



STEM (SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS) INTEREST SURVEY FALL 2012

Overview: In Fall 2012, the Crafton Hills College STEM (Science, Technology, Engineering, and Mathematics) Pathways Grant Team, in collaboration with the Office of Institutional Effectiveness, Research and Planning (OIERP), developed and administered a survey to students enrolled in selected STEM courses. The purpose of this brief is to summarize the findings from students who completed the survey.

Summary of Findings:

- 62% of the respondents were male
- 51% of the respondents were Caucasian, and 36% were Hispanic.
- 67% of the respondents were between 18 and 22 years of age.
- The most popular majors among the students surveyed were biology (28%), chemistry (23%), engineering (19%) and mathematics (17%).
- 63% of the respondents indicated that they had declared a major in an education plan with a counselor.
- The majority of students (71%) were attending college full time (12 or more units).
- 98% of the respondents have access to a computer at home.
- 32% of the respondents did not work, 30% worked less than 20 hours per week, and 37% worked more than 20 hours per week.
- 21% of students surveyed were first generation college students.
- 46% of the students' mothers had a college degree (associate's or higher) and 38% of students' fathers had a college degree.
- Mathematics, chemistry, and biology were the subjects that the largest number of students said they were "very interested" in.
- 86% of students were "somewhat interested" or "very interested" in joining a STEM club and in visiting a four-year institution as a STEM student.

Methodology: A convenience sample of students enrolled in STEM courses which fulfill associate degree requirements for a STEM major or are transferable to a four-year institution in a STEM major were identified by the STEM Pathways Coordinator. A total of 201 valid paper surveys were collected from in-class administration in September and October 2012.

First, students were asked to provide their student ID number, then selected from a checklist the program that their classes most closely identified with: anatomy and physiology, astronomy, biology, chemistry, computer science, engineering, environmental science, geography, geology, mathematics, microbiology, or physics. There was also an option for "other" with a blank space for students to write in a major or course of study not included in the list. Although the question was meant to have a single answer, many students checked more than one option, and many students wrote in the "other" box.

Next, questions asked if they had declared their program of study as a major with a counselor, how many units they were taking at Crafton, whether or not they had a computer at home, how many hours they worked per week, and the highest level of education achieved by their parents. Students were then asked to rate how interested they were in the science, technology, engineering, and mathematics topics.

Finally, students rated their level of interest in joining a STEM club and in visiting a four-year institution as a STEM student, and gave their name and email address for the purpose of getting information about those activities.

The data base created from the survey was merged on student ID with a demographics database with information from Datatel collected from the application when students register for classes at Crafton. This information was imported at the request of the STEM Pathways Coordinator to help in planning, development, and delivery of STEM programs and services which will meet the needs of CHC STEM students.

Sample: Table 1 shows the gender, age, and ethnicity of the respondents.¹ More than half of the students (62%) were male, and 38% were female. The majority of students (51%) were Caucasian; the next largest group was Hispanic students (36%). Students were more likely to be 18-22 years of age (67%). All but two of the students for whom data were available were native speakers of English.

Table 1: Respondents' Demographic Information

Gender	#	%*	Age	#	%*
Male	115	61.8	Under 18	4	2.1
Female	71	38.2	18	17	9.1
Ethnicity			19	38	20.3
Asian	17	9.1	20	35	18.7
Hispanic/Latino	69	35.8	21	16	11.2
African American	6	3.2	22	19	10.2
Native American	1	0.5	23-25	20	10.7
Caucasian	95	50.8	26-29	15	8.0
Other/Unknown	1	0.5	30-39	15	8.1
			Over 40	8	4.3

Findings: Although students were supposed to choose only one major, 43 students (22%) indicated more than one. Table 2 shows the number of students who chose each major, in descending order of frequency.

¹ Demographic information was not available for the 15 students who did not give a name or student ID number.

Table 2: STEM students' majors and areas of interest.

Major	N	%	Major	N	%
Biology	55	27.5	Animal Science/Veterinary Medicine	4	2.0
Chemistry	45	22.5	Undecided	3	1.5
Engineering	37	18.5	Astronomy	2	1.0
Mathematics	34	17.0	Fire Technology/Emergency Medical Services	2	1.0
Physics	16	8.0	Psychology	2	1.0
Anatomy and Physiology	14	7.0	Sciences/General Science	2	1.0
Computer Science	14	7.0	International Business	1	0.5
Biochemistry	7	3.5	Biomedical Engineering	1	0.5
Medicine	6	3.0	Geography	1	0.5
Geology	6	3.0	Aviation	1	0.5
Microbiology	5	2.5	Communications	1	0.5
Environmental Science	4	2.0	Environmental Health Science	1	0.5
Business	4	2.0			

N = number of students selecting the major. Total is more than 100% because some students selected more than one major.

After selecting a major, students indicated whether they had declared their major in an educational plan with a counselor. Of the 198 students who answered the question, 124 (63%) said they had formally declared a major, while 74 (37%) said they had not done so.

As illustrated in Table 3, the majority of students surveyed were attending full time; more than half of the students reported that they were taking 12 to 15 units (57%). Almost all of the students surveyed (98%) reported having a computer at home. Students varied widely in the number of hours they worked per week, as shown in Table 4. Thirty-two percent of the respondents indicated that they did not work, however, 37% reported working 21 or more hours per week, and 15% of those students reported working at least 31 hours per week.

Table 3: # of units enrolled and # of hours worked per week.

# of units currently taking at CHC	N	%	# of hours worked per week	N	%
1 to 4 units	11	5.5	I do not work	64	32.3
5 to 11 units	47	23.6	1 - 10 hours	24	12.1
12 to15 units	113	56.8	11 – 20 hours	36	18.2
16 units or more	28	14.1	21-30 hours	44	22.2
Total	199	100.0	31-40 hours	30	15.2
			Total	198	100.0

The next question asked students about the education level achieved by their parents; results are shown in Table 4. Twenty-one percent of the students were first generation college students. Of the respondents with parents who did have a college degree, their mothers were more likely to hold a degree (46%) than their fathers (38%).

Table 4: Level of education of parents.

	Mother		Father	
	N	%	N	%
Not a high school graduate	25	12.9	29	15.3
High school diploma	46	23.7	52	27.5
Some college, no degree	34	17.5	36	19.0
Associate degree	23	11.9	15	7.9
Bachelor's degree	29	14.9	27	14.3
Master's degree	25	12.9	11	5.8
Doctoral/professional degree	12	6.1	19	10.1
Total	194	100.0	189	100.0

Students were asked to rate their level of interest in various STEM disciplines (see Table 5). Results are displayed in descending order of popularity. Respondents were more likely to be interested in mathematics, chemistry, or biology, and least likely to show interest in geography or geology.

Table 5: Level of interest in STEM disciplines.

Discipline	Not interested	Somewhat interested	Very interested	Never heard of
Mathematics	36	52	97	4
Chemistry	28	62	96	2
Biology	41	61	89	0
Physics	37	72	76	2
Anatomy and Physiology	61	58	64	0
Engineering	64	56	59	3
Microbiology	58	75	50	3
Computer science	70	70	42	2
Environmental science	77	67	39	1
Astronomy	76	69	37	0
Geology	105	60	16	1
Geography	117	52	13	0

Students rated their level of interest in joining a STEM club and in visiting a four-year institution as a STEM student (see Table 6). About 86% of students stated that they were “somewhat interested” or “very interested” in joining a STEM club and in visiting a four-year school. Finally, students had an opportunity to give their names and email addresses so that they could be contacted regarding STEM clubs and university visits. The names and email addresses were provided to the STEM Pathways Coordinator separate from this report.

Table 6: Level of interest in joining a STEM club and visiting a 4-year school.

	Not interested		Somewhat interested		Very interested		Total	
	N	%	N	%	N	%	N	%
Joining a STEM club	28	14.2	111	56.3	58	29.4	197	100.0
Visiting a 4-year institution as a STEM student	27	14.1	92	48.2	72	37.7	191	100.0