

August 22, 2006

TO: Cinzia Muzzi, Ph.D.
Chemistry Instructor

FROM: Andrew LaManque, Ph.D.
Supervisor, De Anza Institutional Research

SUBJECT: Student Success in Chemistry 50, 1A, and 1B

Outlined below are the results from a analysis which examined student success in Chemistry 50-Preparatory Course for General Chemistry (Chem50), 1A, and 1B - General Chemistry (Chem1A and Chem1B).

Methodology

Students enrolling in Chem1A, during any of the six terms (2003W, 2003S, 2003F, 2004W, 2004S, 2004F) listed were included in the initial cohort. For each student in the initial cohort, registration records were checked to determine if they had taken Chem50. Even though some students take the chemistry placement test and take Chem50, no further check of placement records was done, if they took Chem50.

Repeats were handled using the following approach.

- When tracking from Chem50 to Chem1A the last grade for Chem50 and the first grade for Chem1A were considered.
- When tracking from Chem1A to Chem1B the last grade of Chem1A and the first grade of Chem1B were considered.
 - Note: For Chem50 and Chem1B all terms considered; for Chem1A only the 6 quarters noted above were considered, even for repeats.
- 56 students out of 851 repeated Chem1A over the 6 term period (7%); 54 out of 394 repeated Chem50 (14%); 43 of 522 repeated Chem1B (8%)

Observations

- Students that get a C in Chem50 received significantly lower grades in Chem1A than students with an A or B in Chem50 or that placed into Chem1A.
 - 45% of the students with a C in Chem50 passed Chem1A, compared with more than 80% of students with an A or B in Chem50.
- Students that receive an A in Chem50 are more likely to receive a higher grade in Chem1A than if they placed into Chem1A without Chem50.

- 76% of a group of students consisting of African American, Filipino, Hispanic, and Native American students enrolled in Chem50, compared with 39% of Asian students.
- 10% of Chem1A students over the period of study were African American, Filipino, Hispanic, and Native American, compared with 21.5% for the college population.
- 43% of the African American, Filipino, Hispanic, and Native American received a C in Chem50, compared with 26% of Asian students enrolled in Chem50.
- The success rates for students in Chem1B are higher for students that received a grade of A or B in Chem1A (94%), than for those with a C in Chem1A (65%).

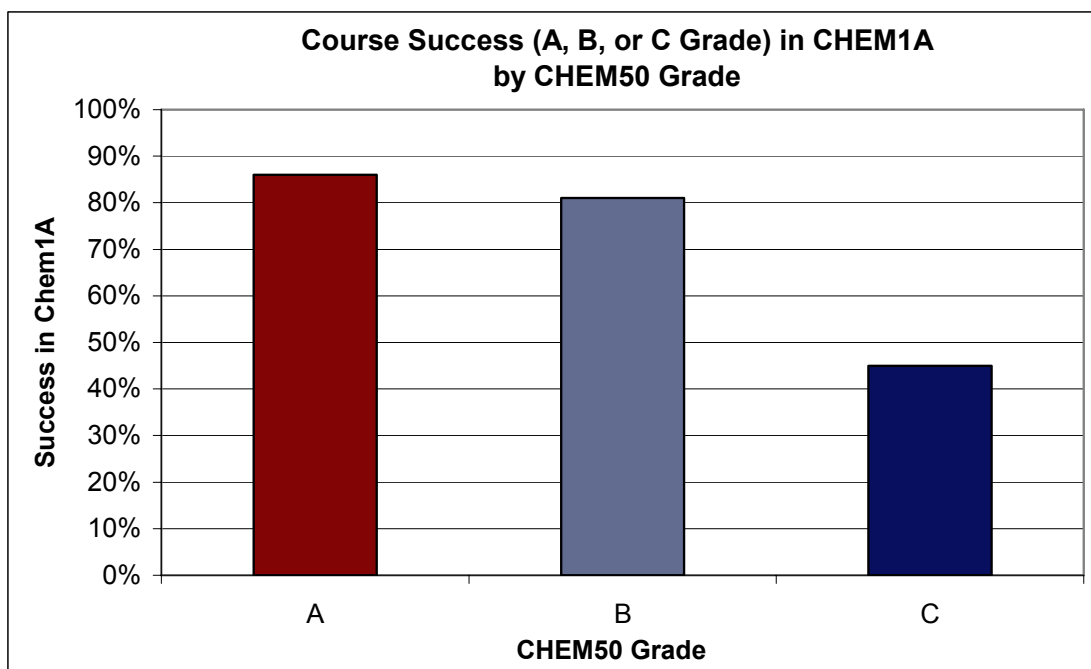
Figure 1

**Calculated CHEM1A Average GPA
by CHEM50 Grade or Placement**

ChEM 50 Grade	Chem1A Avg GPA	HC
A	2.82	112
B*	2.13	97
C*	1.21	112
P	2.21	70
D	1.00	1
W	0.50	2
Total	2.07	394
Placed	2.62	457

Note: W calculated as 0
 CHEM1A Enrollment Terms: 2003W, 2003S, 2003F,
 2004W, 2004S, 2004F
 Statistically Significant difference between B and C
 grades using two tail T test at .05 alpha.

Figure 2



CHEM1A Students Enrolled in CHEM50

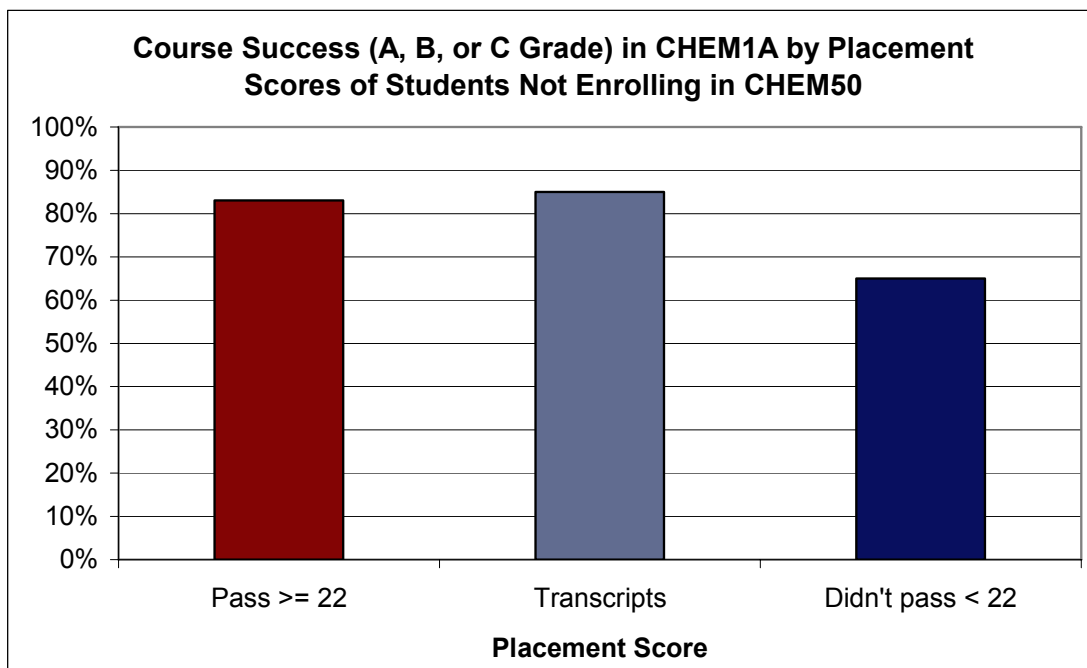
CHEM50 Grade	CHEM1A Success Group							
	Pass		Did Not Pass		Withdrew		Total	
	N	%	N	%	N	%	N	%
A	96	86%	3	3%	13	12%	112	100%
B	79	81%	9	9%	9	9%	97	100%
C *	50	45%	27	24%	35	31%	112	100%
P	54	77%	8	11%	8	11%	70	100%
D	0	0%	1	100%	0	0%	1	100%
W	0	0%	1	50%	1	50%	2	100%
Total	279	71%	49	12%	66	17%	394	100%

CHEM1A Enrollment Terms: 2003W, 2003S, 2003F, 2004W, 2004S, 2004F

Note: 112 of the 394 CHEM50 takers received a C grade in CHEM50 -- 28%.

Includes the last grade for CHEM50 and the first grade for CHEM1A (over the six quarters examined).

Figure 3

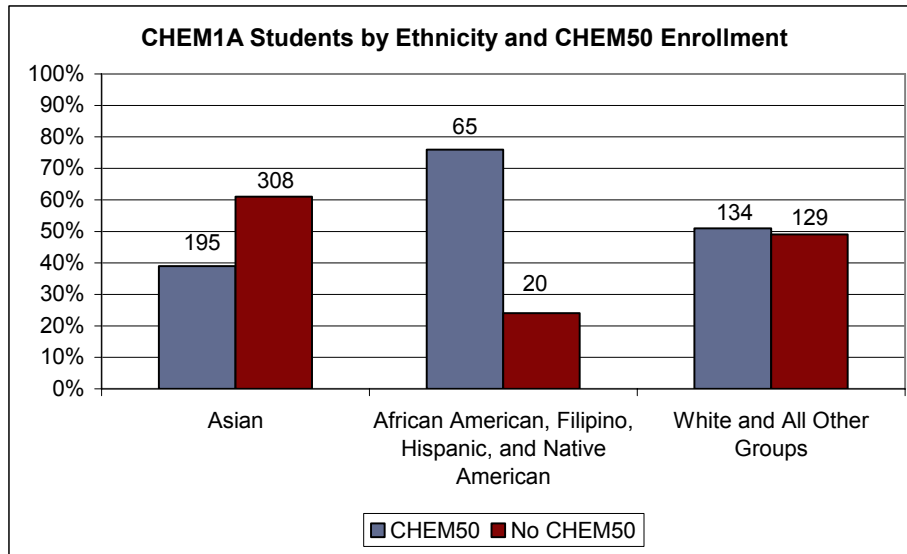


CHEM1A Students That Did Not Enroll in CHEM50

Placement Score	CHEM1A Success Group						Total	
	Pass		Did Not Pass		Withdrew		N	%
Pass >= 22	339	83%	27	7%	41	10%	407	100%
Transcripts	23	85%	1	4%	3	11%	27	100%
Didn't pass < 22	15	65%	7	30%	1	4%	23	100%
Total	377	82%	35	8%	45	10%	457	100%

CHEM1A Enrollment Terms: 2003W, 2003S, 2003F, 2004W, 2004S, 2004F
Includes the highest placement score.

Figure 4



CHEM1A Students by Ethnicity and CHEM50 Enrollment
(Percent of Row)

Ethnicity Group	CHEM50		No CHEM50		Total	
	N	%	N	%	N	%
Asian	195	39%	308	61%	503	100%
African American, Filipino, Hispanic, and Native American	65	76%	20	24%	85	100%
White and All Other Groups	134	51%	129	49%	263	100%
Total	394	46%	457	54%	851	100%

CHEM1A Students by CHEM50 Enrollment and Ethnicity
(Percent of Column)

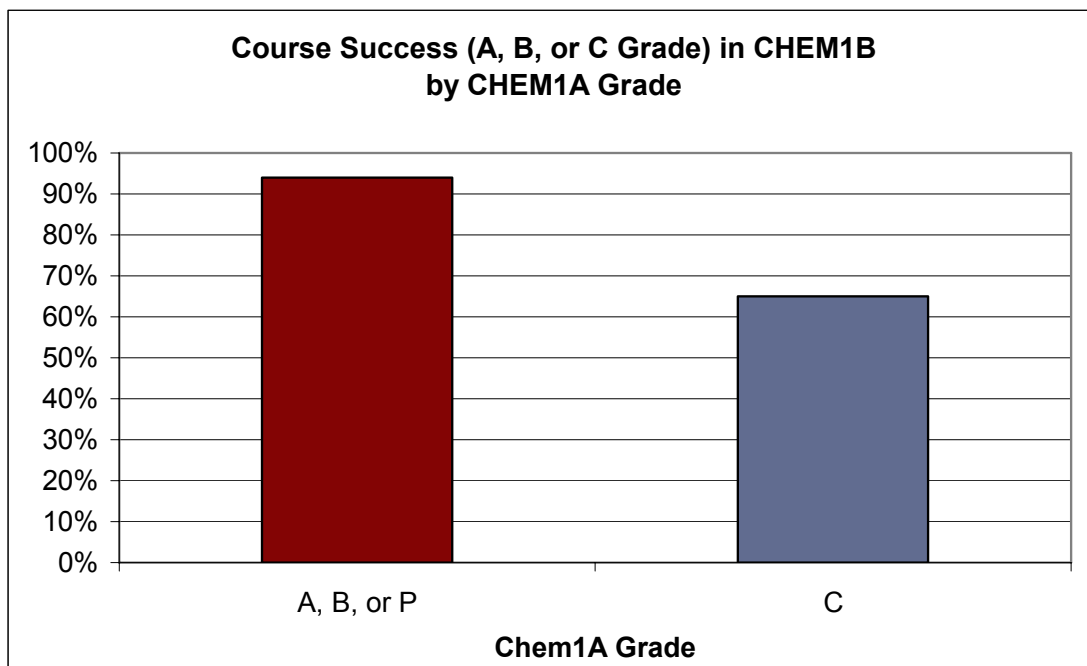
Ethnicity Group	CHEM50		No CHEM50		Total	
	N	%	N	%	N	%
Asian	195	49%	308	67%	503	59%
African American, Filipino, Hispanic, and Native American *	65	16%	20	4%	85	10%
White and All Other Groups	134	34%	129	28%	263	31%
Total	394	100%	457	100%	851	100%

CHEM1A Enrollment Terms: 2003W, 2003S, 2003F, 2004W, 2004S, 2004F

* In Fall 2003 these four ethnic groups made up 21.5% of total De Anza College headcount enrollment.

* 28 of the 65 students in these four ethnic groups received a C in CHEM50 -- 43%.

Figure 5



Course Success (A, B, or C Grade) in CHEM1B by CHEM1A Grade

Chem1A Grade	Chem1B Grade						Total	
	Pass		Did Not Pass		Withdrew		N	%
	N	%	N	%	N	%		
A, B, or P	321	94%	5	1%	17	5%	343	100%
C	107	65%	22	13%	35	21%	164	100%
D, F, W *	13	87%	1	7%	1	7%	15	100%
Total	441	84%	28	5%	53	10%	522	100%

Includes the last grade for CHEM1A (over the six quarters) and the first grade for CHEM1B.

* These students likely repeated CHEM1A after the six quarters examined before taking CHEM1B.

Figure 6

