted our sample to include only students who took a credit course in the CCC system for the first time in the academic year 2009–10. We further restrict our sample to only include those students ever enrolled in a math or English course. We are excluding special admit students and students with invalid Social Security Numbers too. We then tracked these students for over six years through the spring term of 2016.

## Differences between the numbers presented in this report and the numbers in the scorecard

- The CCC Student Success Scorecard excludes students concurrently enrolled at a four year institution or with prior enrollments outside the CCC system. We are unable to identify and exclude these students.
- The CCC Student Success Scorecard’s developmental education cohort is defined as the year the student attempts for the first time a developmental course. We define our developmental education cohorts as the year of first enrollment in a credit course regardless of the developmental education status if the course.
- Students whose lowest attempted math course was Intermediate Algebra (one level below college level) do not enter in the scorecard “unprepared” cohort.

## Limitations of this report

- The MIS database do not include data on college placement exam scores, so we are unable to identify who was referred to developmental education. Based on course transcript data, we are able to determine who participated in developmental education. Given that not all students follow the placement recommendations, the data in this report does not represent all students who needed remediation.
- Data on the courses students took and high school or their high school GPA would have given us more insight on the characteristics of developmental education students, unfortunately such data is unavailable as well.
- This report is purely descriptive and do not reveal anything about the effects of specific factors on participation in developmental education and/or on outcomes of developmental education students.

**TABLE A1**  
Cohort sizes

	All students	
	Number of students	Percent
Total Cohort	311,250	100
College-ready students	63,745	20
All developmental students	247,505	80
Both developmental math & English	122,233	39
Only developmental English	46,218	15
Only developmental math	79,054	25
Developmental English students	168,451	54
Developmental math students	201,287	65

**TABLE A2**  
Developmental education cohorts sizes by starting level

	All students			
	English		Math	
	Number of students	Percent	Number of students	Percent
One level below	76,669	46	55,345	27
Two levels below	57,246	34	64,572	32
Three levels below	26,633	16	53,305	26
Four levels below	7,903	5	28,065	14
Total	168,451	100	201,287	100

**TABLE A3**

Demographic profile

	College-ready		Developmental education		Total	
	Number of students	Percent	Number of students	Percent	Number of students	Percent
Total	63,745	100	247,505	100	311,250	100
Female	32,009	50	128,874	52	160,883	52
Male	31,362	49	117,599	48	148,961	48
Unknown sex	374	1	1,032	0	1,406	0
White	26,563	42	71,168	29	97,731	31
Latino	14,883	23	102,255	41	117,138	38
Asian American	12,090	19	29,728	12	41,818	13
African American	3,368	5	21,821	9	25,189	8
Native American	270	0	1,493	1	1,763	1
Two or more races	2,652	4	7,739	3	10,391	3
Unknown	3,919	6	13,301	5	17,220	6
Full-time student	21,569	34	66,105	27	87,674	28
Traditional college-age at entry	55,826	88	212,640	86	268,466	86
BOGW or Pell Grant Recipient	29,406	46	175,445	71	204,851	66
Prior dual enrollment	14,205	22	31,163	13	45,368	15

**TABLE A4**

Student progress through their developmental education sequence by starting level

	One-level below		Two-levels below		Three-levels below		Four-levels below	
	Students	Percent	Students	Percent	Students	Percent	Students	Percent
<b>Developmental math</b>								
Did not follow the traditional sequence	–	–	385	1	590	4	733	15
Same number of terms as number of levels	29,339	70	14,580	51	5,720	40	1,591	33
Took longer than expected	12,442	30	13,391	47	8,162	56	2,493	52
Total	41,781	100	28,356	100	14,472	100	4,817	100
<b>Developmental English</b>								
Did not follow the traditional sequence	–	–	839	3	1,683	24	676	39
Same number of terms as number of levels	51,512	86	17,629	70	3,417	49	537	31
Took longer than expected	8,644	14	6,800	27	1,915	27	509	30
Total	60,156	100	25,268	100	7,015	100	1,722	100

**TABLE A5**

Short-term outcome: Successful completion of a college-level course in the same discipline

	All students in our cohort		
	Successfully completed a college level course	Total	Share (%)
Developmental math	53,810	201,287	27
One level below	26,997	55,345	49
Two levels below college level	16,725	64,572	26
Three levels below college level	7,755	53,305	15
Four levels below college level	2,333	28,065	8
Developmental English	74,326	168,451	44
One level below	41,847	76,669	55
Two levels below college level	23,242	57,246	41
Three levels below college level	7,115	26,633	27
Four levels below college level	2,122	7,903	27

**TABLE A6**

Long-term outcomes: Transfers to four-year institutions

	Both math & English	Only math	Only English	All developmental education	College-ready	Total
California State University	12,389	11,546	5,603	29,538	18,484	48,022
University of California	1,658	2,859	3,253	7,770	10,048	17,818
Out-of-State College	4,259	5,691	2,014	11,964	8,311	20,275
In-State Private College	3,975	3,931	1,567	9,473	5,018	14,491
Total transfers	22,281	24,027	12,437	58,745	41,861	100,606
Total cohort	122,236	79,051	46,215	247,505	63,745	311,651
Share of total cohort (%)	18	30	27	24	65	

**TABLE A7**

Long-term outcomes: Degree/certificate attainment

	Math & English	Percent	Only Math	Percent	Only English	Percent	Dev. education	Percent	College-ready	Percent
Associate of Arts (AA) degree	13,929	11	9,758	12	3,155	7	26,842	11	8,109	13
Associate of Science (AS) degree	4,023	3	2,554	3	1,010	2	7,587	3	2,185	3
Certificate requiring 60 or more semester units	26	0	22	0	13	0	61	0	17	0
Certificate requiring 30 to fewer than 60 semester units	1,691	1	1,374	2	669	1	3,734	2	1,824	3
Certificate requiring 18 to fewer than 30 semester units	896	1	536	1	280	1	1,712	1	265	0
Certificate requiring 12 to fewer than 18 semester units	200	0	84	0	46	0	330	0	54	0
Certificate requiring 6 to fewer than 18 semester units	1,044	1	531	1	337	1	1,912	1	322	1
Other Credit Award, under 6 semester units	196	0	100	0	66	0	362	0	77	0
Non-credit award	54	0	41	0	24	0	119	0	9	0
None	100,174	82	64,054	81	40,618	88	204,846	83	51,284	80
Total cohort	122,233	100	79,054	100	46,218	100	247,505	100	63,745	100
AA/AS or certificates requiring at least 18 semester units	20,565		14,244		5,127		39,936		12,400	
Share (%)	17		18		11		16		19	

**TABLE A8**

## Upper-division transfers

	College-ready					Developmental education				
	Total	60 transferable units or more	Share (%)	60 transferable units or more plus math & English	Share (%)	Total	60 transferable units or more	Share (%)	60 transferable units or more plus math & English	Share (%)
California State University	18,484	7,364	40	6,304	34	29,538	20,567	70	18,337	62
In-state private college	5,018	1,089	22	859	17	9,473	2,547	27	1,844	19
Out-of-state college	8,311	1,608	19	1,197	14	11,964	3,029	25	1,959	16
University of California	10,048	4,517	45	4,084	41	7,770	5,242	67	4,891	63
Total	41,861	14,578	35	12,444	30	58,745	31,385	53	27,031	46

**TABLE A9**

## Developmental education courses offered by California community colleges by type

	Intervention	Number of colleges
Arithmetic	Traditional course sequence	85
Pre-algebra		103
Elementary Algebra		112
Intermediate Algebra		113
Geometry		65
Arithmetic	Half-paced	7
Pre-algebra		4
Elementary Algebra		36
Intermediate Algebra		28
Arithmetic & Pre-algebra	Compressed	27
Pre-algebra & Elementary Algebra		4
Elementary & Intermediate Algebra		19
Pre-Stats		37
Modularized		14
Multiple pathways		38
Self-paced		14



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