

The STEM Pathway for URM Students in California Community Colleges:

A Reality Check

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With thanks to Steven Spurling, CCSF

The Question is Whether a “Path” for URM STEM Students Really Exists from Community College to a Four Year Institution

- Overview of the Condition of Education in California and Who Attends Community College
- The Failed Public Policy Responsible for this
- Discussion of a Unique STEM Program at City College of San Francisco funded by the Dept. of Education
- Discussion of the Limits and Possibilities of any Special Program for URM Students Today

Overview of Education in the United States and California 2010

- In U.S. 18,248,128 students enrolled in postsecondary education (Chronicle of Higher Education Almanac 8/28/09)
- In U.S. 6,617,930 in all 2 year institutions (Ibid.)
- In California 2,897,531 enrolled in 110 CC Districts (California Community College Chancellor's Office, Data Mart, 1/13/10)
- California enrolls 43.8% of national CC students

College Readiness of California High School Graduates 2007

- UC and CSU “eligible” as a measure
- 350,700 graduated public high schools
- 46,400 UC eligible 13.4%
- 114,400 CSU eligible 32.6%
- Total “college eligible” 46.0%
- (Source: Griffen, Adrian. CPEC University Eligibility Study for the Class of 2007. December 2008)

UC and CSU Eligibility by Ethnicity for the Class of 2007

Ethnicity	UC	CSU	Total grads
Asian	15,200	26,400	51,800
White	20,000	50,700	136,500
Latino	8,700	28,300	125,700
Black	1,600	6,000	24,900
American Indian	100	300	2,800

California Community College Enrollment by Ethnicity, 2008-2009

• African-American	217,719	7.5%
• American Indian/Alaskan Native	24,497	.8%
• Asian	336,266	11.6%
• Filipino	95,452	3.3%
• Hispanic	857,853	29.6%
• Pacific Islander	23,048	.8%
• Unknown/Non-Respondent	367,674	12.7%
• White	975,022	33.7%
• Grand Total	2,897,531	100.0

Source: California Community College Chancellor's Office: Data Mart: Accessed January 13, 2010
https://misweb.cccco.edu/mis/onlinestat/studdemo_annual_college_rpt.cfm?

Populations Served by California Community Colleges

- High School Graduates Prepared for Calculus
- High School Graduates placing one or more levels below credit classes in English and/or Mathematics
- Non-High School Graduates earning a GED
- English Learners
- Personal Development/Career Changers
- Technical and Vocational Students
- Adult Students/Veterans/Foster Home/Welfare

Limits on Student Participation in CCC Transfer Tracks: Intake

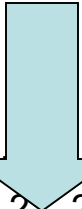
High School Completion Rates Vary Greatly by Ethnicity, Who is Counting, or What is being Counted: highly politicized (Or, lies, damned lies, and statistics) Examples:

African American >60% of 9th grade to 12th population earn a HS diploma (2004 Education Trust-West)

Latino >56% same 9th to 12th population earn a HS diploma (2004 Ed Trust-W)

Overall graduation rate for the state: 68.3% 2008-09 (5/09 CA Dept. of Ed.)

AAAS Ann...eting, February
21, 2010



This Means for CCCs:

- High proportion of non-hs diploma students attend CCC seeking GED
- Quality of high schools in drawing area affect quality of CCC students
- Resources go into remedial and pre-college education
- Relatively small number of students enter credit/transfer courses in STEM directly

Characteristics of California Community College Students

- Attend overwhelmingly part-time
- Work up to 40 hours a week
- Majority of entering students place below college level work
- Qualify for financial aid
- Most often first in families to attend college
- Unlikely to complete transfer in 6 years

CCSF Enrollment Data by Ethnicity, 2008-2009

- African-American 4,208 8.2%
- American Indian/Alaskan Native 260 .5%
- Asian 15,290 29.7%
- Filipino 3,517 6.8%
- Hispanic 7,912 15.4%
- Pacific Islander 515 1.0%
- Unknown/Non-Respondent 6,185 12.0%
- White 13,643 26.5%
- **Grand Total 51,530 100%**

Source: California Community College Chancellor's Office: Data Mart: Accessed January 13, 2010
https://misweb.cccco.edu/mis/onlinestat/studdemo_annual_college_rpt.cfm?

Characteristics of City College of San Francisco Students

- 74% entering students place 1 or more levels below college level courses
- 30% credit students receive financial aid
- 85% of credit population part-time (less than 24 units a year)
- Distributed among 1st time new students, transfer new students, continuing, joint high school enrollment, returning
- 61% received 1 to 3 matriculation services (testing, orientation, counseling)
- 65% f-t non-basic skills students graduated or transferred in 6 years, 17% p-t basic skills
- (Source: Steven Spurling, *Environmental Scan*, Office of Research and Planning, 11/2009)

Implications of CCSF Student Characteristics

- Preponderance of p-t means little identification with campus, far less likely to complete a transfer program
- First generation need to be directed to:
 - Use of counselors
 - Use of ethnic heritage programs
 - Use of tutors
 - Use of faculty office hours
- 74% incoming students requiring remediation makes path to transfer many years long. Persistence declines as number of basic classes increase

CCSF STEM Program

- Department of Education Grant, Office of Postsecondary Education,
- AANAPISI STEM Program, CFDA No. 84.382B
- P.I. Minh-Hoa Ta, Ph.D., Director of the Asian Pacific American Student Success Center--APASS

Elements of the Program:

- Creation of a STEM/MESA Center
- In-reach for URMs in entry level transfer STEM classes
- Creation of 6 new sections of impacted STEM classes
- With STEM department chairs create clear transfer paths to UCB and SFSU
- Teach across or align STEM curriculum
- Outreach to SF high schools to recruit STEM majors to CCSF
- Expose students to broad range of careers, training, etc
- Promote participation in non-Ed funded STEM activities such as NIH Bridges, NSF scholarships, etc.
- Provide broad range of benefits to members: academic counseling, tutoring, informational programs and trips, academic monitoring

Participation in CCSF STEM Program by Ethnicity

Ethnicity	Target Number	Percent of Target
Chinese	74	34.4%
Vietnamese	20	9.3%
Asian Other	13	6.0%
All Asians	114	53.0%
Filipino	35	16.3%
Pacific Islander	7	3.3%
Hispanic Mexican	13	6.0%
Hispanic Other	16	7.4%
Black	16	7.4%
White	9	4.2%
Other Non-white	4	1.9%
Decline to State	1	0.5%
Left Blank	0	0
TOTAL	215	93.5
Source: John Ho, ASAP Coordinator, CCSF		

Broad Benefits of the Program

- Overcomes anonymity of CC students
- Assists first generation students to enter college life
- Provides comprehensive academic support
- Supports STEM transfer aspiration
- Provides benefits for broad range of students, not just members
- Brings faculty/department chairs together to work on student issues

CCSF STEM Transfer Enrollment at All UC 2008 by Ethnicity

Field	Asian/ Pac. I.	Black	Filipino	Latino	Native Amer	White	All Other	Total
Computer Science	3	0	1	0	0	1	1	6
Engineering	25	0	0	2	0	3	4	33
Life Sciences	12	1	0	1	0	1	3	18
Math	4	0	0	0	0	0	0	4
Physical Science	4	0	1	0	0	1	2	8
All Fields	48	1	2	3	0	6	9	69
Source: California Postsecondary Commission, Detailed Data: Enrollment								

CCSF STEM Transfer Enrollment at All California State University 2008 by Ethnicity

Field	Asian/ Pac. I.	Black	Filipino	Latino	Native Amer	White	All Other	Total
Computer Science	11	0	1	2	0	1	3	18
Engineering	17	2	3	0	0	4	6	32
Life Sciences	6	0	1	2	0	4	5	18
Math	2	0	0	1	0	2	0	5
Physical Science	2	0	0	1	0	1	3	7
All Fields	38	2	5	6	0	12	17	80

SOURCE: California Postsecondary Commission, Detailed Data Enrollment

Relation of this Program to Improving URM Transfer: Conclusions

- Members of underrepresented groups are called that because there are so few of them in college at all in California, let alone in STEM majors.
- Bringing college completion rates up to the percentage of any group in the population requires intensive structural reform of education from nursery school on.
- Programs such as this one which add to the numbers of successful URM STEM transfers are essential to gradually improving URM college completion rates—even if person by person.
- It has been argued that first generation and minority CC students must receive the personal support and attention of faculty and counselors in order to understand their own potential and to pursue it (Bensimon 2008)

What the Real Possibilities Are for AA or Transfer for URM Students

- Half of the URM population already has disappeared from the path by not graduating high school
- 74% of entering students place in basic or remedial courses. Few finish the whole sequence
- SF high school students test around 50% at or above competency in math and English
- Traditional college age students account for most of the STEM enrollments

The Reality Check

- Too many pupils do not make it through the K-12 system either to completion or with sufficient knowledge to succeed in college.
- Educational disparities in the state go hand in hand with environmental and health disparities
- There seems little political will to address state problems including the excess of Black incarcerated youth over Black college students
- The state of California is in no position to substantially improve the educational pipeline

The Reality Check Continued

- Public Policy in California is not confronting the deep crisis in Californian education.
- Community Colleges, the end of the path for many, cannot be all things to all possible students
- Community Colleges' physical capacity to absorb increasing numbers of students is finite

The Ultimate Reality Check

- In 2009 2,897,531 Community College Students in California (CCCCO Office Data Mart)
- State wide transfer to UC in STEM 2008—54 African Americans, 262 Latinos (California Postsecondary Education Commission, detailed data)
- State wide transfer to CSU in STEM 2008 113 African Americans, 642 Latinos (CPEC).
- UC & CSU 2008 STEM Bachelor's Degrees: African Amer 167,904 Latino STEM. Total STEM BAs 7319
- National 5 year BS STEM completion rate:
 - White 33%, Asian 42%, Latino 22.1%, Black 18.4%, Native American 18.4%
- (Higher Education Research Institute UCLA January 2010)