

# **Hostos Joint Dual Engineering Degree Program with CCNY's GSoE**

## **ACADEMIC PROGRAM REVIEW (APR)**

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**Contributors:**

**Professor Yoel Rodríguez, Coordinator of Joint Dual Engineering Degree Program**

**Professor Francisco Fernández, Natural Sciences Department Chairperson**

**Professor Daniel Maysonet, Mathematics Department Chairperson**

**Professor Nieves Angulo, Mathematics Department**

**Mrs. Karla Contreras, Advising Coordinator of Joint Dual Engineering Degree Program**

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## I. INTRODUCTION

Hostos Community College (HCC) established its first Joint Dual (JD) Admission Engineering Degree Associate in Science/Bachelor in Engineering (A.S./B.E.) Program in *Electrical Engineering* with the Grove School of Engineering (GSoE) of The City College of New York (CCNY) of The City University of New York (CUNY) in fall 2003 (agreement signed on March 11, 2003; see **Appendix A**), followed by the A.S./B.E. in *Civil Engineering* in spring 2005, both housed in the Mathematics Department. HCC added the A.S./B.E. in *Chemical Engineering* in spring 2007, then the A.S./B.E. in *Mechanical Engineering* in spring 2009. These last two programs are housed in the Natural Sciences Department. A new JD program, *Environmental Engineering*, has been approved in spring 2014 and is housed on both departments.

The term Joint Dual admission means that the Engineering program is an agreement between HCC and CCNY's GSoE offering students an opportunity to study two years at HCC and two years at CCNY's GSoE towards an A.S./B.E. in engineering. Students accepted into the program are dually admitted to HCC and CCNY's GSoE and potentially can earn an A.S. and B.E. in one of the above-mentioned academic programs (i.e., Chemical, Civil, Electrical, Mechanical and Environmental Engineering). These programs have been designed to meet the licensure guidelines of the Accreditation Board for Engineering and Technology (ABET) and provide HCC students with the same curriculum as the first two years of the licensure qualifying program required at CCNY's GSoE. Upon successful completion of the lower division at HCC, students will transfer to the upper division of the baccalaureate program at CCNY's GSoE.

CCNY is one of the largest CUNY Colleges hosting about 15,000 students. It is a short commute from the HCC campus. The proximity makes it convenient for our engineering students to take classes on ePermit (i.e. classes that students take at other CUNY campuses) at CCNY's

GSoE. Our experience with the programs thus far demonstrates that students who are not eligible for admission into the B.E. program at CCNY's GSoE due to poor high school preparation, remedial/developmental needs, can attain academic proficiency if a path through a student-centered community college is offered. This path provides students with remedial sequences to build skills in Math, Science, Reading/Writing and English as Second Language. Additionally, because the programs curricula and syllabi are aligned by faculty from both the community and senior colleges, our community college students transferability towards CCNY's GSoE is guaranteed after successful completion of their programs and requirements.

## II. ACADEMIC PROGRAM

### A. Mission

The mission of the Joint Dual Engineering Degree Program of Eugenio Maria de Hostos Community College with The City College of New York's Grove School of Engineering is to provide for our multicultural and underrepresented student population a strong foundation of knowledge in science and mathematics as well as provide them with a high quality general education background.

To achieve this mission, the Mathematics and the Natural Sciences Departments are committed to keep the highest standards of excellence in teaching and service.

- **General Goal:** To better prepare our students to earn advanced degrees in Science, Technology, Engineering and Mathematics (STEM) fields.
- **Specific Goal:** To better prepare our students to succeed in The City College of New York's Grove School of Engineering programs.

## **B. Engineering Program Levels of Study**

There are three program levels of study: Pre-associate, Associate, and Bachelor. The Engineering Mentor/Advisory Council (see below *Engineering Advisory Council Group* section) evaluates student performance and places each applicant into one of the program levels of study.

### **1. Pre-associate Level**

The **Pre-associate Level** is for students who have failed one or more of the basic skills tests or who do not qualify for ENG 110 (Expository Writing) or MAT 210 (Calculus I). Completion of this level includes passing the basic skills tests and course pre-requisites to enroll in basic English and Math courses.

**\*Special Note:** Students placed in MAT10 or those who do not pass the Math, Reading, and Writing exams should carefully consider the requirements of the engineering major before declaring an engineering major.

### **2. Associate Level**

The **Associate Level** engineering majors qualify to:

- Enroll in ENG 110 and MAT 210
- Study on ePermit at CCNY

In addition, majors at this level:

- Are eligible to receive an associate's degree
- May continue at CCNY toward a bachelor's degree
- May NOT take any required courses at another CUNY Institution.

### **3. Bachelor Level**

HCC graduates in good academic standing may continue at CCNY toward a bachelor's degree in engineering. The student is responsible to fill out the transfer application on

time. She/he should work together with her/his advisor and program administrator to have the correct information.

### **C. HCC Majors Requirements**

A student from the Hostos Community College Joint Dual Engineering Degree Program with The City College of New York's Grove School of Engineering of The City University of New York will earn an A.S. in Engineering if she/he:

1. Achieved a minimum overall GPA of 2.7 in his/her college courses;
2. Achieved a minimum GPA of 2.5 in college math and science courses, **with none of these grades below “C;”**
3. Obtained “C” or better grades in all Chemistry, Physics, Math and Engineering courses;
4. Completed two Writing Intensive (WI) Courses; HCC, within the engineering curriculum, currently offers three courses as WI: CHE 210 (General Chemistry I, *one section*), PHY 210 (General Physics I, *one section*), ENG 202 (Technical Writing for Engineering, *all sections*), HIS 210 (United States History: Through the Civil War, *one or two sections*) and HIS 211 (United States History: Reconstruction to the Present, *one or two sections*); and
5. Completed all HCC college-level credits regarding her/his major.

### **D. CCNY'S GSoE Entrance Requirements**

A student from the Hostos Community College Joint Dual Engineering Degree Program with The City College of New York's Grove School of Engineering of The City University of New York may apply for transfer to the GSoE if she/he:

1. Achieved a minimum overall GPA of 2.7 in his/her college courses;

2. Achieved a minimum GPA of 2.5 in college math and science courses, **with none of these grades below “C;”**

*"The Math and Science GPA is calculated using all cumulative math and science grades from every time that each course was taken including repeating courses. For example, if a student takes MAT 210 twice and obtains an “F” the first time, and an “A” the second time, the Math and Science GPA will include both grades. In addition, the pre-calculus course (MAT 160) will be included in the college Math and Science GPA, but not the engineering courses. “F” grades will not be excluded from the Math and Science GPA calculation."*

3. Demonstrated proficiency, evidenced by his/her transcript, in math and science; and
4. Completed all HCC college-level credits regarding her/his major.

**The F-repeat policy will be applied only to the overall GPA, not the Math and Science GPA calculation.**

**Math and Science GPA includes MAT 160, 200, 210, 220, 310, 320, 360; CHE 210, 220, 310, 312, 320; PHY 210, 220.**

**A minimum “C” grade only applies to the college math, science and engineering courses and not to the liberal arts courses.**

**If a student meets the first two requirements (Overall GPA of 2.7 and Math and Science GPA of 2.5), but she(he) obtained one “F” or one “D” in all her(his) math and science courses, depending on her(his) overall academic performance, the “F” or “D” grades may be overlooked. Thus, this student could be admitted to CCNY’s GSoE on probation and she(he) would be limited to only 2 courses for her(his) first semester at CCNY’s GSoE. The final decision will be made by CCNY’s GSoE.**

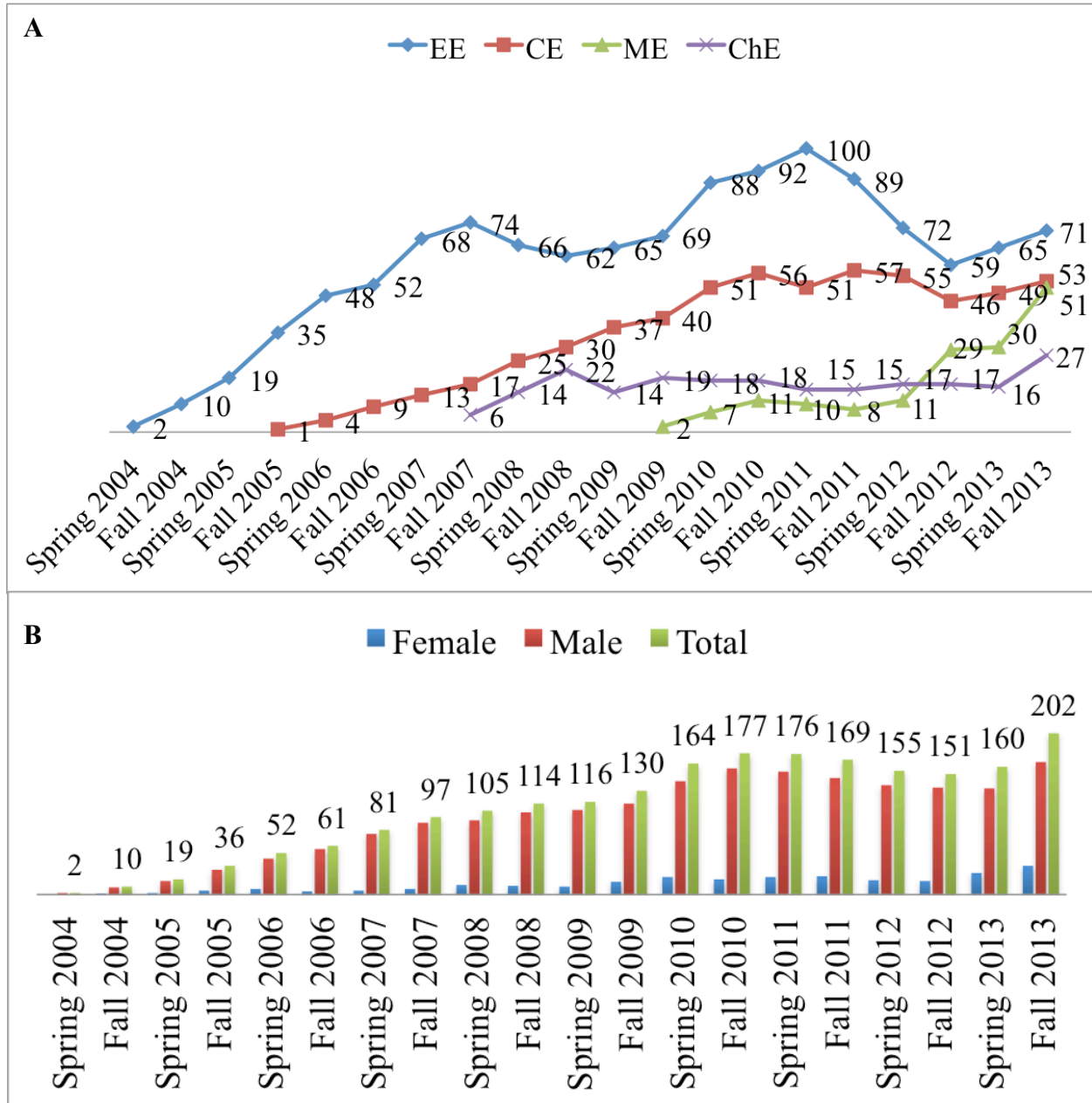


### **IMPORTANT NOTICE**

**The revised admissions criteria approved by the faculty of CCNY’s GSoE in Fall 2010 (effective Fall 2011), specifically the presence of grades less than “C” in math and science courses, was not known to HCC students and faculty until the Fall 2012 meeting at CCNY’s GSoE. Therefore, CCNY’s GSoE will allow students who started the Joint Dual program at HCC in Fall 2012 and earlier to transfer to CCNY’s GSoE even if they have a grade of less than “C” in math and/or science courses. Students still need to meet the other admissions requirements, such as an *overall GPA* of at least 2.7 and a *Math and Science GPA* of at least 2.5.**

#### **E. Enrollment, Persistence and Graduation Data of Joint Dual Engineering Degree Program of HCC Students at HCC**

Figure 1 shows that the JD Engineering Degree Program is in great demand and the enrollment has progressively increased since its inception in the spring 2004. For the last two academic years the engineering enrollment on average has been of about 167 students. Females represent about 14% of the students (Table 1). Although Electrical Engineering is still experiencing the highest demand, followed by Civil Engineering, the recently established Mechanical Engineering option has attracted more students in the last two years, with a fall 2013 semester enrollment of about 51 students. Chemical Engineering enrollment has remained stable these past years, with about 17 students. We are currently expanding these programs to offer a fifth JD Engineering Degree in Earth System Science and Environmental Engineering.



**Figure 1 Engineering Program Enrollment. A) Total Engineering Programs Enrollment. B) Total Engineering Enrollment by Gender (Source: HCC Office of Institutional Research and Student Assessment, Spring 2013).**

**Table 1 Engineering Enrollment Profile by Gender\***

	EE <sup>&amp;</sup>	CE <sup>&amp;</sup>	ME <sup>&amp;</sup>	ChE <sup>&amp;</sup>	Total
Semester	F/M	F/M	F/M	F/M	F+M
Fall 2011	10/79	8/49	0/8	5/10	23+146=169
Spring 2012	5/67	7/48	2/9	4/13	18+137=155
Fall 2012	5/54	5/41	3/26	4/13	17+134=151
Spring 2013	9/56	9/40	5/25	4/12	27+133=160
Fall 2013	12/59	13/40	4/47	7/20	36+166=202

\*Source: HCC Office of Institutional Research and Student Assessment, Spring 2013.  
<sup>&</sup>EE, CE, ME and ChE represent electrical, civil, mechanical and chemical engineering majors, respectively. F/M represents females and male, respectively.

Regarding the engineering student retention rates, Table 2 shows the summary of one-year and two-year retention rates by ethnicity done for a first-time freshmen students cohort starting in fall 2011. The one-year retention rate for Hispanics students was 79%, and the two-year retention rate was 32%. The one-year retention of African American students was 67%, and the two-year rate was 33%. This data reflects a low retention and completion rate for both Hispanics and African American populations. This indicates that much needs to be done at the community college level to improve students’ persistence and success in STEM disciplines.

In order to estimate the graduation rate of engineering students it is important to highlight first that engineering majors at HCC take on average 3.5 years to graduate [1]. To obtain an estimate on the graduation rate for engineering majors for the academic year fall 2011/spring 2012, we compare the number of graduates (24) to the average enrollment during the academic year fall 2009/spring 2010 (147) and more realistically to the average enrollment for fall 2008/spring 2009 (115). The engineering graduation rate for the two-year span is about 16% while the graduation rate for the four-year span is about 21% (Figures 1 and 2), therefore a low graduation rate of about 18% for three-year span [2].

**Table 2 Two-year retention rates of First-Time Freshmen Engineering HCC students\***

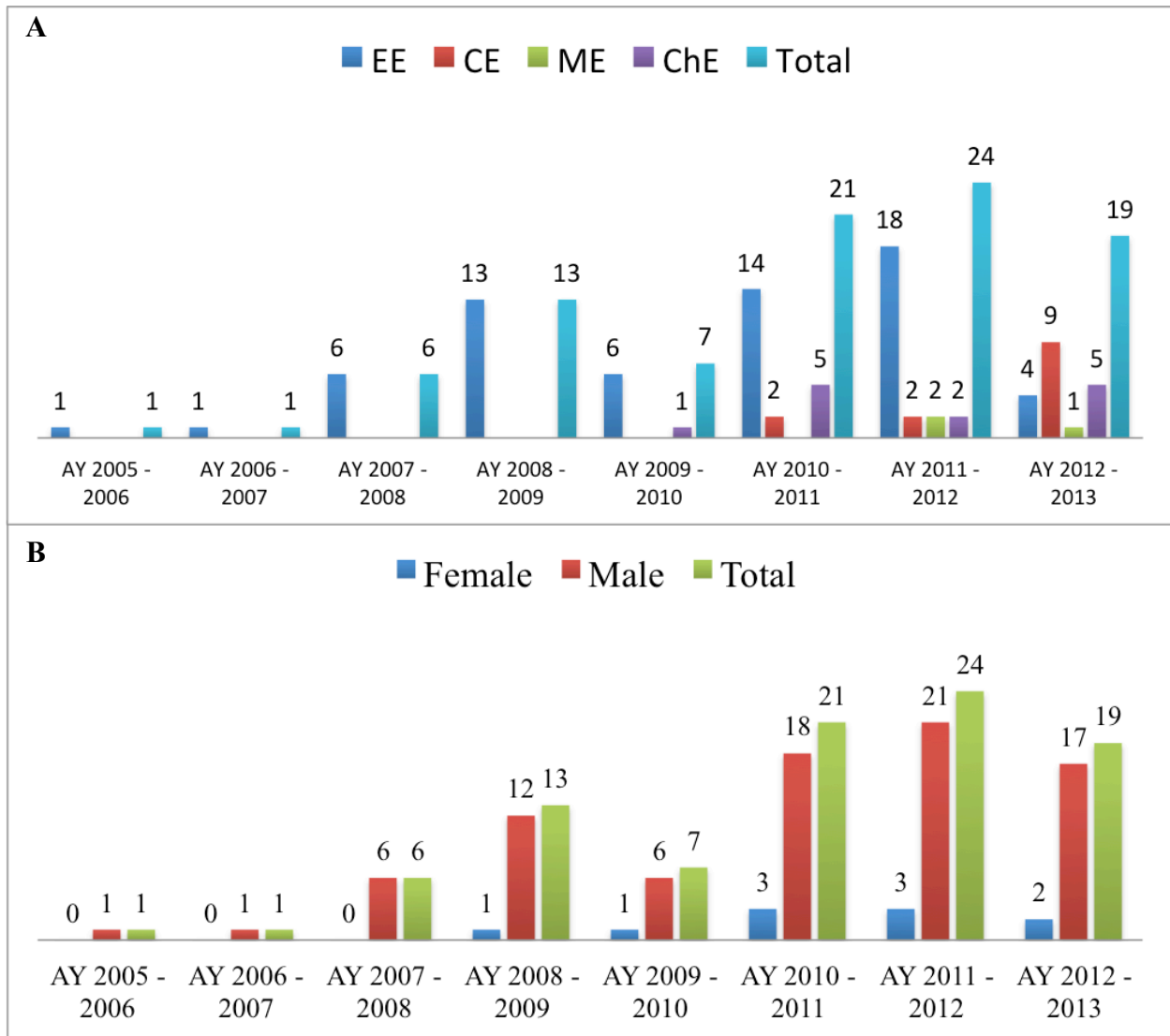
Percentage	Fall Yr1	Spring Yr1	Fall Yr2	Spring Yr2
African American	100%	67%	42%	33%
Hispanics	100%	79%	37%	32%
Total (all ethnicities)	100%	72%	39%	33%

\*First-time freshmen students in Engineering Programs, cohort starting in fall 2011 (FallYr1). The two-year calculation of retention for each semester (SpringYr1, FallYr2 and SpringYr2) is done with respect the total number of students enrolled in FallYr1 semester. Source: HCC Office of Institutional Research and Student Assessment, Spring 2013.

**F. Enrollment, Transfer, Persistence and Graduation Data of JOINT DUAL Engineering Degree Program of HCC Students at CCNY’S GSoE**

Since the implementation of the JD Engineering Degree Program 92 students have graduated with A.S. in Engineering degrees at HCC, approximately 11% of these graduates are female (Figure 2). In addition, 78 students have transferred to CCNY’s GSoE (some of them transfer before graduating at HCC) and 34 have either not continued or switched to other majors (Table 3). Based on a four-year enrollment period (fall 2007/spring 2011), about 44% of our HCC students who have transferred to CCNY’s GSoE have graduated (Table 3; 15 students out of 34 transferred students have graduated between fall 2007 and spring 2011). The retention rate of HCC students completing their B.S. degree at CCNY’s GSoE, calculated between fall 2011 and fall 2013, has been about 59% (i.e. 41% of students have dropped out or switched to a major other than engineering). In the last two years, the number of students who have discontinued or switched to another major has decreased from about 83% in the spring 2010 to 33% in the fall 2013 (Table 3). Thus, the retention rate of the last two academic years (fall 2011/fall 2013) with respect to the retention rate of the period covering fall 2007/spring 2011 increased from 53% to about 59%. Taking into consideration that more students have transferred to CCNY’s GSoE in

the last two years, this data indicates that the persistence of HCC students at CCNY’s GSoE is improving (Table 3).



**Figure 2 Engineering Program Graduates.** A) Total Hostos Engineering Graduates per major. 92 students have graduated as A.S. in Engineering degrees at HCC B) Total Hostos Engineering Graduates per gender: 11% of graduates represents female. EE, CE, ME and ChE represent electrical, civil, mechanical and chemical engineering majors, respectively.

**Table 3 Retention and graduation of HCC JD Engineering Degree students at CCNY’s GSoE**

Semester	# students at CCNY	# dropped out/switched	% dropped out/switched	# grads	% grads	2-yr <sup>s</sup> grads	3-yr <sup>s</sup> grads	4-yr <sup>s</sup> grads	# attending Spring 2014	% attending Spring 2014
Fall 2007	3	1	33	2	67		1	1		
Spring 2008										
Fall 2008	2	1	50	1	50			1		
Spring 2009	2	1	50	1	50		1			
Fall 2009	6	2	33	3	50			3	1	17
Spring 2010	6	5	83	1	17		1		0	0
Fall 2010	7	3	43	2	29		1	1	2	29
Spring 2011	8	3	38	5	63	5			0	0
Fall 2011	3	2	67						1	33
Spring 2012	14	5	36						9	64
Fall 2012	10	4	40						6	60
Spring 2013	5	3	60						2	40
Fall 2013	12	4	33						8	67
<b>TOTAL</b>	<b>78</b>	<b>34</b>	<b>41%*</b>	<b>15</b>	<b>44%&amp;</b>				<b>29</b>	

\*Average retention rate calculated between fall 2011 and fall 2013 taking into consideration number of students still attending CCNY during spring 2014 semester. &Graduation rate calculated based on a four-year enrollment period (fall 2007/spring 2011). <sup>s</sup>Students took 2 - 4 years to graduate. Source: HCC JD Engineering Degree Program.

**G. ePermits at CCNY’S GSoE**

JD degree programs in engineering require that HCC students enroll in the existing science and mathematics courses at HCC and enroll currently in eight engineering/chemistry courses at CCNY through the ePermit system. This design requires that faculty advisors and students work together in deciding when the student is ready to apply for ePermits by 1) fulfilling all pre-requisites for the courses and by 2) having the appropriate GPA. For this purpose, advisement is a key component for student success. At the end of the spring 2009 ePermit forms to track student advisement and readiness to take the courses at the senior college were created. Afterwards, in spring 2012, the Dual Degree Online Advisor Portal [4] as mentioned above was introduced. Throughout this online system, the advisors submit the ePermit application for her/his advisee to the Coordinator and Advising Coordinator of the JD Engineering Degree

Program. The final decision regarding the student’s ePermit is made by the Coordinator of the JD Engineering Degree Program based on 1) ePermit requirement fulfillment and 2) student academic performance.

As of spring 2010 there were 164 students in the JD Engineering Degree Program (see Figure 1). 73 of these students were taking classes at the Grove School of Engineering on ePermits (see Table 4). These 73 students fulfilled the language requirements, passed Calculus I (MAT 210) or higher and had a minimum cumulative GPA of 2.5. That was an outstanding accomplishment given the fact that each semester about 90% of first-time entering freshmen enrolled at Hostos have a remedial/developmental need in at least one of three basic skills areas, as assessed by the three placement tests (reading, writing, and math) administered to all CUNY applicants.

**Table 4 Engineering Program ePermits Applications\***

Major	Fall 09	Spring 10	Summer 10	Fall 10	Spring 11	Summer 11	Fall 11	Spring 12	Summer 12	Fall 12	Spring 13	Summer 13	Fall 13	Spring 14
EE	36	42	1	19	3	2	1	2		3			2	5
CE	22	21		16	12		10	7		14	21	1	2	12
ChE	15	10	2	8	4		5	2		7	3	1	2	4
ME				2	1		4	2	1	1	2	1		2
<b>TOTAL</b>	<b>73</b>	<b>73</b>	<b>3</b>	<b>45</b>	<b>20</b>	<b>2</b>	<b>21</b>	<b>13</b>	<b>1</b>	<b>25</b>	<b>26</b>	<b>3</b>	<b>6</b>	<b>23</b>

\*Source: HCC JD Engineering Degree Program.

In the 2009 – 2010 Academic Year (AY), 146 students to take ePermits at CCNY were approved (see Table 4). For the fall 2010, 101 applications for ePermits were approved. Because of the high demand for classes at CCNY, the Office of Curriculum Development did not allow students to take on ePermit any classes that were offered at HCC. This policy allowed us to reduce the number of applicants to ePermit at CCNY and reinforced our enrollment and curriculum.

As can be seen in Table 4, currently, the number of students applying for ePermit at CCNY's GSoE has decreased considerably. This is due to the new engineering curricula approved by the two institutions that only include eight courses taken on ePermit at CCNY's GSoE.

### **H. Engineering Booklet and Advisor Portal**

For the purpose of guiding the students through the Engineering program, an engineering guide booklet for all engineering majors with important information about curriculum, policies and procedures to be observed by faculty and students in each of the programs have been designed. This booklet is revised and updated every year. Another main contribution to the Engineering program is the Dual Degree Online Advisor Portal [3], which was designed to aim at improving and facilitating advisor information for every engineering student as well as to keep track of all advisement provided to the students during their stay at Hostos by his/her advisor [3].

### **I. Engineering Award**

During the 2012-2013 Academic Year, a new student Engineering Award was proposed and approved by the Engineering Advisory Council Group. The award description is as follows:

“The Engineering Award is presented to engineering students who have shown high academic accomplishment and have demonstrated outstanding performance beyond the classroom by participating in STEM-related activities or presenting papers or posters at scientific/engineering meetings. This award is offered by the Natural Sciences and Mathematics Departments.”

In the Engineering Award first edition, three students were selected. They were:

**First Place: Mr. Thomas Baez Tactuk**

GPA 3.832

President of the Physics Club between Fall 2012 and Spring 2013



LSAMP Program Student since Fall 2012

Math Peer Tutor for SI – Math Department Remedial Program

Selected as part of the National Engineering Delegation to Visit China in June 2013

Selected to do research at Cali, Colombia during the Summer of 2013 sponsored by the LSAMP Program

**Second Place: Mr. Ricky Bhola**

GPA 3.822

Treasurer of the Physics Club between Fall 2012 and Spring 2013

Participated in NASA Internship during the Summer of 2012

Selected NASA Student Ambassador between 2012 and 2013

Research Poster Presentation at CUNY in the Summer of 2012

Selected to do Internship at Brookhaven National Lab during the Summer of 2013

Physics Tutor since Fall 2012

**Third Place: Mr. Elvis Boves**

GPA 3.617

President of the Chemistry Club since Fall 2012

Participated in NASA Internship during the Summer of 2012

Math Peer Tutor for SI – Math Department Remedial Program

Selected to NASA Internship during the Summer of 2013

**J. Engineering Curricula**

The engineering curriculum has evolved since the creation of the Hostos JD Engineering Degree Program with CCNY's GSoE in fall 2003. Herein, we will present the last two curricula revisions: for students enrolled before fall 2013 and for students enrolled in fall 2013 (CUNY PATHWAYS initiative).

**Program of Study Leading to the A.S.  
in Chemical Engineering at Hostos  
Students enrolled before Fall 2013**

First Year – Fall		Credits
MAT 210	Calculus I	4.0
ENG 110	Expository Writing	3.0
CHE 210	General Chemistry I	4.0
HUM 100 OR SOC 101 OR PSY 101	Introduction to Humanities <u>OR</u> Introduction to Sociology <u>OR</u> General Psychology	6.0
<b>Total</b>		17.0
<b>Spring</b>		
MAT 220	Calculus II	4.0
ENG 111	Literature and Composition	3.0
CHE 220	General Chemistry II	4.0
VPA 192	Fundamentals of Public Speaking	3.0
<b>Total</b>		14.0
<b>Second Year – Fall</b>		
MAT 310	Calculus III	4.0
*ChE 22800	Introduction to Chemical Engineering Principals and Practice	5.0
CHE 310	Organic Chemistry I	3.0
CHE 312	Organic Chemistry Lab I	2.0
PHY 210	General Physics I	4.0
<b>Total</b>		18.0
<b>Spring</b>		
MAT 360	Differential Equations	3.0
MAT 320	Linear Algebra with Vector Analysis	3.0
CHE 320	Organic Chemistry II	3.0
PHY 220	General Physics II	4.0
ENG 202	Technical Writing for Engineering	3.0
<b>Total</b>		16.0
<b>TOTAL HOSTOS CREDITS</b>		<b>65.0</b>

\*ChE 22800 will be taken on ePermit at CCNY's GSoE.

**Program of Study Leading to an A.S.  
in Chemical Engineering at Hostos  
CUNY PATHWAYS - Students enrolled in Fall 2013**

First Year – Fall		
<b>Mathematical and Quantitative Reasoning:</b>		
MAT 210	Calculus I (Required)	4.0
ENG 110	Expository Writing	3.0
<b>Life and Physical Sciences:</b>		
CHE 210	General Chemistry I (Required)	4.0
<b>World Cultures and Global Issues: (Strongly Recommended)</b>		
HUM 100	Introduction to Humanities	3.0
<b>Individual and Society (Strongly recommended) (Choose 1):</b>		
SOC 101 <u>OR</u> PSY 101	Introduction to Sociology <u>OR</u> Introduction to Psychology	3.0
<b>SubTotal</b>		<b>17.0</b>

Spring		
MAT 220	Calculus II	4.0
ENG 111	Literature and Composition	3.0
<b>Scientific World:</b>		
CHE 220	General Chemistry II	4.0
<b>U.S. Experience in its Diversity:</b>		
HIS 210 <u>OR</u> HIS 211	United States History: Through the Civil War <u>OR</u> United States History: Reconstruction to the Present	3.0
<b>Creative Expression:</b>		
VPA 192	Fundamentals of Public Speaking	3.0
<b>SubTotal</b>		<b>17.0</b>

Second Year – Fall		
MAT 310	Calculus III	4.0
*CHE 228	Introduction to Chemical Engineering Principals and Practice	5.0
<b>One (1) additional course from Scientific World:</b>		
CHE 310	Organic Chemistry I	3.0
PHY 210	General Physics I	4.0
<b>SubTotal</b>		<b>16.0</b>
Spring		
MAT 360	Differential Equations	3.0
MAT 320	Linear Algebra and Vector Analysis	3.0
CHE 320	Organic Chemistry II	3.0
CHE 312	Organic Chemistry Lab I	2.0
PHY 220	General Physics II	4.0
ENG 202	Technical Writing for Engineering	3.0
<b>SubTotal</b>		<b>18.0</b>
<b>TOTAL HOSTOS CREDITS</b>		<b>68.0</b>

\*ChE 22800 will be taken on ePermit at CCNY's GSoE.

**Program of Study Leading to an A.S.  
in Civil Engineering at Hostos  
Students enrolled before Fall 2013**

<b>First Year – Fall</b>		<b>Credits</b>
MAT 210	Calculus I	4.0
ENG 110	Expository Writing	3.0
CHE 210	General Chemistry I	4.0
HUM 100	Introduction to Humanities	3.0
SOC 101	Introduction to Sociology	3.0
<b>Total</b>		17.0
<b>Spring</b>		
MAT 220	Calculus II	4.0
ENG 111	Literature and Composition	3.0
CHE 220	General Chemistry II	4.0
PHY 210	General Physics I	4.0
MAT 200	Modern Programming	3.0
<b>Total</b>		18.0
<b>Second Year –</b>		
MAT 310	Calculus III	4.0
PHY 220	General Physics II	4.0
PSY 101	General Psychology	3.0
*CE 20900	Structural and Site Plans	3.0
<b>Total</b>		14.0
<b>Spring</b>		
MAT 360	Differential Equations	3.0
*CE 26400	Data Analysis	3.0
MAT 320	Linear Algebra	3.0
ENG 202	Technical Writing for Engineering	3.0
VPA 192	Fundamentals of Public Speaking	3.0
<b>Total</b>		15.0
<b>TOTAL HOSTOS CREDITS</b>		<b>64.0</b>

\*CE 20900 and CE 26400 will be taken on ePermit at CCNY's GSoE.

**Program of Study Leading to an A.S.  
in Civil Engineering at Hostos: Track I Civil Engineering  
CUNY PATHWAYS - Students enrolled in Fall 2013**

First Year – Fall		Credits
<b>Mathematical and Quantitative Reasoning:</b>		
MAT 210	Calculus I	4.0
ENG 110	Expository Writing	3.0
<b>Life and Physical Sciences</b>		
CHE 210	General Chemistry I	4.0
<b>World Cultures and Global Issues (Strongly Recommended):</b>		
HUM 100	Introduction to Humanities	3.0
<b>Individual and Society (Choose 1):</b>		
SOC 101 <u>OR</u> PSY 101	Introduction to Sociology <u>OR</u> Introduction to Psychology	3.0
<b>SubTotal</b>		<b>17.0</b>

Spring		
MAT 220	Calculus II	4.0
ENG 111	Literature and Composition	3.0
<b>Scientific World:</b>		
CHE 220	General Chemistry II	4.0
<b>One (1) additional Course from Scientific World:</b>		
PHY 210	General Physics I	4.0
MAT 200	Modern Programming	3.0
<b>Total</b>		<b>18.0</b>

<b>Second Year – Fall</b>		
MAT 310	Calculus III	4.0
PHY 220	General Physics II	4.0
<b>U.S. Experience in its Diversity:</b>		
HIS 210 OR HIS 211	United States History: Through the Civil War <b>OR</b> United States History: Reconstruction to the Present	3.0
*CE 20900	Structural and Site Plans	3.0
<b>SubTotal</b>		<b>14.0</b>

<b>Spring</b>		
MAT 360	Differential Equations	3.0
MAT 320	Linear Algebra with Vector Analysis	3.0
*CE 26400 OR ENGR 204	Data Analysis Electric Circuits	3.0
ENG 202	Technical Writing for Engineering	3.0
<b>Creative Expression:</b>		
VPA 192	Fundamentals of Public Speaking	3.0
<b>SubTotal</b>		<b>15.0</b>
<b>TOTAL HOSTOS CREDITS</b>		<b>64.0</b>

\*CE 20900 and CE 26400 will be taken on ePermit at CCNY’s GSoE.

**Program of Study Leading to the A.S.  
in Civil Engineering at Hostos: Track II Environmental Engineering  
CUNY PATHWAYS - Students enrolled in Fall 2013**

First Year – Fall		Credits
<b>Mathematical and Quantitative Reasoning:</b>		
MAT 210	Calculus I	4.0
ENG 110	Expository Writing	3.0
<b>Life and Physical Sciences</b>		
CHE 210	General Chemistry I	4.0
<b>World Cultures and Global Issues (Strongly Recommended):</b>		
HUM 100	Introduction to Humanities	3.0
<b>Individual and Society (Choose 1):</b>		
SOC 101 OR PSY 101	Introduction to Sociology <b>OR</b> Introduction to Psychology	3.0
<b>SubTotal</b>		<b>17.0</b>

Spring		
MAT 220	Calculus II	4.0
ENG 111	Literature and Composition	3.0
<b>Scientific World:</b>		
CHE 220	General Chemistry II	4.0
<b>One (1) additional Course from Scientific World:</b>		
PHY 210	General Physics I	4.0
MAT 200	Modern Programming	3.0
<b>Total</b>		<b>18.0</b>



<b>Second Year – Fall</b>		
MAT 310	Calculus III	4.0
PHY 220	General Physics II	4.0
<b>U.S. Experience in its Diversity:</b>		
HIS 210 OR HIS 211	United States History: Through the Civil War <b>OR</b> United States History: Reconstruction to the Present	3.0
ENGR 103 OR ENGR 204	Tools for Engineering <b>OR</b> Electric Circuits	2.0 - 3.0
<b>SubTotal</b>		<b>13.0 - 14.0</b>

<b>Spring</b>		
MAT 360	Differential Equations	3.0
MAT 320	Linear Algebra with Vector Analysis	3.0
ENGR 106 OR EAS 106	Earth System Science <b>OR</b> Engineering Earth Sciences	4.0
ENG 202	Technical Writing for Engineering	3.0
<b>Creative Expression:</b>		
VPA 192	Fundamentals of Public Speaking	3.0
<b>SubTotal</b>		<b>16.0</b>
<b>TOTAL HOSTOS CREDITS</b>		<b>64.0 - 65.0</b>

\*CE 20900 and CE 26400 will be taken on ePermit at CCNY's GSoE.

**Program of Study Leading to an A.S.  
in Electrical Engineering at Hostos  
Students enrolled before Fall 2013**

First Year – Fall		Credits
MAT 210	Calculus I	4.0
ENG 110	Expository Writing	3.0
CHE 210	General Chemistry I	4.0
PSY 101	General Psychology	3.0
<b>Total</b>		14.0
Spring		
MAT 220	Calculus II	4.0
ENG 111	Literature and Composition	3.0
SOC 101	Introduction to Sociology	3.0
MAT 200	Modern Programming	3.0
CHE 220	General Chemistry II	4.0
<b>Total</b>		17.0
Second Year – Fall		
MAT 310	Calculus III	4.0
PHY 210	General Physics I	4.0
*ENGR 103	Tools for Engineering	2.0
ENG 202	Technical Writing for Engineering	3.0
VPA 192	Fundamentals of Public Speaking	3.0
<b>Total</b>		16.0
Spring		
MAT 360	Differential Equations	3.0
ENGR 204	Electric Circuits	3.0
MAT 320	Linear Algebra with Vector Analysis	3.0
PHY 220	General Physics II	4.0
<b>Total</b>		13.0
TOTAL HOSTOS CREDITS		60.0

\*ENGR 103 will be taken on ePermit at CCNY’s GSoE.

**Program of Study Leading to an A.S.  
in Electrical Engineering at Hostos  
CUNY PATHWAYS - Students enrolled in fall 2013**

First Year – Fall		Credits
<b>Mathematical and Quantitative Reasoning:</b>		
MAT 210	Calculus I (Required)	4.0
ENG 110	Expository Writing	3.0
<b>Life and Physical Sciences:</b>		
CHE 210	General Chemistry I (Required)	4.0
<b>Individual and Society (Choose 1) (Strongly Recommended):</b>		
SOC 101 OR PSY 101	Introduction to Sociology Introduction to Psychology	3.0
<b>SubTotal</b>		<b>14.0</b>

Spring		
MAT 220	Calculus II	4.0
ENG 111	Literature and Composition	3.0
<b>World Cultures and Global Issues (Strongly Recommended):</b>		
HUM 100	Introduction to Humanities	3.0
MAT 200	Modern Programming	3.0
<b>Scientific World:</b>		
CHE 220	General Chemistry II (Required)	4.0
<b>SubTotal</b>		<b>17.0</b>

Second Year – Fall		
MAT 310	Calculus III	4.0
<b>One (1) additional course from Scientific World:</b>		
PHY 210	General Physics I	4.0
ENG 202	Technical Writing for Engineering	3.0
<b>Creative Expression:</b>		
VPA 192	Fundamentals of Public Speaking	3.0
*ENGR 103	Tools for Engineering	2.0
<b>SubTotal</b>		<b>16.0</b>

Spring		
MAT 360	Differential Equations	3.0
MAT 320	Linear Algebra with Vector Analysis	3.0
ENGR 204	Electric Circuits	3.0
PHY 220	General Physics II	4.0
<b>U.S. Experience in its Diversity:</b>		
HIS 210 OR HIS 211	United States History: Through the Civil War <b>OR</b> United States History: Reconstruction to the Present	3.0
<b>SubTotal</b>		<b>16.0</b>
<b>TOTAL HOSTOS CREDITS</b>		<b>63.0</b>

\*ENGR 103 will be taken on ePermit at CCNY’s GSoE.

**Program of Study Leading to an A.S. in  
Mechanical Engineering at Hostos  
Students enrolled before Fall 2013**

First Year – Fall		Credits
MAT 210	Calculus I	4.0
ENG 110	Expository Writing	3.0
CHE 210	General Chemistry I	4.0
HUM 100 OR SOC 101 OR PSY 101	Introduction to Humanities <u>OR</u> Introduction to Sociology <u>OR</u> General Psychology	6.0
<b>Total</b>		17.0
Spring		
MAT 220	Calculus II	4.0
ENG 111	Literature and Composition	3.0
PHY 210	General Physics I	4.0
CHE 220	General Chemistry II	4.0
*ME 14500	Computer-Aided Drafting	2.0
<b>Total</b>		17.0
Second Year – Fall		
MAT 310	Calculus III	4.0
PHY 220	General Physics II	4.0
ENG 202	Technical Writing for Engineering	3.0
ENGR 204	Electrical Circuits	3.0
<b>Total</b>		14.0
Spring		
MAT 360	Differential Equations	3.0
CHE 310	Organic Chemistry I	3.0
MAT 320	Linear Algebra with Vector Analysis	3.0
*ME 24600	Engineering Mechanics I	3.0
VPA 192	Fundamentals of Public Speaking	3.0
<b>Total</b>		15.0
<b>TOTAL HOSTOS CREDITS</b>		<b>63.0</b>

\*ME 14500 and ME 24600 will be taken on ePermit at CCNY's GSoE.

**Program of Study Leading to an A.S. in  
Mechanical Engineering at Hostos  
CUNY PATHWAYS - Students enrolled in Fall 2013**

First Year – Fall		Credits
<b>Mathematical and Quantitative Reasoning:</b>		
MAT 210	Calculus I	4.0
ENG 110	Expository Writing	3.0
<b>Life and Physical Sciences:</b>		
CHE 210	General Chemistry I (Required)	4.0
<b>World Cultures and Global Issues (Strongly Recommended):</b>		
HUM 100	Introduction To Humanities	3.0
<b>Individual and Society (Choose 1) (Strongly Recommended):</b>		
SOC 101 OR PSY 101	Introduction to Sociology <b>OR</b> Introduction to Psychology	3.0
<b>SubTotal</b>		<b>17.0</b>

Spring		
MAT 220	Calculus II	4.0
ENG 111	Literature and Composition	3.0
PHY 210	General Physics I	4.0
<b>Scientific World:</b>		
CHE 220	General Chemistry II (Required)	4.0
*ME 145	Computer-Aided Drafting	2.0
<b>SubTotal</b>		<b>17.0</b>

Second Year – Fall		
MAT 310	Calculus III	4.0
PHY 220	General Physics II	4.0
ENG 202	Technical Writing for Engineering	3.0
ENGR 204	Electrical Circuits	3.0
<b>U.S. Experience in its Diversity:</b>		
HIS 210 OR HIS 211	United States History: Through the Civil War <b>OR</b> United States History: Reconstruction to the Present	3.0
<b>SubTotal</b>		<b>17.0</b>

Spring		
MAT 360	Differential Equations	3.0
MAT 320	Linear Algebra with Vector Analysis	3.0
<b>One (1) additional course from the Scientific World</b>		
CHE 310	Organic Chemistry I	3.0
*ME 246	Engineering Mechanics I	3.0
<b>Creative Expression:</b>		
VPA 192	Fundamentals of Public Speaking	3.0
<b>SubTotal</b>		<b>15.0</b>
<b>TOTAL HOSTOS CREDITS</b>		<b>65.0</b>

\*ME 14500 and ME 24600 will be taken on ePermit at CCNY's GSoE.

### III. JOINT DUAL ENGINEERING DEGREE PROGRAM ACHIEVEMENTS

Some of our graduates have attained extraordinary academic success. Two HCC alumni, who completed their Chemical Engineering B.E. degree at CCNY's GSoE, have been accepted to do their Ph.D. in Penn State University (Joseph Wokpetah) and Princeton University (Dane Christie). Another student, Qudus Lawal, after graduating from HCC with A.S. in Chemical Engineering degree, is pursuing his Chemical Engineering B.E. at Stanford University with full support from the Kaplan fellowship program [4]. Another example is Armando Amador, who graduated with A.S. in Electrical Engineering at HCC and continued his studies at Lehman College of CUNY. Here he completed his B.A. and M.A. in Mathematics. In 2013 he joined the Mathematics Department at HCC as a full time Lecturer.

While the goal of the HCC JD Engineering program is to better prepare our students to succeed in CCNY's GSoE, the program also meets the needs of students interested in pursuing other degrees in STEM fields. In fact, some students as they complete their studies at HCC in A.S. in Engineering degrees either before or once at CCNY's GSoE decide to switch to other majors at CCNY or to pursue other careers at other institutions. For example, they transfer to 1) **New York City College of Technology of CUNY (City Tech, Brooklyn)** to study Telecommunications Engineering Technology (Associate in Applied Science degree (A.A.S.) - 2 years) and Bachelor in Technology degree (B.Tech.) - 4 years), Electrical Engineering Technology (A.A.S.), Computer Engineering Technology (B.Tech.), or Architectural Technology (A.A.S. and B.Tech.), 2) **Lehman College of CUNY (Bronx)** to student Mathematics (Major in Education) (B.A.), 3) **CCNY of CUNY (New York)** to study Mathematics – Secondary School Education (B.A. or B.S.), Chemistry (B.S.) and 4) **Private Universities** though Scholarships such as Stanford University (California), Fairleigh Dickinson



University (New Jersey) and Polytechnic Institute of New York University (New York). Table 5 shows those students from the HCC JD Engineering Degree Program who have decided to switch majors once they have completed their studies at HCC in A.S. Engineering degrees, or once at CCNY’s GSoE, have persisted in STEM disciplines within or outside CUNY colleges.

**Table 5 Estimated Transfer A.S. Engineering Students from HCC to Senior Colleges\***

<b>College/University</b>	<b>No. of Students</b>	<b>Major</b>
Lehman	10	Mathematics
City Tech	20	Engineering Technologies
CCNY <sup>&amp;</sup>	9	Mathematics, Chemistry, Biochemistry
Private Universities (Stanford, NYPoly, Dickinson)	7	Engineering
<b>TOTAL</b>	<b>46</b>	

\*Source: HCC JD Engineering Degree Program. <sup>&</sup>Students have switched majors to sciences or mathematics before or once at CCNY’s GSoE.

#### **IV. STUDENT / FACULTY RESEARCH**

Most of the students who come to HCC are enthusiastic about learning and highly motivated. They are embraced by the academic community and provided with academic and counseling support to assist them in overcoming academic and personal obstacles. Over the last years, the OAA has expanded its involvement in activities designed to assist faculty in working with the students in STEM majors to enhance their learning experiences. Table 6 summarizes the number of students involved in research projects under the sponsor of LSAMP (NYC Louis Stokes Alliance for Minority Participation) and C-STEP/Proyecto Access program, internships at NASA (National Aeronautics and Space Administration) CILES and BNL (Brookhaven National Lab).

**Table 6 Student Research Participation\***

Academic Year	No. of Students (LSAMP, C-STEP, NASA, BNL Internships)
2012-2013	13
2011-2012	14
2010-2011	15
2009-2010	16
2008-2009	5
<b>TOTAL</b>	<b>63</b>

\*Source: LSAMP, C-STEP and NASA Programs.

The students and mentors involved in research projects under the sponsor of LSAMP, C-STEP/Proyecto Access, NASA and CILES programs between 2008 and 2013 are listed below:

- **Dr. Nieves Angulo (Mathematics):** Boves, Elvis (NASA, Summer 2012); Posada, Adrian (NASA, Summer 2011); Viteri, Fernando (NASA, Summer 2011).
- **Dr. Claude Brathwaite (LSAMP, City College):** Ramos, Luis (Fall 2010, Spring 2011)
- **Dr. Francisco Fernández (Natural Sciences):** Wokpetah, Jopseph (Spring 2010, Fall 2010)
- **Dr. Moise Koffi (C-STEP, HCC):** Alassani, Ibrahim (Summer 2013); Fernandez, Emily (Summer 2012); Rivera, Mark (Summer 2012); Hidalgo, Carlos (Summer-2011); Saah, Benjamin (Summer-2011); Teye, Jakob (Fall 2011, Spring-2010); Afoda Sebou, Mohamed (Summer 2010); Keitt, Kegan (Summer 2009); Nguessan, Kouami (Summer 2009).
- **Dr. Rafael Ovale:** Lawson, Noah (Summer 2013).
- **Dr. Yoel Rodríguez (Natural Sciences):** Hidalgo, Absalon (LSAMP, Fall 2009 – Spring 2010); Boves, Elvis (Fall 2013, Spring 2011); Baez Tactuk, Thomas (Fall 2013, Spring 2011).
- **Dr. Clara Nieto-Wire:** Natalie Suriel (NASA, Summer 2013), **Sandy Rosas** (NASA, Summer 2013), **Elvis Boves** (NASA, Summer 2013).
- **Dr. Flek Ross (Mathematics):** Adedjouman, Maskana (Fall 2012, Spring 2013).
- **Dr. Mohammad Sohel (Natural Sciences):** Fernandez, Emily (Spring 2012, Summer 2012, Fall 2012); Elsayed, AbdelRahman (Summer 2012); Lawal, Jubril (Fall 2012, Spring 2011); Lawal, Qudus (Spring 2010, Fall 2010, Summer 2010); Laksman, Nathan (Summer 2010); Lawson, Noah (Fall 2009, Spring 2010); Wokpetah, Joseph (Summer 2009).
- **Dr. Julie Trachman (Biology):** Bouda, Emily (Spring 2103, Fall 2013); Teye, Jakob (Summer 2010).
- **Dr. Alexander Vaninsky (Mathematics):** Makouteu, Christelle (Fall 2012, Spring 2013); Wokpetah, Hanna (Spring 2010, Fall 2010).
- **Dr. Nelson Nunez-Rodríguez (Natural Sciences):** Ruth Romero (Spring 2012); Torres, Hermino (Spring 2011); Rodriguez, Milberto (Fall 2010); Ampofo, king (Fall 2009).

- **Dr. Debashish Roy:** Hudo Hassan (C-STEP Program, Spring 2013).
- **Other:** Kane Vinson (NASA, Summer 2013); Ricky Bhola (NASA, Summer 2012).
- **Dr. Flor Henderson (Natural Sciences):** Siba Safiyanou (Fall 2010.)
- **Dr. Julie Trachman (Natural Sciences):** Jacob Teye (Summer 2010); Emilie Bouda (Spring 2013).
- **Dr. Olga Steinberg (Natural Sciences):** Qudus Lawal (Fall 2010); Alejandro Molina (Spring 2010); Herminio Torres (Spring 2011).
- **Dr. John Gillen (Natural Sciences):** Emilie Bouda (Spring 2013).
- **Dr. Zvi Ostrin (Natural Sciences):** Emilie Bouda (Spring 2013).
- **Dr. Clara Nieto-Wire (Mathematics):** Boves, Elvis (NASA, Summer 2013); Suriel, Natalie (NASA, Summer 2013); Rosas, Sandy (NASA, Summer 2013).
- **Dr. Olen Dias (Mathematics):** Boves, Elvis (NASA, Summer 2012); Carter, Leandra (NASA, Summer 2012).
- **Dr. Prince Tanvir (Mathematics):** Franco, Stefany (CILES, Summer 2013); Maurice, Evans (CILES, Summer 2012).

A more detailed list of students and mentors, project titles as well as sponsors can be found in **Appendix B.**

## **V. ENGINEERING ADVISORY COUNCIL GROUP (EACG)**

In 2008 the Office of Academic Affairs (OAA) established the **Engineering Advisory Council Group (EACG)** to mentor and monitor the academic performance of each student in the programs. The EACG consists of more than 15 advisors from the Mathematics and Natural Sciences Departments (See Table 8). Each advisor works with 10-15 students. A student newly enrolled in the program is assigned to one of these advisors by both mail and electronic mail. The advisors communicate with students in a timely fashion and inform the Engineering Advisory Council Group when the students are at risk or when they need support. The positive impact of the EACG is reflected in the retention and academic performance of the students in the program.

**Table 8 Engineering Advisory Council Group**

<b>Mathematics Department</b>	<b>Natural Sciences Department</b>
Prof. Olen Dias	Prof. Francisco Fernández
Prof. Ramón Gómez	Prof. Nelson Nuñez-Rodríguez
Prof. Alexander Vaninsky	Prof. Mohammad Sohel
Prof. William Baker	Prof. Roy Debasish
Prof. Kathleen Doyle	Prof. Chanh Phan
Prof. Jose La Luz (until Fall 2013)	Prof. Yoel Rodriguez
Prof. Flek Ruslan	
Prof. Prince Tanvir	
Prof. Nieves Angulo	
Prof. Ye Ruili	
Prof. Clara Nieto-Wire	

During the five years of existence of the EACG, students have learned the advantages of having a mentor/advisor and frequently consult them for academic planning, making decisions and/or seeking help. The following are the main responsibilities of the EACG:

- Assisting students in understanding their own abilities, skills, interests and limitations
- Interpreting curriculum and understanding requirements and course sequences needed to graduate and move to the senior college in a successful and timely fashion
- Encouraging students to develop an educational plan consistent with their life goals and objectives
- Providing accurate information about institutional rules, policies, procedures, resources, and academic opportunities
- Making sure that students are ready academically, emotionally and psychologically to face the challenges of taking classes at CCNY on ePermits
- Ensuring that students observe the deadlines at both HCC and CCNY
- Referring students to institutional support services available to them at both institutions

- Assisting students in evaluating or reevaluating progress toward established goals and educational plans
- Providing information about students to the institution, college, academic departments, or some combination thereof
- Helping students to finish their studies

For the last years, the college has a renewed emphasis on retaining engineering students and helping them to achieve their fullest academic potential, through early interventions. Periodic meetings of the EACG are convened to discuss concerns, decisions, priorities, issues and initiatives for the programs. The most relevant achievements of the EACG advisors in terms of publications, conference presentations, grants and mentoring students are listed in **Appendix C**.

## **VI. EXTERNAL GRANTS IMPACTING THE JD ENGINEERING DEGREE PROGRAM**

Different joint projects with other senior colleges including CCNY and NY City Tech has resulted in securing different grants to help develop and advance the engineering field at HCC. Some of these grants are:

- **US DoE Grant in collaboration with CCNY of CUNY (2011-2016) “The Alliance for Continuous Innovative Learning Environments in STEM” (CILES)”** Co-PI Prof. Nieves Angulo **\$4,007,121**
- **NSF’s Nanotechnology Undergraduate Education Grant** in collaboration with City College: (2010 -2012) “Integrating Nanotechnology in CUNY Community Colleges” Co-PI Prof. Mohammad Sohel **\$200,000**

- **NASA-CIPAIR Grant in collaboration with City Tech of CUNY (2010-2013)**  
”Achieving Proficiency in Engineering Research and STEM Education Through NASA Initiatives” Co-PI Prof. Nieves Angulo **\$149,156**
- **NSF Grant in collaboration with City College of CUNY (2005-2008)** “Bridges to Engineering Success for Transfers” PI VP Carlos Molina and Co-PI Prof. Nieves Angulo **\$3,700,000**

In addition, last May 2013 our institution submitted the **US DoE Minority Science and Engineering Improvement Program (MSEIP)** grant entitled “**Enlightening Engineering Education in the South Bronx**” (**EEESB**), which was highly scored (**\$748,464**). Prof. Nieves Angulo, Prof. Clara Nieto-Wires and Prof. Yoel Rodríguez contributed to this proposal. The institution is currently in the process of revising the grant to be resubmitted in May 2014.

## **VII. INTERVENTION PROGRAMS**

### **A. Engineering Orientation Day at HCC**

The Engineering Orientation Day at Hostos started in fall 2012 and is offered by the Coordinator of the program and the advising coordinator at the beginning of every semester. They explain the requirements of the Engineering programs as well as curriculum and policies. The engineering advisors are also introduced to the engineering students and it is explain to the students the important role that they will have in their academic planning. (see Activity Flyer in **Appendix D**)

### **B. Intersession STEM Institute**

Periodic meetings of the EACG are convened to discuss concerns, decisions, priorities, issues and initiatives for the JD Engineering Degree Program. One of the discussions that took place in the fall 2009 focused on the challenges our students face in satisfactorily passing Physics, Chemistry and Engineering courses at HCC and at CCNY’s GSoE. In the discussion it became

clear that the students have difficulties in making connections between the concepts covered in mathematics classes and the applicability of these concepts in chemistry, physics, and engineering. Thus, the January 2009 Advanced Training for Engineering Students initiative was brought up. This initiative consisted of a month long seminar during which engineering students had the opportunity to work with faculty members as well as tutors to advance in their math and physics proficiencies. The outcome of this initiative and brainstorming led to the design of the *Intersession Engineering Institute* (today called *Intersession STEM Institute*) and how to offer a strategy to help students to link key concepts in math with the applicability of these key concepts to other disciplines within the Engineering programs. STEM disciplines are challenging subjects and demand commitment, passion and self-discipline from students in the field. With this goal in mind, the *Intersession STEM Institute* was created; an intervention program in which an interdisciplinary curriculum is offered consisting of teaching/reviewing essential math concepts that students must master when entering chemistry, physics or introduction to engineering courses. The first institute was piloted as a series of workshops offered in the winter 2010 with 6 instructors and 41 students (see Table 9). The initiative resulted in an effective strategy with encouraging results in student motivation and academic performance in the following semester. This initiative has aimed at improving the academic performance of the students in the different disciplines and retaining them for graduation in the A.S. and B.E. programs. (see 2013 *Intersession STEM Institute* Flyer and Brochure in **Appendix E**)

The Summer Institute was then offered during the summer 2010, targeting engineering students who were taking General Chemistry I and II (CHE 210 / 220), General Physics I and II (PHY 210 / 220), Analysis Tools for Engineers (ENGR 103), Electric Circuits (ENGR 204) and Structural Mechanics (CE 23100) in fall 2010. The *Intersession STEM Institutes* enrollment and

completion is listed in Table 9. The retention during the 2010 Winter and Summer *Intersession STEM Institutes* was 100%. It is worth pointing out that in the two 2010 institutes, the students received stipends for \$200 if they had full attendance.

**Table 9 Intersession STEM Institutes Enrollment and Retention\***

<b>Summer 2013</b>						
	<b>PHY 210<sup>&amp;</sup></b>	<b>CHE 210/220<sup>&amp;</sup></b>	<b>ENGR 204<sup>&amp;</sup></b>	<b>ENGR 103<sup>&amp;</sup></b>	<b>CE 23100<sup>&amp;</sup></b>	<b>Total</b>
<b>Enrolled</b>	8	13	4	0	8	<b>33</b>
<b>Completed</b>	5	9	3	0	4	<b>21</b>
<b>Winter 2013</b>						
	<b>PHY 210<sup>&amp;</sup></b>	<b>CHE 210/220<sup>&amp;</sup></b>	<b>ENGR 204<sup>&amp;</sup></b>	<b>ENGR 103<sup>&amp;</sup></b>	<b>CE 23100<sup>&amp;</sup></b>	<b>Total</b>
<b>Enrolled</b>	13	14	5	7	1	<b>40</b>
<b>Completed</b>	8	9	5	5	1	<b>28</b>
<b>Summer 2010</b>						
	<b>PHY 210<sup>&amp;</sup></b>	<b>CHE 210/220<sup>&amp;</sup></b>	<b>ENGR 204<sup>&amp;</sup></b>	<b>ENGR 103<sup>&amp;</sup></b>	<b>CE 23100<sup>&amp;</sup></b>	<b>Total</b>
<b>Enrolled</b>	12	14	12	10	12	<b>60</b>
<b>Completed</b>	12	14	12	10	12	<b>60</b>
<b>Winter 2010</b>						
	<b>PHY 210<sup>&amp;</sup></b>	<b>CHE 210/220<sup>&amp;</sup></b>	<b>ENGR 204<sup>&amp;</sup></b>	<b>ENGR 103<sup>&amp;</sup></b>	<b>CE 23100<sup>&amp;</sup></b>	<b>Total</b>
<b>Enrolled</b>	18	13	5	5	N/A	<b>41</b>
<b>Completed</b>	18	13	5	5	N/A	<b>41</b>

\*Source: HCC JD Engineering Degree Program. <sup>&</sup>PHY 210, CHE 210/220, ENGR 204, ENGR 103 and CE 23100 represent General Physics I, General Chemistry I and II, Electric Circuits, Analysis Tools for Engineers, and Structural Mechanics, respectively,

Initially each section of the institute had two instructors, one of them being a mathematics instructor. Today, only the physics and chemistry workshops have two instructors; one from science and one from mathematics. Each section of the *Intersession STEM Institute* has been running for 24 - 45 contact hours. Students attending the workshop have shown to be better prepared to face the hard work in the courses they will take during the regular semester.



### **C. Conversation with Advanced Science and Engineering Students**

The Conversation with Advanced Science and Engineering Students was implemented in fall 2012 and consists of inviting current HCC students who have taken classes at CCNY's GSoE as ePermit and engineering graduate students who can share their senior college transition experience with our freshmen students. The Hostos students have the opportunity to ask their peers about senior college life. They know firsthand how academic life is expected to be outside a community college. Topics such as time management, working at the same time they are pursuing a STEM major and study habits have been naturally addressed. This kind of initiative is aimed at helping Hostos students to make a seamless transition to CCNY's GSoE or to other senior colleges. Evidence suggests that if this transition is successful and our engineering students manage to thrive during their first semester/year at CCNY's GSoE, they will likely graduate from senior college. (see 2013 Activity Flyer and Survey provided to the participant students after the completion of the activity in **Appendix F**)

### **D. STEM Field Trips**

The science and engineering students have been exposed to state-of-the-art research laboratories as well as science, engineering and mathematics museum/exhibits. The students have been taken on science and engineering field trips (e.g. to Brookhaven National Laboratory, American Museum of Natural History, Space Museum, Physics Day at Six Flags Amusement Park where the students can study force, velocity, inertia, and acceleration as they experience them firsthand on amusement park rides, like roller coasters and bumper cars). These activities have been performed in collaboration with the Science, Physics, Chemistry and Engineering Clubs at Hostos. These clubs are sponsored by the Hostos Student Government Association and are very active throughout the year. Each club is formed by President, Vice-President, Secretary and

Treasury, and has a professor as an advisor. Some of the Engineering advisors are club advisors as well: Prof. Nieves Angulo and Prof. Clara Nieto-Wire (Engineering Club), Prof. Yoel Rodríguez (Physics, Science, Environmental Science and Robotics Clubs), Nelson Nuñez-Rodríguez (Science, Environmental Science and Chemistry Clubs), Francisco Fernández (Chemistry Club) and Ruili Ye (Robotics Clubs).

### VIII. JOINT DUAL ENGINEERING DEGREE PROGRAM DISSEMINATION

Activities and collaborations between HCC and CCNY's GSoE have been presented at different Conferences and Seminars.

- **Rodríguez, Y.** “A Detailed Overview of the Engineering Joint-Degree/Dual-Admission Programs at Hostos.” NSF Project SEED. HCC. November 30, 2012. (Oral Presentation)
- **Rodríguez, Y. and Flek, R.** “Winter/Summer Intersession STEM Institutes.” NSF Project SEED. HCC. November 30, 2012. (Oral Presentation)
- **Bernal-Carlo, Amanda and Fernández, Francisco.** “Joint Dual Degree Programs in Engineering: City College and Hostos Community College.” The 6th Annual General Education Conference at Kingsborough Community College. “Different Disciplines, Common Goals.” Brooklyn, New York. May 2010.
- **Rodríguez, Yoel, Ross, Flek and Fernández, Francisco.** “Science and Engineering Institute Bridge to PHY 210/CHE 210/220.” PDI week. HCC, Bronx, New York. June 2010.
- **Walser, Ardie, Beharry, Rawlins and Bernal-Carlo, Amanda.** National Association of Multicultural Engineering Programs Advocates (NAMEPA) and Women in Engineering Proactive Network (WEPAN). “Pipeline to Engineering Diverse Future in New York

City.” Setting Sail for the Future: Leveraging Diversity for a Stronger Crew. Baltimore, Maryland, 12-14 April 2010.

## IX. FUTURE DIRECTIONS

A high priority for HCC is the growth of **Engineering** and STEM programs. HCC is committed to making all possible efforts to bring high quality STEM opportunities to the South Bronx and nearby communities by establishing partnerships and securing funding. These efforts include applying for educational and research grants through National Science Foundation (NSF), National Institute of Health (NIH), Department of Education (DoE) or other external agencies.

In addition, an improved curriculum in gatekeeper courses at the Pre-Engineering and Engineering levels such as MAT 150 (College Algebra with Trigonometric Functions) and PHY 210 (General Physics I), respectively, will help to better prepare our Science and Engineering students to face the challenges of the STEM disciplines. **Today, for instance, we can perform all the basic laboratories within the physics curriculum, but to encourage students to think beyond the curriculum, we should finalize purchasing equipment to build up state-of-the-art science laboratories. This effort will allow us to keep integrating daily-life research projects into science curriculum. Integrating research into undergraduate curriculum is a high impact educational practice that better prepare the students to gain abstract-analysis, reasoning, problem-solving, writing and communications skills. [5] The mathematics sequence (MAT 010, 020, 150, 160) should be fostered and implemented for STEM students. Thus, special sections of those mathematics courses should be created and offered only for STEM students.** Peer leaders inside and outside classrooms for sciences, math and engineering courses should also be **implemented** during the regular semester. **Peer leaders serve as role models. They help other students to perform better in class and act as a bridge between students and instructors. [6] As our HCC**

Mathematics Department has shown, the implementation of supplemental instruction has helped increase retention and academic performance among remedial students. Additionally, Rath *et al* has noted that students completing chemistry courses under pedagogical strategies such as supplemental instruction and peer leading “generally perform better in the supported classes, in subsequent courses in the sequence, and have higher retention rates in the major.” [6] Thus, the use of this practice within gatekeeper Engineering program courses (e.g. PHY210 / PHY220) could have a high impact on persistence, retention and graduation rates for our Engineering program. Finally, besides the *STEM Institute*, which is currently held only during the summer and winter intersessions, a new mechanism should be placed in practice to offer such institute during the regular semester.

In order to increase the female enrollment within the Engineering program, we plan to 1) invite former Hostos female engineers graduated at CCNY’s GSoE and other institutions to talk to our HCC students, 2) invite women role models in Engineering and STEM to talk to our HCC students, 3) visit High School (HS) students in the South Bronx or invite them to our institution to inform them about the HCC Engineering program, 4) invite the Bronx High School Counselors in coordination with The Office of Admission at HCC to also inform them about the HCC Engineering program, 5) organize panel discussion on “Women in STEM Disciplines,” and/or 6) perform any other initiative aimed at increasing recruitment and persistence of women in Engineering and STEM disciplines.

With all of the above 1) the institutional capacity to better prepare students will be strengthened and 2) the institutional ability to increase the number of students who will embark, persist and succeed in the Engineering and STEM disciplines will be improved. This will result in a significant increase in the number of successful students pursuing STEM disciplines that will

help the growth of the JD Engineering Degree Program as well as other STEM disciplines at the College, including our current A.S. in Science, Math and Forensic Science degrees. **An improved Engineering program will benefit other STEM programs since the student population from these programs shares the same sciences facilities and also takes common fundamental mathematics and sciences courses (e.g. MAT 210, PHY 210, CHE 210, and so forth).**

## **X. ACKNOWLEDGEMENT**

The Academic Program Review (APR) committee would like to express our appreciation to Provost Carmen Coballes-Vegas, Dean Christine Mangino and Dean Félix Cardona for their constant support of the JD Engineering Degree Program. The JD Engineering Degree Program would like to especially thank all faculty members of the Engineering Advisory Council Group for their dedication and hard work with the Hostos Engineering students. The APR committee would also like to thank particularly Ms. Karla Contreras for her commitment and dedication as well as her high quality work for the Engineering program. In addition, the APR committee is grateful to Prof. Mohammad Sohel for helping to organize the database of Hostos students involved in research under the sponsorship of the LSAMP, C-STEP/Proyecto Access and NASA programs for the last five academic years. This committee would also like to extend its gratitude to the Hostos Office of Institutional Research and Student Assessment, in particular Dean Richard Gampert and Mr. Piotr Kocik, for providing most of the data used in this APR report. Prof. Clara Nieto-Wire also needs to be acknowledged for her indirect contribution. Her work along with Prof. Nieves Angulo and Prof. Yoel Rodríguez provided the starting point of this report since some of the data were initially collected for the MSEIP grant prepared last May 2013. We would like to thank Mr. Adjiwanou Gbagba for sharing with us the LSAMP and C-STEP/Proyecto Access programs students' research information. Furthermore, we recognize

Dean Ardie D. Walser, Dean Laurent Mars and Dr. Meg Krudysz from CCNY's GSoE for their support to the HCC JD Engineering Degree Program. Finally, the JD Engineering Degree program would like to thank all the engineering students who make possible the existence of the program. THANK YOU ALL!

## XI. REFERENCES

1. Office of Institutional Research and Student Assessment, HCC. May 2013.
2. HCC Joint Dual Engineering Degree Program and CCNY's GSoE Assessment.
3. HCC Joint Dual Degree Programs Website. <http://www.hostos.cuny.edu/oaa/ddp/> 10 January 2014.
4. Kaplan Educational Foundation. <http://www.kaplanedfoundation.com>. 15 May 2013.
5. Hu, S., Scheuch, K., Schwartz, R., Gayles, J. G. and Li, S. Reinventing undergraduate education: Engaging college students in research and creative activities. 2008. San Francisco: Jossey-Bass.
6. Gafney, L. and Varma-Nelson, P. Evaluating Peer-Led Team Learning: A Study of Long-Term Effects on Former Workshop Peer Leaders. *J. Chem. Educ.* 2007 84:535-539.
7. Rath, K. A., Peterfreund, A., Bayliss, F., Runquist, E. and Simonis, U. Impact of Supplemental Instruction in Entry-Level Chemistry Courses at a Midsized Public University *J. Chem. Educ.* 2012 89:449-455.

# APPENDICES

DRAFT



**APPENDIX A**

**AGREEMENT BETWEEN HCC AND CCNY'S GSoE – JD DEGREE ENGINEERING PROGRAM**

**Agreement Between**

**Eugenio María de Hostos Community College**  
and  
**The City College of New York**


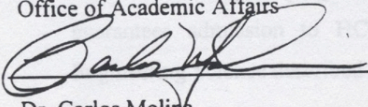
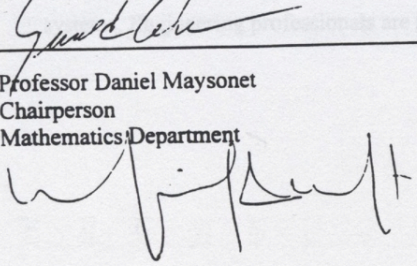
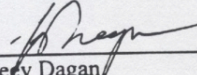
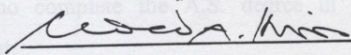
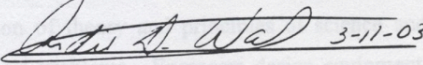
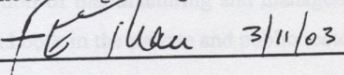
**For a Dual/Joint Associate in Science in Electrical Engineering Science (A.S.)  
Bachelor of Engineering in Electrical Engineering (B.E./E.E.)**

**Agreement:**

1. The terms of the agreement will remain in effect until amended by mutual agreement.
2. Both colleges may publicize the agreement in the appropriate college publications and bulletins.

**Effective:**

This agreement is effective upon signature.

<p><b>Hostos Community College</b></p> <p> _____ Dr. Daisy Cocco De Filippis Provost and Vice President Office of Academic Affairs</p> <p> _____ Dr. Carlos Molina Dean Office of Academic Affairs</p> <p>_____ Mr. Gerald Cohen Assistant Dean Office of Academic Affairs</p> <p> _____ Professor Daniel Maysonet Chairperson Mathematics Department</p>	<p><b>The City College of New York</b></p> <p> _____ Dr. Zeev Dagan Provost Office of Academic Affairs</p> <p> _____ Dr. Mohammad Karim Dean School of Engineering</p> <p> 3-11-03 _____ Dr. Ardie D. Walsler Associate Dean School of Engineering</p> <p> 3/11/03 _____ Professor Fred Thau Chairperson Department of Electrical Engineering/Computer Engineering</p>
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**APPENDIX B****STUDENT RESEARCH AT HCC – LSAMP, C-STEP, NASA, CILES and BNL (2008 – 2013)****1. Angulo, Nieves, Ed.D. (Mathematics)**

<b>Student Name</b>	<b>Academic Year</b>	<b>Semester</b>	<b>Project Title</b>
Posada, Adrian	2010-2011	Summer	Selection, Testing and Qualification of Electrical Components for the ISERV Power Distribution Box (NASA)
Viteri, Fernando	2010-2011	Summer	Barrel Construction Using Conventional Friction Stir Welding (FSW) (NASA)

**2. Fernández, Francisco, Ph.D. (Natural Sciences)**

<b>Student Name</b>	<b>Academic Year</b>	<b>Semester</b>	<b>Project Title</b>
Wokpetah, Jopseph	2010-2011	Fall	Heavy Metals Water Pollution in Harlem River (LSAMP)
Moustapha, Mamadou,	2010-2011	Spring	Determination of As in waters of the South Bronx (LSAMP)
Wokpetah, Jopseph	2009-2010	Spring	Heavy Metals Water Pollution in Harlem River (LSAMP)
Ramos, Luis	2009-2010	Fall	Experiments In Chemistry Using a CBL System (LSAMP)
Ramos, Luis	2008-2009	Fall	The Quality Of Natural Resources Of The Environment In Our Community (LSAMP)

**3. Flek Ross, Ph.D. (Mathematics)**

<b>Student Name</b>	<b>Academic Year</b>	<b>Semester</b>	<b>Project Title</b>
Adedjouman, Maskana	2012-2013	Fall	Introduction to problems in complex dynamics (LSAMP)

**4. Brathwaite, Claude, Ph.D. (LSAMP, City College)**

Student Name	Academic Year	Semester	Project Title
Ramos, Luis	2010-2011	Fall	Environmental Monitoring Of Soil And Water Quality In Cartagena Colombia (LSAMP)
Ramos, Luis	2009-2010	Spring	Environmental Monitoring Of Soil And Water Quality In Cartagena Colombia (LSAMP)

**5. Koffi, Moise, Ph.D. (C-STEP/Proyecto Access)**

Student Name	Academic Year	Semester	Project Title
Alassani, Ibrahim	2012-2013	Summer	The Relationship Between High School Students Math Skills And Its Impact On Building A Robot
Fernandez, Emily	2011-2012	Summer	Proyecto Access
Rivera, Mark	2011-2012	Summer	Proyecto Access
Hidalgo, Carlos	2010-2011	Summer	Proyecto Access
Saah, Benjamin	2010-2011	Summer	Proyecto Access
Teye, Jakob	2010-2011	Fall	NASA/STEP Proyecto access
Teye, Jakob	2009-2010	Spring	NASA/STEP Proyecto access
Afoda Sebou, Mohamed	2009-2010	Summer	Proyecto Access
Keitt, Kegan	2008-2009	Summer	NASA/STEP Proyecto Access
Nguessan, Kouame	2008-2009	Summer	Proyecto Access

**6. Ovale, Rafael, Ph.D.**

Student Name	Academic Year	Semester	Project Title
Lawson, Noah	2009-2010	Summer	Phage Hunters Workshop (LSAMP)

**7. Trachman, Julie, Ph.D. (Natural Sciences)**

Student Name	Academic Year	Semester	Project Title
Bouda, Emilie <sup>&amp;</sup>	2012-2013	Spring	Using Lichens as bio-indicators of air pollution. (LSAMP)
Teye, Jacob	2009-2010	Summer	Effect of acid stress on LT expression (LSAMP)

<sup>&</sup>Co-Mentors: Dr. Zvi Ostrin and Dr. John Gillen

**8. Rodríguez, Yoel, Ph.D. (Natural Sciences)**

Student Name	Academic Year	Semester	Project Title
Diallo, Abdoulaye	2012-2013	Spring	How Loud is too Loud: Music and Hearing Loss (LSAMP)
Boves, Elvis	2012-2013	Fall	Self-Sustainable Energy Generator (LSAMP)
Baez Tactuk, Thomas	2012-2013	Fall	Self-Sustainable Energy Generator (LSAMP)
Boves, Elvis	2011-2012	Spring	Self-Sustainable Energy Generator (LSAMP)
Baez Tactuk, Thomas	2011-2012	Spring	Self-Sustainable Energy Generator (LSAMP)
Hidalgo, Absalon	2008-2009	Spring	Elements and Nutrients in Water Samples in NYC (LSAMP)

**9. Henderson, Flor, Ph.D. (Natural Sciences)**

Student Name	Academic Year	Semester	Project Title
Safiyanou, Siba	2009-2010	Fall	Anatomical techniques for palm fruit anatomy (LSAMP)

**10. Sohel, Mohammad, Ph.D. (Natural Sciences)**

<b>Student Name</b>	<b>Academic Year</b>	<b>Semester</b>	<b>Project Title</b>
Fernandez, Emily	2012-2013	Fall	Synthesis and Characterization of Size Dependent CdSe Nanocrystals (LSAMP)
Fernandez, Emily	2011-2012	Summer	Physical and optical properties of ZnCdSe nanocrystals as a function Of composition (LSAMP)
Fernandez, Emily	2011-2012	Spring	Synthesis and Characterization of Size Dependent CdSe Nanocrystals
Elsayed, AbdelRahman	2011-2012	Summer	Physical And Optical Properties Of ZnCdSe Nanocrystals As A Function Of Composition (CSTEP)
Lawal, Jubril	2011-2012	Fall	Synthesis and characterization of CdSe nanocrystals (LSAMP)
Lawal, Jubril	2010-2011	Spring	Synthesis and characterization of CdSe nanocrystals (LSAMP)
Lawal, Qudus	2010-2011	Fall	Synthesis and characterization of CdSe nanocrystals (LSAMP)
Lawal, Qudus	2009-2010	Spring	Synthesis and characterization of CdSe nanocrystals
Laksmon, Nathan	2009-2010	Summer	Synthesis and characterization of PbSe nanocrystals (CENSES, City College)
Lawal, Qudus	2009-2010	Summer	Synthesis and characterization of PbSe nanocrystals (LSAMP)
Noah, Lawson	2009-2010	Fall-Spring	Optical Properties of CdTe nanocrystals
Wokpetah, Joseph	2008-2009	Summer	Optical Characterization of CdTe Nanocrystals (LSAMP)

**11. Vaninsky, Alexander, Ph.D. (Mathematics)**

Student Name	Academic Year	Semester	Project Title
Makouteu, Christelle	2012-2013	Spring	Modeling The Dynamics Of Environmental Efficiency Using The Data Envelopment Analysis With A Perfect
Makouteu, Christelle	2011-2012	Fall	Modeling The Dynamics Of Environmental Efficiency Using The Data Envelopment Analysis With A Perfect (LSAMP)
Wokpetah, Hanna	2010-1011	Fall	Data Envelopment Analysis in the study of Environmental Efficiency (LSAMP)
Wokpetah, Hanna	2009-2010	Spring	Data Envelopment Analysis in the study of Environmental Efficiency (LSAMP)
Casteneda, Allen	2009-2010	Spring	Analyzing National Electric Transmission Congestion (LSAMP)

**12. Nuñez-Rodríguez, Nelson, Ph.D. (Natural Sciences)**

Student Name	Academic Year	Semester	Project Title
Torres, Hermino	2010-2011	Spring	The role of pseudophosphorylated TAU in neuronal cell death associated to Alzheimer disease (LSAMP)
Rodriguez, Milbeto	2010-2011	Fall	Pseudophosphorilated TAV and cell death in Alzeheimer disease (LSAMP)
Ampofo, King	2009-2010	Fall	Substance P role in pain modulation at chicken DRG (LSAMP)

**13. Steinberg, Olga, Ph.D. (Natural Sciences)**

Student Name	Academic Year	Semester	Project Title
Lawal, Qudus	2010-2011	Fall	UV sensitivity of Ustilago maydis brh2est2 mutants (LSAMP)
Torres, Hermino	2010-2011	Spring	The role of pseudophosphorylated TAU in neuronal cell death associated to Alzheimer disease (LSAMP)
Molina, Alejandro	2009-2010	Spring	Construction of the disruption cassette for the deletion of the EST3 gene in C. parapsilosis. (LSAMP)

**14. Nieto-Wire, Clara, Ph.D. (Mathematics)**

Student Name	Academic Year	Semester	Project Title
Boves, Elvis	2012-2013	Summer	Tracer Study of Internal Band Formation in Conventional Friction Stir Welding (NASA)
Suriel, Natalie	2012-2013	Summer	DC/DC Converter Testing. (NASA)
Rosas, Sandy	2012-2013	Summer	Sorbent Screening and Characterization for Improvement of CO2 Removal in the International Space Station. (NASA)

**15. Sohl, Linda E., Ph.D. (NASA, NY)**

Student Name	Academic Year	Semester	Project Title
Bhola, Ricky	2011-2012	Summer	The Manhattanville Project: Managing Stormwater Impacts. (NASA)

**16. Heiser, John H., M.S. (BNL)**

Student Name	Academic Year	Semester	Project Title
Bhola, Ricky	2012-2013	Summer	Analysis of soil temperatures in the Long Island Solar Farm (LISF) and its impact on the local fauna and flora (BNL)

**17. Moshary, Fred, Ph.D (City College/NASA)**

Student Name	Academic Year	Semester	Project Title
Thaelis, Suriel	2012-2013	Summer	Urban Planetary Boundary Layer Height Detection From LIDAR Measurements in New York City (NASA)

**18. Dias, Olen, Ph.D (Mathematics)**

Student Name	Academic Year	Semester	Project Title
Boves, Elvis <sup>&amp;</sup>	2011-2012	Summer	Pin Tools Analysis Using Conventional Friction Stir Welding (FSW) (NASA)
Carter, Leandra <sup>&amp;</sup>	2011-2012	Summer	Space Launch System (SLS) Ground Power Disconnect Breakout Box (BOB) (NASA)

<sup>&</sup>Co-Mentor: Dr. Nieves Angulo**19. Prince, Tanvir, Ph.D (Mathematics)**

Student Name	Academic Year	Semester	Project Title
Franco, Stefany <sup>&amp;</sup>	2012-2013	Summer	Mathematics Behind Image Compression in NASA (CILES)
Maurice, Evans <sup>&amp;</sup>	2011-2012	Summer	Image Processing and Image Compression for NASA (CILES)

<sup>&</sup>Co-Mentor: Dr. Nieves Angulo

## APPENDIX C

### **MOST RELEVANT ACHIEVEMENTS OF THE ENGINEERING ADVISORY COUNCIL GROUP MEMBERS THROUGHOUT THE LAST FIVE ACADEMIC YEARS.**

#### **PROF. KATHLEEN DOYLE**

##### **PUBLICATIONS**

- Doyle, K., Kennis, Dias, O., J. Czarnocha, B., Baker, W., & Prabhu, V. (2013). *The rational number subconstructs as a foundation for problem solving*. Accepted for publication by ALM International Journal, will appear in 2013.
- Cunningham, A.W. & Doyle, K. (2013). *Community college developmental mathematics assessment: Closing the loop*. Submitted for peer review, January 2013.
- Baker, W., Czarnocha, B., Dias, O., Doyle K., Kennis, J. & Prabhu, V. (2012). *Procedural and conceptual knowledge: Adults reviewing fractions*. ALM International Journal, 7(2), December 2012.
- Ye, R., Doyle, K. M., Dias, O., Czarnocha, B. & Baker, W. (2011). Problem solving in pre-algebra and college level mathematics. *Mathematics Teaching-Research Journal Online*, Vol. 4, 27 - 58.
- Baker, W., Czarnocha, B., Dias, O., Doyle K., & Prabhu, V. (2009). A study of adult students learning fractions at a community college. *Annals of Polish Mathematical Society, 5th Series, Didactica Mathematicae 31*.
- Ibrahim, A., Doyle, K. M., Czarnocha, B. & Baker, W. (2009). Proportional reasoning and Polya's problem solving in pre-algebra mathematics. *Mathematics Teaching-Research Journal Online*, Vol. 3, 41 -69.

##### **CONFERENCE PRESENTATIONS**

- Doyle, K.M. (2012, May). Course Level Assessment. Presented at the Professional Development Institute at Hostos Community College, Bronx, New York.
- Doyle, K. M. (2012, April). The Camel Problem. Presented at the Problem Solving Seminar at Hostos Community College, Bronx, New York
- Doyle, K. M. (2011, April). Diophantine equations. Presented at the Problem Solving Seminar at Hostos Community College, Bronx, New York.

##### **MENTORING STUDENTS**

- Hosted the American Mathematical Association of Two Year Colleges (AMATYC) regional mathematics competition during the fall 2012 and spring 2013 semesters.

#### **PROF. WILLIAM BAKER**

##### **PUBLICATIONS**

- Baker, W., Czarnocha, B., Dias, O., Doyle, K., Kennis, J., Prabhu, V. (Dec. 2012) Procedural and Conceptual Knowledge: Adults Reviewing Fractions, *Adults Learning Mathematics* 7 (2), 39-65.



- Czarnocha, B., Baker, W., Dias, O., Prabhu, V., (Oct. 2012) Teaching Research Guide to Problem Solving, *Mathematics Teaching-Research Journal Online*, 5(3).
- Czarnocha, B., Baker, W., Dias, O., Prabhu, V., (Oct. 2012) Teaching Research for the 21<sup>st</sup> Century-Proceedings of the Discussion Group #4 PME, Taipei, Taiwan, *Mathematics Teaching-Research Journal Online*, 5(3).
- Czarnocha, B., Baker, W., Dias, O., Prabhu, V., (Oct. 2012) , Learning Trajectories from the Arithmetic/Algebra Divide *Mathematics Teaching-Research Journal Online*, 5(3).
- Ruili Ye, Kathleen M. Doyle, Olen Dias, Bronislaw Czarnocha, William Baker, (2011) “Problem Solving in Pre-Algebra and College Level Mathematics.” *Mathematics Teaching-Research Journal Online*, 4(3).
- Baker W., Dias, O. and Menil, V. “Review of Pre-Algebra and for Standardized Tests in Pre-Algebra,” Pearson Custom Publishing, Fall 2010.
- William Baker, Olen Dias, Kathleen Doyle, Bronislaw Czarnocha, Vrunda Prabhu (2009) “*A Study of Adult Students Learning Fractions at a Community College*,” *Annals of Polish Mathematical Society*, 5th Series: Didactica Mathematicae 32, pp. 5-41.
- Czarnocha, B., Baker, W., Dias, O., Prabu, V., December 2009, “*Problem Solving and Remedial Mathematics*,” *Mathematics Teaching-Research Journal Online*, Volume 3(4) pp.81-98.
- Ibraheem, A., Doyle, K., Czarnocha, B., Baker, W. August 2009, “*Proportional Reasoning and Polya’s Problem Solving in Pre-Algebra Mathematics*,” *Mathematics Teaching-Research Journal Online*, Volume 3(3) pp.41-69.

#### CONFERENCE PRESENTATIONS

- W. Baker & B. Czarnocha, (Nov. 2012). Poster Presentation: “*Learning Trajectories from the Arithmetic/Algebra Divide*.” Proceedings of the 2012 Annual Meeting of the North American Chapter of the Psychology of Mathematics Education, Kalamazoo, Michigan.
- W. Baker, B. Czarnocha & V. Prabhu (Jan. 2012) Presentation: “*Problem Solving in Remedial Mathematics: A Jump Start to Reform*,” CUNY-C3IRG grant writing workshop at BMCC, NYC.
- W. Baker , B. Czarnocha & V. Prabhu (May 2012). Presentation “*The Design of Learning Trajectories in Elementary Algebra*,”The Annual Meeting of the Metropolitan New York Section of MAA at BMCC, NYC.
- Attended the 7th International Supplemental Instruction Conference in San Diego, May 30<sup>th</sup> -June 1<sup>st</sup> 2012 along with Professors L. Porte, A., Cunningham & O. Dias (HCC) to learn about a new educational technique in teaching and learning
- Czarnocha, B. and V. Prabhu presented: Problem Solving in Remedial Mathematics a paper submitted by W. Baker, B. Czarnocha, O. Dias and V. Prabhu and accepted by International Congress of Mathematics Education, Seoul, Korea, July 7-14
- Czarnocha, B. and V. Prabhu lead a discussion group on Problem Solving in Mathematics with material submitted by W. Baker, B. Czarnocha, O. Dias and V. Prabhu and accepted for the Topic Discussion Group Problem Solving, Teaching-Research in 21st Century at the 36 Annual Meeting International Group of the Psychology of Mathematics Education, Taipei, Taiwan, July 18 - July 22

## GRANTS

- The mathematics collaborator along with the natural science collaborators, N. Rodriguez, & F. Fernandez to work with PI R. Shad & K. Lewis on the NSF grant “Designing Future for Games: Games for Multi-Media.” Awarded Fall 2012
- Problem Solving in Remedial Mathematics: A Jump Start to Reform: CUNY College Collaborative Incentive Research Grant Program (2010) with B. Czarnocha, V. Prabhu and O. Dias.

## PROF. ALEXANDER VANINSKY

### PUBLICATIONS

- Vaninsky, A. Economic Factorial Analysis of CO2 Emissions: The Divisia Index with Interconnected Factors Approach. *World Academy of Science, Engineering and Technology. International Journal of Management Science and Engineering* 7(10), 2013, 746-751.
- Vaninsky, A. Key sectors of Optimal Economic Restructuring Constrained by Environmental Protection: A Structured Input - Output Analysis Approach. *Council For Innovative Research. Journal of Social Science Research*, 2013, Vol. 1, No. 3, 71-78.
- Vaninsky, A. Stochastic DEA with a Perfect Object and Its Application to Analysis of Environmental Efficiency. *American Journal of Applied Mathematics and Statistics*, 2013, Vol. 1, No.4, 57-63.
- Vaninsky, A. Simplified Data Envelopment Analysis: What Country Won the Olympics, and How about our CO2 Emissions? *Numeracy*, 6(2), Article 12, 2013.
- Vaninsky, A. Bridging Neuroscience and Technology for Teaching and Learning Mathematics. *MathAMATYC Educator*, 4(2), 4 - 8, 2013.
- Vaninsky, A. Theory of Fractions in College Algebra Course. *Publications of the World Academy of Science, Engineering and Technology (WASET)*, (53), 2011, 362 – 370.
- Vaninsky, A. Explicit Formulas for Efficiency Scores and Weight Coefficients in DEA Problems with a Perfect Object. *International Journal of Mathematical Modeling, Simulation and Applications*. 4(3), 217 - 233, 2011.
- Vaninsky, A. Algebraic trigonometry. *International Journal of Mathematical Education in Science and Technology*, 2011, 42(3), 406 – 411.
- Prospective national and regional environmental performance: Boundary estimations using a Vaninsky, A. combined data envelopment - stochastic frontier analysis approach. *Energy*, 2010, (35), 3657 - 3665.
- Vaninsky, A. A Dea-Cascor Model For High – Frequency Stock Trading: Computational Experiments in the U.S. Stock Market. *International Journal of Next-Generation Networks (IJNGN)*, 2(3), 2010, 1 – 10.

### CONFERENCE PRESENTATIONS

- Vaninsky, A. *International cooperation on the environmental performance and economic restructuring: A quantitative approach*. Euro-China Economic Forum. Xian, China, September 26-28, 2013. Distinguished Spreader.
- Vaninsky, A. *Data Envelopment Analysis with Partial Perfect Objects*. The World Academy of Science, Engineering and Technology (WASET). New York, USA. June 05-06, 2013. Plenary Speaker.

- Vaninsky, A. *An Unconventional approach to teaching and learning mathematics*. The 2013 Annual Meeting of The Metropolitan New York Section of the Mathematical Association of America, May 5, 2013, Farmingdale State College.
- Vaninsky, A. *Extended office hours in the video-conferencing mode in the Blackboard learning environment*. Virtual HETS Best Practices Showcase 2013. Celebrating Innovation in Access, Retention and Assessment in Distance Learning Education to Promote Hispanic Student Success in Higher Education. January 17 to February 8, 2013.
- Vaninsky, A. *A Mathematician's View of Educational Neuroscience: A Hunt for a Mathematical Genius*. Presentation 1086-VF-967 at the Joint Mathematics Meeting (AMS, MAA), Boston, January 9 - 12, 2013.
- Vaninsky, A. *Neuro Mathematics Education and Technology*. Joint Mathematics Meetings (AMS & MAA). Boston, MA, January 4 – 7, 2012.
- Vaninsky, A. *Multilevel Alternating Teaching and Assessment in Web-enhanced Environment*. The 23rd Annual International Conference on Technology in Collegiate Mathematics (ICTCM), March 17 - 20, 2011, Denver, CO.
- Vaninsky, A. *Impact of Automated Proof Systems on Teaching Mathematics*. Joint Mathematics Meeting of the Mathematical Association of America (MAA) and the American Mathematical Society (AMS), JMM-2011, New Orleans, LA, January 6–9, 2011.
- Vaninsky, A. *Interstate Comparison of Environmental Performance using Stochastic Frontier Analysis: The United States Case Study*. International Conference on Sustainable Human and Social Development (ICSHSD 2010). Paris, France. June 28 - 30, 2010.
- Vaninsky, A. *Environmental Performance of the United States Energy Sector: A DEA Model with Non-Discretionary Factors and Perfect Object*. World Congress on Science, Engineering and Technology (WCSET 2010). Paris, France. June 24-26, 2009.

## GRANTS

- 2012 PSC-CUNY Award # 65135-00 43 – “Development of a Mathematical Model for Bio Environmental Monitoring”

## MENTORING STUDENTS

**1. Mohamed Afoda** (EE, LSAMP, HCC, 2010); **2. Hanna Wokpetah** (AS in Science, LSAMP, HCC, 2010); **3. Christelle Makouteu** (A.S. in Science, LSAMP, HCC, 2011); **4. Ibrahim Alassani** (CE, LSAMP, HCC, 2012); **5. Leandra Carter** (A.S. in Mathematics, C-STEP, HCC, 2012); **6. Rosieva Ashong Katai** (High School, C-STEP, 2012); **7. Stephany Franco** (ChE, C-STEP, HCC, 2012).

## PROF. NELSON NUNEZ RODRIGUEZ

### PUBLICATIONS

- **Nunez Rodriguez, N** (2013) “Reconciling Learning and Teaching styles in Science, technology, engineering and mathematics disciplines through Cogeneratives dialogues” *Problems of Education in the 21<sup>st</sup> Century PEC* 2013; 52(52):105-114.
- **Nunez Rodriguez N, Casari W, Ostrin Z** (2013) “Teaching Evolution through Opposing Viewpoints” *Academic Exchange Quarterly* SUMMER 2013 17(2) 67-71.
- Henderson F, **Nunez Rodriguez N, Casari W** (2011) "Enhancing Research Skills and Information Literacy in Science Students at Community College" *The American Biology Teacher* 73(5) 270-275.
- Unsain N, **Nuñez Rodriguez N, Anastisia A, Masco D** (2008) “Status Epilepticus induces a TrkB to p75 Neurotrophin swith and increases Brain-derived neurotrophic factor interaction with p75

neurotrophin receptor: an initial event in neuronal injury induction.” *Neuroscience* 154 (June 26):978-993.

## CONFERENCE PRESENTATIONS

- Nunez Rodriguez, N (2014) Reconciling Learning and Teaching Styles in a Chemistry Class Through Cogenerative Dialogues. 6<sup>th</sup> Conference on Higher Education Pedagogy. Virginia Tech University.
- Nunez Rodriguez N, Suarez J, Henderson F, (2013) Creating a Mentoring Experience when Exposing Community College students to New Lab Techniques Developed by a Postdoctoral Fellow 53<sup>th</sup> American Society for Cell Biology Annual Meeting. New Orleans, LA.
- N. Nunez Rodriguez, C. Beharry, R. Romero, C. Corbo, S. Debnath, J. Fata and A. Alonso (2012) *Stably transfected PC12-TAU as a model to study Neuronal Toxicity associated with Extracellular Hyperphosphorylated TAU in Alzheimer Disease*. 52<sup>th</sup> American Society for Cell Biology Annual Meeting. San Francisco, CA.
- Nunez Rodriguez N, Hutchins C, Jones C, Brennan S, Trinidad A (2012) *Hostos Center for Teaching and Learning on Tour: Sharing and Passing on Effective Strategies for Retention*. Conference on Higher Education Pedagogy. Virginia Tech University.
- Nunez-Rodriguez N, Corbo C, Alaniz E, Rodríguez M, Debnath S, Fata J, Alonso A (2011) *Effect of Extracellular Alzheimer Disease’s Hyperphosphorylated Tau on Neuronal Toxicity*. 51<sup>th</sup> American Society for Cell Biology Annual Meeting. Denver, CO.
- Debnath S, Hannon P, Toropova K, Nunez Rodriguez N, Alonso A, Fata J (2011) *The N-Terminal Projection domain of the microtubule associated protein TAU inhibits TNF $\alpha$  signaling*. 51<sup>th</sup> American Society for Cell Biology Annual Meeting. Denver, CO.
- Nunez Rodriguez, E. Alaniz, C. Corbo, M. Rodriguez, Debnath S, Fata J, A. Alonso (2011) *Alzheimer Disease-like TAU forms and Cell Survival*. International Conference on Alzheimer’s Disease, Paris, France.
- Nunez Rodríguez N, Alaniz E, Corbo C, Rodríguez M, Alonso A (2010) *Unraveling the Pseudophosphorylated TAU Role in Alzheimer Dementia Cell Death Mechanisms*. 50<sup>th</sup> Annual Meeting-American Society for Cell Biology.

## GRANTS

- Varelas, A, Wolfe K, Seixas A, Brennan S, Nunez Rodriguez N (2013) *Developing Scientific Literacy and Critical Thinking Skills in College Introductory Courses by Integrating High School Trends*. (\$7,900) Graduate NYC! College Readiness and Success Project.
- 2012-2017 NIH Grant: Program Coordinator at Hostos: Bronx Einstein Training in Teaching and Research (in collaboration with Lehman College and Albert Einstein Institute). Applicant Organization: Albert Einstein College of Medicine/Principal Investigators: Dr. Barbara Birshstein and Dr. Dianne Cox \$3,029,763 (for the three institutions: five year period). Award Number: 1K12GM102779-01
- 2012-2013: Effect of Extracellular Alzheimer Disease’s Hyperphosphorylated Tau on Neuronal Toxicity. Visiting Professorship Grant American Society for Cell Biology, \$22,000
- 2012-2013: “Facing the Multidisciplinary Science of Today: Integrating knowledge, inquiry, and vision” American Society for Cell Biology. \$10,000 grant for promoting Cell Biology in the College.

- 2011-2012: “The Role of Communication and Information Literacy Skills in the Sciences of Today” American Society for Cell Biology. \$10,000 grant for promoting Cell Biology in the College.
- 2010-2011 “Aging and Alzheimer’s Disease in the Minority Community: From Cells to the Society: What everyone should know” \$3000 Diversity Project Development Fund-CUNY.
- 2010-2011: “Mentoring Makeover: Booming Cell Biology in the Bronx” American Society for Cell Biology. \$10,000 grant for promoting Cell Biology in the College.
- University Seminar on Teaching and Learning in Undergraduate Education. CUNY.  
2008-2009 Cycle: Principal Investigator- PSC-CUNY Award # 61060-00 39: Molecular Mechanisms of Pain Modulation by Autocrine Loops.

### MENTORING STUDENTS

**1. Mibelto Rodriguez** (A.S. in Science, LSAMP, HCC, 2009-2010); **2. Herminio Rodriguez** (A.S. in Science, LSAMP, HCC, 2011); **3. Ruth Romero** (A.S. in Forensic Science, LSAMP, HCC, 2012).

**The following students have accompanied Prof. Nunez-Rodriguez to professional society conferences:**

- Mibelto Rodriguez. 50<sup>th</sup> and 51<sup>th</sup> American Society for Cell Biology Annual Meetings. Philadelphia, PA and Denver, CO San Francisco, CA.
- Angel Cuevas. 52<sup>th</sup> American Society for Cell Biology Annual Meeting. San Francisco, CA.
- Marlon Guzman and Kemar Wellington. 2013 IRACDA Conference, Atlanta.

### PROF. MOHAMMAD SOHEL

#### PUBLICATIONS

- **BOOK Publication: (Co-Author): *Chemistry: Exploring the Molecular Vision***, Volume 1: Molecules and Their Interactions. Author: David K. Gosser and Mohammad Sohel; ISBN: 1-60797-234-4, Linus Publications. (234 pages). (2011).
- Size controlled synthesis of monodisperse PbTe quantum dots using oleylamine as the capping ligand, Yi Pan, Hanying Bai, Liang Pan, Yadi Li,ab Maria C. Tamargo, Mohammad Sohel and John R. Lombardi, *J. Mater. Chem.*, 22, 23593 (2012).
- Studies of surface oxidation in ultra-small magic-sized white light-emitting CdSe nanocrystals using X-Ray photoelectron spectroscopy, **M. Sohel**, L. Pan, M. C. Tamargo, *Phys. Status Solidi C* 9, No. 8–9, 1776–1778 (2012).
- “*Physical and Optical properties of size selective CdTe nanocrystals*”- Alice Fok, Jorge Morales and **Mohammad Sohel**, *Phys. Status Solidi. C* 7, No. 6, 1520–1522 (2010).
- Size controlled synthesis of monodisperse PbTe quantum dots using oleylamine as the capping ligand, Yi Pan, Hanying Bai, Liang Pan, Yadi Li,ab Maria C. Tamargo, Mohammad Sohel and John R. Lombardi, *J. Mater. Chem.*, 22, 23593 (2012)
- Studies of surface oxidation in ultra-small magic-sized white light-emitting CdSe nanocrystals using X-Ray photoelectron spectroscopy, **M. Sohel**, L. Pan, M. C. Tamargo, *Phys. Status Solidi C* 9, No. 8–9, 1776–1778 (2012).

- “*Physical and Optical properties of size selective CdTe nanocrystals*”- Alice Fok, Jorge Morales and **Mohammad Sohel**, *Phys. Status Solidi. C* 7, No. 6, 1520–1522 (2010).

#### CONFERENCE PRESENTATIONS

- Oral Presentation: CTL Professional Development Spa Day: “IRB Dymestified” , May 30, 2012, Hostos CC, Bronx, New York.
- Participant/ Training: 7<sup>th</sup> Annual Institutional Review Board Educational Conference, May7-8, 2012, Columbia University, New York.
- NUE: Integrating Nanotechnology Education at CUNY Community Colleges Vicki Flaris, Mohammad Sohel, Ilona Kretzschmar; 2011 Nanoscale Science and Engineering Conference, Arlington, Virginia, December 5-7, 2011.
- M. Sohel, M. C. Tamargo, L. Peng, S. J. Rosenthal, X-Ray photoelectron spectroscopy of white light emitting magic sized CdSe nanocrystals, 15th International conference on II-VI Semiconductors, Mayan Riviera, Mexico, August 21-26, 2011.
- Y. Pan, L. Pan, M. C. Tamargo, J. R. Lombardi, M. Sohel, Open air and simple method to synthesize narrowly distributed and size tunable PbSe nanocrystals, 241st ACS National Meeting, Anaheim, CA, (March 27-31, 2011).
- *Synthesis and Characterization of CdSe nanocrystals*, Qudus Lawal, Liang Pan, Maria Tamargo and **Mohammad Sohel**, 2010 Urban University Conference, Brookhaven National Laboratory, April 23-24, 2010.
- Rosa Pena, Maria Tamargo and **Mohammad Sohel**, *Optical properties of CdSe nanocrystals*, 11<sup>th</sup> Annual Science Symposium, Advance Science Research Center at Manhattan Center for Science and Mathematics, May 20, 2010.
- M. Sohel, Francisco Fernandez, M. C. Tamargo and O. Maksimov, *Beryllium chalcogenide alloys for optoelectronic and photovoltaic devices*, 14<sup>th</sup> International conferences on II-VI compounds, St. Petersburg, Russia, August 23 -28, 2009.
- Alice Fok, George Morales and Mohammad Sohel, *Synthesis and Characterization of CdTe Quantum Dots for In-Vivo Imaging*, 14<sup>th</sup> International conferences on II-VI compounds, St. Petersburg, Russia, August 23 -28, 2009.

#### GRANTS AND FELLOWSHIPS

- National Science Foundation’s Office of Cyber Infrastructure- CI-TEAM "**CI-TEAM Demonstration Project: Enhancing STEM Education through Faculty Training in the Use of Cyberinfrastructure**" (9/2011- 8/2013) **\$249,734**
- National Science Foundation’s Nanotechnology Undergraduate Education Award in collaboration with City College: (2010 -2012) “**Integrating Nanotechnology in CUNY Community Colleges**” **\$200,000**
- Integrated Research Strategies: (2010) “*Integrating Nanotechnology in General Chemistry courses at Hostos*”, National Science Foundation-LSAMP **\$3,000**
- NIH: Howard Hugh Medical Institute sub grant from City College for PLTL (2008) **\$10,000**
- PSC-CUNY Award (Cycle 39): “Wide band gap II-VI semiconductor materials for quantum cascade lasers”. (2007-2008) **\$3,380**
- PSC-CUNY Award (Cycle 40): “Band offset Determination of CdSe nanocrystals using Si and TiO<sub>2</sub> for highly efficient solar cells” (2007-2008) **\$2,830**
- CUNY IRB Research award (2012) **\$2,000**

## MENTORING STUDENTS

**1. Carlos Constante** (EE, LSAMP, HCC, 2008); **2. Siba Safiyano** (ChE, LSAMP, HCC, 2009); **3. Joseph Wokpetah** (ChE, LSAMP, HCC, 2009); **4. Noah Lawson** (ChE, LSAMP, HCC, 2009 -2010); **5. Qudus Lawal** (ChE, LSAMP, HCC, 2009-2010); **6. Nathan Latchman** (CE, LSAMP, HCC, 2009-2010); **7. Alice Fok** (2009, Stuyvessant High School, Now in University of Chicago); **8. Rosa Pena** (Manhattan Math and Science High School Now in NYU, 2008-2010); **9. Jubril Lawal** (A.S. in Science, HCC, 2010-2012); **10. Emily Fernandez** (A.S. in Science, HCC, 2011-2012); **11. AbdulRahman Alsayed** (EE, C-STEP, HCC, 2012).

## PROF. YE RUILI

### PUBLICATIONS

- Menil, V. and Ye, R.: “On Sample Size”, The MathAMATYC Educator, Volume 4, Number 1, September 2012, pp.29-33.
- Ye, R. and Czarnocha, B.: “Universal and Existential Quantifiers Revisited”, Proceedings of the 36th Conference of the International Group for the Psychology of Mathematics Education (PME36)--Opportunities to Learn in Mathematics Education, PME 36 TAIWAN 2012, Volume 4, pp. 235-242.

### CONFERENCE PRESENTATIONS

- Ye, R. and Menil, V. “How Large Should A Statistical Sample Be?” Conference presentation at the Joint Statistical Meetings (JSM), Miami Beach, Florida, August 3, 2011.
- Ye, R. and Czarnocha, B. “Universal and Existential Quantifiers Revisited” The 36th Conference of the International Group for the Psychology of Mathematics Education (PME36), Taipei, Taiwan, July 18-22, 2012

## PROF. NIEVES ANGULO

### PUBLICATIONS

- **Angulo, N.** Prince T. (2013). “*Encouraging and Motivating Minority Engineering Students Through Summer Research Initiative*” (in Preparation)
- Cunningham A; Dias, O; **Angulo N**, (2011) “*Math is not a Spectator Sport: The Effect of Online Homework-Completion Tutoring on Community College Remedial Mathematics Performance*”. Journal of Mathematics Education at TC, Columbia University; Fall; Vol. 2, pp 59-65
- **Angulo N.**; Berri S.; Gailani G.(2011).“*Undergraduate Research Through NASA Initiatives*” Proceedings of the American Society of Engineering Education- Mid-Atlantic: Temple University, Philadelphia, PA
- Cunningham, A; Dias, O; **Angulo, N.** (2011). *Experiment in Small-Group Homework Tutoring for Remedial Mathematics: Preliminary Results*. Touchstone Publication. Hostos Community College (Spring)
- Haydar, H.N., Vatuk, S. & **Angulo, N.** (2009). Any right to get it wrong? Beginning urban teachers and students’ mathematical errors. *Proceedings of the Thirty First Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*. Atlanta, Georgia: PME-NA.
- Zhu, J.; Xu, W.; **Angulo, N.**; Angulo, J. (2006) “Methamphetamine-induced striatal apoptosis in the mouse brain: Comparison of a binge to an acute Bolus drug administration”. *NeuroToxicology*: 27, pp 131-136.

- **Angulo, N.**; Genni, H., (2004) "Aritmetica y Algebra Elemental", Pearson Publishing, ISBN: 0-536-84428-3, pp 1-230.
- Angulo, J.; **Angulo, N.**; Yu, J. (2004) "Antagonists of the Neurokinin-1 or Dopamine D1 Receptors Confer Protection from Methamphetamine on Dopamine Terminals of the Mouse Striatum" *Annals of the New York Academy of Science*, Vol. 1025
- **Angulo, N.** (2002) "The Use of Feminist Pedagogical Strategies to Promote Mathematics Achievement by Community College Females", Teachers College, Columbia University, ISBN: 3042332, pp 1- 127.

## CONFERENCE PRESENTATIONS

- **Angulo, N.** & Prince, T. (2014, January 4-9) Connecting Theory and Application for Minority Students Through Motivation and Summer Research Initiative. 12th Annual Hawaii International Conference on Education. Honolulu, Hawaii: Hawaii International Conference on Education.
- **Angulo, N.** & Prince, T. (2013, November). Encouraging and Motivating Minority Engineering Students through Summer Research Initiative. *HETS online journal*, 4(Fall issue), 44-57.
- **Angulo, N.** & Prince, T. (January 24, 2013). Encouraging and Motivating Minority Engineering Students Through Remote Summer Research Initiative. 2013 Virtual Best Practices Showcase. HETS - Hispanic Educational Technology Services.
- **Angulo, N.** & Prince, T. (January 6-9, 2013). Encouraging and Motivating Minority Engineering Students Through Summer Research Initiative. 11th Annual Hawaii International Conference on Education. Honolulu, Hawaii: Hawaii International Conference on Education.
- **Angulo, N.** & Prince, T. (January 3-5, 2013). Encouraging and Motivating Minority Engineering Students Through Summer Research Initiative. 2013 Maui International Engineering Education Conference. Maui, Hawaii: The Clute Institute.
- **Angulo, N.** & Gailani, G. (2011). "*Achieving Proficiency in Engineering Research and STEM Education Through NASA Initiatives: Lessons Learned*" CIPAIR Conference-NASA-Goddard Space Flight Center, Greenbelt, Maryland, Virginia.
- **Angulo N.**; Berri S.; Gailani G.(2011). "*Undergraduate Research Through NASA Initiatives*" American Society of Engineering Education- Mid-Atlantic: Temple University, Philadelphia, PA.
- **Angulo, N.** & Posada, A (2011). "*Generation of Electricity in Residential Buildings Using Solar Panels*" 2011 Einstein in the City Conference with the Urban University Conference Series-Transcending Boundaries- CCNY, New York.
- **Angulo, N.** (2011) "*Paving the Road for Students' Success at Hostos*" NASA-CIPAIR, City Tech of CUNY, New York
- **Angulo, N.** & Gailani, G. (2011). "*Student Research to Improve Undergraduate Education Through NASA-CIPAIR*" Curriculum Improvement Partnership Award for the Integration of Research Conference. NASA- Jet Propulsion Laboratory-JPL, Pasadena, California.

## GRANTS

- **US DoE Grant in collaboration with CCNY of CUNY** (2011-2016) "The Alliance for Continuous Innovative Learning Environments in STEM (CILES)" (#P031C110158)
- **NASA-CIPAIR Grant in collaboration with City Tech of CUNY** (2010-2013): "Achieving Proficiency in Engineering Research and STEM Education Through NASA Initiatives" (#NNX10AU73G)

## MENTORING STUDENTS

**1. Franco Stefany** (ChE, HCC, New York City Research Initiative, Summer 2013); **2. Maurice Evans** (A.S. in Science, HCC, New York City Research Initiative, Summer 2012); **3. Elvis Boves** (CE, HCC,



NASA, Summer 2012); **4. Leandra Carter** (A.S. in Mathematics, HCC, NASA, Summer 2012); **5. Adrian Posada** (EE, HCC, NASA, Summer 2011); **6. Fernando Viteri** (A.S. in Mathematics, HCC, NASA, Summer 2011).

## PROF. DEBASIH ROY

### PUBLICATIONS

- Calaf GM, Balajee AS, Montalvo-Villagra MT, Leon M, Daniela NM, Alvarez RG, Roy D, Narayan G, Abarca-Quinones. Vimentin and Notch as biomarkers for breast cancer progression.: J. Oncol Lett. 2014 Mar;7(3):721-727.
- Calaf GM, Roy D, Narayan G, Balajee AS. Differential expression of cell adhesion molecules in an ionizing radiation-induced breast cancer model system.: Oncol Rep. 2013 Jul;30(1):285-91.
- Calaf GM, Echiburú-Chau C, Wen G, Balajee AS, Roy D. Effect of curcumin on irradiated and estrogen-transformed human breast cell lines.: Int J Oncol. 2012 Feb;40(2):436-42.
- Echiburú-Chau C, Roy D, Calaf GM. Metastatic suppressor CD44 is related with oxidative stress in breast cancer cell lines.: Int J Oncol. 2011 Dec;39(6):1481-9.
- Calaf GM, Echiburú-Chau C, Roy D, Chai Y, Wen G, Balajee AS. Protective role of curcumin in oxidative stress of breast cells.: Oncol Rep. 2011 Oct;26(4):1029-35.
- Echiburú-Chau C, Roy D, Calaf GM. Deleterious MnSOD signals lead to abnormal breast cell proliferation by radiation and estrogen exposure.: Int J Oncol. 2011 Jun;38(6):1703-11.
- Roy D, Arason GA, Chowdhury B, Mitra A, Calaf GM. Profiling of cell cycle genes of breast cells exposed to etodolac.: Oncol Rep. 2010 May;23(5):1383-91.
- Wen G, Hong M, Calaf GM, Roy D, Partridge MA, Li B, Hei TK. Phosphoproteomic profiling of arsenite-treated human small airway epithelial cells.: Oncol Rep. 2010 Feb;23(2):405-12.

### CONFERENCE PRESENTATIONS

- Getting to Know Cancer: The Halifax Project (A unique initiative by NIEHS, NIH). Selected as a member of worldwide Task Force focusing on “*Assessing the Carcinogenic Potential of Low Dose Exposures to Chemical Mixtures in the Environment: Focus on the Cancer Hallmark of Evading Growth Suppression,*” 2013 - 2014.
- Selected as an active member of the CICR (Chemistry in Cancer Research) group of American Association of Cancer Research (AACR), 2013.
- Attended the NSF-ATE workshop/Conference on “Genomic Approaches (DNA Barcoding and Bioinformatics) in BioSciences” at CSHL (Cold Spring Harbor Laboratory) / NCC (Nassau Community College), New York, 2013.

### GRANTS

- International Collaborator for FONDECYT (Chile) Project: “*Drug panel for resistant cancer cells and genomic instability in breast carcinogenesis*” with Tarapaca University, Arica, Chile, 2011-2015.
- Awarded the “**United States Department of Education STEM Transfer Accreditation Endowment Award**”, A joint effort of City College of New York (CCNY-CUNY), Hostos Community College (HCC-CUNY) and Laguardia Community College (LCC-CUNY), 2011-2016.
- Advisory Teaching Fellow for project **SEED (STEM Educators Expansion Directive)**: A Robert Noyce Capacity Building project of NSF, A collaborative effort of Hostos Community College and Lehman College of the City University of New York, 2012-2014.

## MENTORING STUDENTS

**1. Qudus Lawal** (ChE, HCC, Honors program, Fall 2011); **2. Hodo Hassan** (A.S. in Science, HCC, Honors and C-STEP program, Fall 2012 - Spring 2013); **3. Bagnikim Yakadjene** (ChE, HCC, Honors program Fall 2013).

## PROF. CLARA NIETO-WIRE

### PUBLICATIONS

- **Nieto-Wire, C.** and Sobel, K., "Delta Operator Eigenstructure Assignment for Reconfigurable Control of a Tailless Aircraft", *Journal of Guidance, Control, and Dynamics*, in press.
- **Nieto-Wire, C.** and Sobel, K., "Delta Operator Eigenstructure Assignment for Fault Detection and Control of a Tailless Aircraft", *Proceedings of the 2013 AIAA Guidance, Navigation, and Control Conference*, Boston, MA, August 19-22, 2013, AIAA-2013-4778.
- **Nieto-Wire, C.** and Sobel, K., "Flight control design for a tailless aircraft using eigenstructure assignment", *International Journal of Aerospace Engineering*, vol. 2011, Article ID 549131, 13 pages, 2011.
- **Nieto-Wire, C.** and Sobel, K., "Observer based residual generator design for multiple fault and detection isolation", *Junior Scientist Conference 2010*, Vienna University of Technology, April 7-9, 2010.
- **Nieto-Wire, C.** and Sobel, K., "Reconfigurable delta operator eigenstructure assignment for a tailless aircraft", *Proceedings of the 2009 Guidance, Navigation, and Control Conference*, Chicago, IL, August 10-13, 2009, AIAA-2009-6306.

### CONFERENCE PRESENTATIONS

- American Institute of Aeronautics and Astronautics Guidance, Navigation and Control Conference. Delta Operator Eigenstructure Assignment for Fault Detection and Control of a Tailless Aircraft. Boston, MA. August 19-21, 2013.
- Hostos Community College, Mathematics Department. Mathematics of the Mathematics Department – Finding the General Expression of a Numerical Pattern. Mathematics Seminar. New York, NY. May 14, 2013.
- Hostos Community College, Mathematics Department. Eigenstructure Assignment for a Tailless Aircraft. Thinking Critically. Mathematics Education and Mathematics Seminar. New York, NY. November 20, 2012.
- Brookhaven National Laboratory. Observer-Based Residual Generator Design for Multiple Fault Detection and Isolation. 2010 Urban University Conference. Long Island, NY. April 23-24, 2010.
- Vienna University of Technology. Observer-Based Residual Generator Design for Multiple Fault Detection and Isolation. Junior Scientist Conference. Vienna, Austria. April 7-9, 2010.
- Bridge to the Doctorate Retreat 2010. Observer-Based Residual Generator Design for Multiple Fault Detection and Isolation. Tampa, Florida. January 13-16, 2010.
- American Institute of Aeronautics and Astronautics Guidance, Navigation and Control Conference. Reconfigurable Delta Operator Eigenstructure Assignment for a Tailless Aircraft. Chicago, IL. August 10-13, 2009.
- Quality Education for Minorities (QEM) Network, Four Points by Sheraton, Baltimore, MD. November 18-19, 2011. Panelist: Navigating the Engineering Graduate Education Pipeline. Transitioning from Classes to Research and Preparing a Research Plan.
- NSF Conference Broadening Impact, Marriot Wardman Park Hotel, Washington D.C. June 15-17, 2011. Poster No. 48: The LSAMP Robotics Project EIE Summer 2010.

- STEM In Your Life Event at BMCC, Borough of Manhattan Community College, CUNY. November 17, 2010. Guest speaker: “STEM in my life”

## MENTORING STUDENTS

**1. Natalie Suriel** (EE, HCC-ERE-Spring13, NASA MSFC\*, Summer 2013); **2. Sandy Rosas** (ChE, HCC-ERE-Spring 2013; NASA MSFC, Summer 2013); **3. Elvis Boves** (CE, NASA MSFC\*, Summer 2013); **4. Maria Fernanda Ruiz** (ChE, HCC-ERE-Spring 2013); **5. Kodjo Agbodji** (A.S., HCC-ERE-Tourist Plan-Fall 2013); **6. Pingdwende Zincone** (Accounting, HCC-ERE-Tourist Plan-Fall 2013); **7. Greg Adotevi** (A.S., HCC-ERE-Tourist Plan-Fall 2013); **8. Modou Jallow** (Mathematics, HCC-ERE, Fall 2013); **9. Soumaila Idrissou** (EE, HCC-ERE-Spring 2013, HCC-ERE, Fall2013); **10. Thierno Diallo** (EE, HCC-ERE-Spring 2013, HCC-ERE, Fall2013).

\*Sponsoring program for NASA MSFC: NASA CIPAIR

Prof. Nieto-Wire created and mentors the HCC Engineering, Research and Entrepreneurship (ERE) Group beginning Spring 2013. Two teams from this group (*My Board* and *Tourist Plan*) represented HCC in the 4<sup>th</sup> Annual Entrepreneurial Concept Competition during Fall 2013. The two HCC teams made it to the finals where only three teams out of twenty-two were from Community Colleges. *My Board* team received an award out of two for “Concept with Greatest Social Impact”.

## PROF. OLEN DIAS

### PUBLICATIONS

- Baker, W., Czarnocha, B., Dias, O., Doyle, K., Kennis, J., and Prabhu, V. (Dec. 2012) Procedural and Conceptual Knowledge: Adults Reviewing Fractions, *Adults Learning Mathematics* 7 (2), 39-65.
- Czarnocha, B., Baker, W., Dias, O., and Prabhu, V. (Oct. 2012) Teaching Research Guide to Problem Solving, *Mathematics Teaching-Research Journal Online*, 5(3).
- Czarnocha, B., Baker, W., Dias, O., and Prabhu, V., (Oct. 2012) Teaching Research for the 21<sup>st</sup> Century-Proceedings of the Discussion Group #4 PME, Taipai, Taiwan, *Mathematics Teaching-Research Journal Online*, 5(3).
- Czarnocha, B., Baker, W., Dias, O., and Prabhu, V. (Oct. 2012), Learning Trajectories from the Arithmetic/Algebra Divide *Mathematics Teaching-Research Journal Online*, 5(3).
- Cunningham, A., Dias, O., and Angulo, N. Math is Not a Spectator Sport: The Effect of Online Homework-completion tutoring On Community College Remedial Mathematics Performance. Pages 59-65, *Journal of Mathematics Education at Teachers College*, Fall 2011
- Rulli, Y., Kathleen M. Doyle, Dias, O, Czarnocha, B., and Baker, W. Problem Solving in Pre-Algebra and College Level Mathematics. *Mathematics Teaching-Research Journal Online* Vol 4, N3 February 2011
- Baker W., Dias O., and Menil V. Review of Pre-Algebra and for Standardized Tests in Pre-Algebra, 1. Pearson 2010, ISBN-13: 978-0-558-84512-4

### CONFERENCE PRESENTATIONS

- Professors W. Baker & B. Czarnocha gave a poster presentation which was published in the Proceedings of the 2012 Annual Meeting of the North American Chapter of the Psychology of Mathematics Education: Learning Trajectories from the Arithmetic/Algebra Divide. Representing work submitted by W. Baker, B. Czarnocha, O. Dias (HCC) & V. Prabhu (BCC).

- Professors B. Czarnocha (HCC) and V. Prabhu (BCC) presented at the C3IRG one day grant writing workshop at BMCC, “Problem Solving in Remedial Mathematics: A Jump Start to Reform, Czarnocha, Dias, Baker and Prabhu (BCC)” on January 5<sup>th</sup> 2012.
- Contributing Lecturer along with Professors B. Czarnocha (HCC) and V. Prabhu (BCC) at the Annual Meeting of the Metropolitan New York Section of MAA at BMCC “The Design of Learning Trajectories in Elementary Algebra,” Representing the work of B. Czarnocha, W. Baker, O. Dias (HCC) & V. Prabhu (BCC) on May 5<sup>th</sup>, 2012.
- Attended the 7th International Supplemental Instruction Conference in San Diego, May 30<sup>th</sup> -June 1<sup>st</sup> 2012 along with Professors L. Porte, A., Cunningham & O. Dias (HCC) to learn about a new educational technique in teaching and learning.
- Dr. Czarnocha and V. Prabhu presented: Problem Solving in Remedial Mathematics a paper submitted by W. Baker, B. Czarnocha, O. Dias and V. Prabhu and accepted by International Congress of Mathematics Education, Seoul, Korea, July 7-14, 2012.
- Dr. Czarnocha and V. Prabhu lead a discussion group on Problem Solving in Mathematics with material submitted by W. Baker, B. Czarnocha, O. Dias and V. Prabhu and accepted for the Topic Discussion Group Problem Solving, Teaching-Research in 21st Century at the 36 Annual Meeting International Group of the Psychology of Mathematics Education, Taipei, Taiwan, July 18 - July 22, 2012.
- Presented in 3Ts 2012: Engaging Students with Transliteracy, Technology & Teaching, “Math is Not a Spectator Sport: The Important of Technological Engagement to Increased remedial Mathematics Performance, University of Albany in March 2012.
- Presented “Math is not a Spectator Sport: Lab Tutoring for Online Remedial Homework” at 10<sup>th</sup> Annual CUNY IT Conference, Dec 2<sup>nd</sup>, 2011.

## MENTORING STUDENTS

**1. Elvis Boves** (CE, HCC, NASA, Summer 2012); **2. Leandra Carter** (A.S. in Mathematics, HCC, NASA, Summer 2012); **3. Thomas Baez** (CE, HCC, Peer Leader, Spring 2013); **4. Maskana Adedjouman** (CE, HCC, Peer Leader, Spring 2013 – Summer 2013); **5. Ibrahim Alassani** (CE, HCC, Peer Leader Observation, Spring 2013), **6. Galina Sagno** (Peer Leader, Fall 2013 – Present), **7. Thierno Diallo** (EE, HCC, Peer Leader, Fall 2013), **8. Stefany Franco** (ChE, HCC, Peer Leader Observation, Fall 2013), **9. Juan Rosario** (CE, HCC, Peer Leader Observation, Fall 2013), **10. Francesca Cornelio** (HCC, Peer Leader, Fall 2013 – Present).

## PROF. TANVIR PRINCE

### PUBLICATIONS

- Prince, T. (2013, November). SVD Image Compression: A Classroom Capsule for First Year Linear Algebra. *Global Journal of Pure and Applied Mathematics*, 9(5), 513-517. ISSN: 0973-1768.
- Prince, T., & Nieves, A. (2013, November). Encouraging and Motivating Minority Engineering Students through Summer Research Initiative. *HETS online journal*, 4(Fall issue), 44-57.
- Prince, T. (2012, September). Online or Offline? *International Journal of Mathematical Archive*, 3(9), 3374-3379. ISSN: 2229-5046.
- Prince, T. (2012, May). Using Youtube in Calculus I to Increase Class Participation. *Mathematics Teaching Research Journal Online*, 5(2), 64-69.
- Prince, T. (2013, May). Kaprekar Constant Revisited. *International Journal of Mathematical Archive*, 4(5), 1-7. ISSN: 2229-5046.

- Prince, T. (2013, May). Helping Students to Help Themselves in Upper Division Mathematics Courses . *Global research Journal on Mathematics and Science Education*, 2(1), ISSN: 2278-0769.
- Prince, T. (2013, July) A Direct Proof of a Concurrence Theorem of Coxeter and Greitzer. *American Mathematical Monthly*. (Filler Piece).
- Prince, T. (2010, Aug). Reflection around point in  $R^2$ . *Mathematics Teaching Research Journal Online*, 3(3), 189-193.

### CONFERENCE PRESENTATIONS

- Prince, T., & Nieves, A. (January 24, 2013). Encouraging and Motivating Minority Engineering Students Through Remote Summer Research Initiative. *2013 Virtual Best Practices Showcase*. HETS - Hispanic Educational Technology Services.
- Prince, T., & Nieves, A. (January 3-5, 2013). Encouraging and Motivating Minority Engineering Students Through Summer Research Initiative. *2013 Maui International Engineering Education Conference*. Maui, Hawaii: The Clute Institute.
- Prince, T., & Nieves, A. (January 6-9, 2013). Encouraging and Motivating Minority Engineering Students Through Summer Research Initiative. *11th Annual Hawaii International Conference on Education*. Honolulu, Hawaii: Hawaii International Conference on Education.
- Prince, T. (January 13-14, 2013).(Virtual Presentation) The Use of Online Videos in Blackboard Platform: Use of Pre-Lecture Videos in Calculus. *Ninth International Conference on Technology, Knowledge and Society*. Vancouver, Canada.
- Prince, T. (July 9, 2012). Using Online Videos to Increase Class Participation. In Hostos Community College (Ed.), *The International Learning Style Conference*. New York.
- Prince, T., Using Online Videos to Increase Class Participation. The International Learning Style Conference, Hostos Community College, New York, July 9, 2012.
- Prince, T. (March 9, 2013). Online or Offline? *Tristate Best Practices Conference: The Community Colleges as a Place of Transition*. Meadowlands, New Jersey: Bergen Community College.
- Prince, T. (May 31, 2013). Computer Based Homework and Quizzes in Higher Mathematics. *11th Annual Faculty of the Future Conference*. Newtown, Pennsylvania: Bucks County Community College.
- Prince, T., Using Online Videos in Blackboard Platform. Faculty of the Future Conference (10), Bucks County Community College, Pennsylvania, June 1, 2012.
- Prince, T., A Technique of Pre-lecture Videos to Motivate Students in Calculus I. The Tri-State Best Practices Conference, Bergen Community College, New Jersey, Feb 18, 2012.

### MENTORING STUDENTS

**1. Franco Stefany** (ChE, HCC, New York City Research Initiative, Summer 2013); **2. Maurice Evans** (A.S. in Science, HCC, New York City Research Initiative, Summer 2012).

### PROF. FRANCISCO FERNANDEZ

### PUBLICATIONS

- Spataru, T. and **Fernández, F.** Hydrogen Molecule Interaction with  $CpCr(CO)_3$  Catalyst. *Chemistry Journal of Moldova*, 2012, 7(2), 21-26.

## CONFERENCE PRESENTATIONS

- 2012 International Learning Styles Conference, Alternative Medicine, **Francisco Fernández** et al., HCC, July 9-12, 2012
- Online Assessment: What works? What does not work? Technology Education Showcase, Hostos Community College, **Francisco Fernández** et al., Spring 2010
- Engineering Institute: Bridge to PHY 210/CHE 220. Faculty Development Initiative (FDI). Center for Teaching and Learning, HCC (June 4, 2010) Oral presentation, **Francisco Fernández** et al.
- 6<sup>th</sup> Annual CUNY General Education Conference, KCC, **Francisco Fernández** et al. “Dual Degree Programs in Engineering: City College and Hostos Community College,” May 7, 2010
- Beryllium chalcogenide alloy for visible light emitting and laser diodes M. Sohel, O. Maksimov, **F. Fernández** and M.C. Tamargo 14<sup>th</sup> International Conference of II-VI Compounds, St. Petersburg, Russia, August 23-28, 2009

## GRANTS

- CILES with CCNY, specialist 2011
- SEED with Lehman College, Chemistry Specialist 2012
- G-FMS grant, Environmental Sciences Specialist 2012

## MENTORING STUDENTS

1. **Joseph Wokpetah** (ChE, HCC, LSAMP, Spring 2010 – Fall 2010); **Luis Ramos** (CE, HCC, LSAMP, Fall 2008 – Spring 2010); **Eric Sánchez** (A.S. in Science, HCC, LSAMP, Fall 2008 – Spring 2010); **Moustapha Mamadou**, (A.S. in Science, HCC, LSAMP, Spring 2010 – Fall 2011).

## PROF. YOEL RODRIGUEZ

### PUBLICATIONS

- Wong, E.Y.M., Cheng, C., Xu, C.Y., Zeng, L., **Rodríguez, Y.**, Zhou, M.M. and Xu, P.X. Dephosphorylation of Myc is a critical function of EYA1 as a threonine phosphatase in controlling cell proliferation. Submitted to *Nature Structural and Molecular Biology*. (Impact Factor: 11.659)
- Gacias M., Gerona-Navarro, G., Plotnikov A.N., Zeng, L., Kaur, J., Moy, G., **Rodríguez, Y.**, Matikainen, B., Joshua, J., Casaccia, P. and Zhou, M.M. A Small Molecule that Promotes Oligodendrocyte Lineage Progression. Submitted to *Chemistry and Biology*. (Impact Factor: 6.097)
- Gerona-Navarro, G., **Rodríguez, Y.**, Mujtaba, S., Frasca, A., Patel, J., Zeng, L., Plotnikov, A.N., Osman, R. and Zhou, M.M. (2011) Rational Design of Cyclic Peptide Modulators of the Transcriptional Coactivator CBP: A New Class of p53 Inhibitors. *J. Am. Chem. Soc.* 133:2040-2043. (Impact Factor: 10.677, ranking #1 in Multidisciplinary Chemistry)
- Eichenbaum, K.D., **Rodríguez, Y.**, Mezei, M. and Osman, R. (2010). The energetics of the acetylation switch in p53-mediated transcriptional activation. *Proteins*. 78.2: 447-456. (Impact Factor: 3.337)
- **Rodríguez, Y.**, Mezei, M. and Osman R. (2008). PT1 Gla domain binds to membrane through two dipalmitoylphosphatidylserines. A computational study. *Biochemistry*. 47:13267-13278. (Impact Factor: 3.377)

## CONFERENCE PRESENTATIONS

- Ren, C., Smith, SG., Plotnikov AN., Zeng, L., **Rodríguez, Y.**, and Zhou, MM. Identification of Small Molecule Inhibitors for CBX7 Chromodomain. *Sixth Departmental Research Retreat*. Structural and Chemical Biology Department. Mount Sinai School of Medicine, (Chappaqua, New York, October, 2013). (Poster Presentation)
- **Rodríguez, Y.** “Rational Design of Novel Small-Molecule Modulators of CBX7 Chromodomain and Computational Study of Myc Peptides” Structural and Chemical Biology Department, Mount Sinai School of Medicine, New York, March 1, 2013. (Oral Presentation)
- **Rodríguez, Y.**, Steinberg, O., Fernández, F., Mitchell, S., Nuñez-Rodríguez, N., Trachman, J. and Ostrin, Z. “Learning Physics by Doing Physics” within the Round Table “Alternative Medicine.” 2012 International Learning Styles Conference, Bronx, New York, July 10, 2012.
- **Rodríguez, Y.** “Rational Design of Small-Molecule Modulators of the Transcriptional Coactivator CBP and CBX7 Chromodomain.” Structural and Chemical Biology Department, Mount Sinai School of Medicine, New York, June 8, 2012. (Oral Presentation)
- **Rodríguez, Y.** Gerona-Navarro, G. and Zhou, M.M. “Rational Design of Small-Molecules Modulators of the Transcriptional Coactivator CBP.” North American UGM and Conference. Montreal, Canada, June 28 – 29, 2012 and *Fifth Departmental Research Retreat*. Structural and Chemical Biology Department. Mount Sinai School of Medicine, (Chappaqua, New York, October 11 – 12, 2012). (Poster Presentation)
- **Rodríguez, Y.** Physics Problems: How To Solve It. *Second Annual Problem Solving* at Hostos Community College (HCC), November 10, 2011.
- Gerona-Navarro, G., **Rodríguez, Y.**, Mujtaba, S., Osman, R., Casaccia, P. and Zhou, M.M. Chemical modulation of gene transcription favors oligodendrocyte lineage progression. *Third Departmental Research Retreat*. Structural and Chemical Biology Department. Mount Sinai School of Medicine, (Chappaqua, New York, October, 2010). (Oral Presentation).
- Nuñez-Rodríguez, N. and **Rodríguez, Y.** Toward an Enjoyable Experience of Learning Sciences. *Synergy in STEM: Bringing Mathematics, Physics and Engineering Together*. New York City College of Technology, CUNY. (October 30, 2009). (Poster Presentation).
- **Rodríguez, Y.**, Lundberg, K., Ordoñez, F., Guevara, C. and Willians, S. ePortfolios in Action: An Exploration of New Practices. *FDI Week Events, Center for Teaching and Learning*. FDR, HCC (June 1, 2009). (Oral Presentation)
- Baron, E.L, **Rodríguez, Y.**, Cui, M., Max, M. and Osman, R. Effects of R813 in hT1R3 on sweet receptor function. *Biophysical Society. 52th Annual Meeting*. Long Beach, California, February 2–6, 2008. (Poster Presentation).

## GRANTS

- **Rodríguez, Y.**, Gerona-Navarro, G., Martínez, M., Pérez Vega, M., Zhou, M.M. and González Muñiz, R. The Mineralocorticoid Receptor in Disease States: Integrative Approach to New Small-Molecule Modulators. i-LINK Research Award #0312 (**23,200 Euros = \$31,768**), Ministry of Economy and Competitiveness, Spanish Government. (January 2012 – December 2013).
- **Rodríguez, Y.** Non-coding RNAs for Epigenetic Transcriptional Silencing in Prostate Cancer. Research Supplements to Promote Diversity in Health-Related Research. NIH/NCI Award 1R01CA154809-01 for **\$94,854** (09/01/2011 – 08/31/2013).
- Participated in the NSF grant “CI-TEAM Demonstration Project” in collaboration with The City College of New York and LaGuardia Community College (Spring 2012 – Spring 2013).
- **Rodríguez, Y.** Structure-Based Discovery of EED Chemical Inhibitors. PSC-CUNY 42 Research Award # 64663-00 42 for **\$6,000** (Round 2011 – 2012).

- **Rodríguez, Y.** and Luján J. In Newton's Footprints: Learning Physics by Doing Physics. COBI Project HCC Presented at COBI Retreat, Bronx Zoo, NY, June 1, 2011 (Awarded **\$2,000**, Round 2011 – 2012).
- **Rodríguez, Y.** Novel Small Molecules for Investigating Mechanisms of MLL-CBP-Induced Leukemia. *PSC-CUNY 41 Research Award # 63571-00 41 for \$6,000* (Round 2010 – 2011).
- **Rodríguez, Y.** and Luján J. In Galileo's Footprints: Learning Physics by Doing Physics. COBI Project HCC Presented at COBI Retreat, Bear Mountain, NY, March 18 – 20, 2010. (Awarded **\$2,000**, Round 2010 – 2011).
- **Rodríguez, Y.** Rational Design of Novel Chemical Modulators for Epigenetic Gene Silencing. *PSC-CUNY 40 Research Award # 62197-00 40 for \$4,500.00* (Round 2009 – 2010).
- **Rodríguez, Y.** and Fernández F. *Navigating the World of Chemistry through the Lab*. COBI project, HCC \$2,000.00 (Awarded **\$2,000**, Round 2009 – 2010).

#### MENTORING STUDENTS

1. **Ken Eichenbaum**, (MSSM, MD Student, Graduate Research Experience (GRE), 2006-2008); 2. **Elvera L. Baron**, (MSSM, MD/PhD Student, GRE, 2006-2008) 3. **Chinwe Chris-Emenike**, (A.S. in Science, HCC, Honors Program, Fall 2008); 4. **Dane Christie** (ChE, HCC, Honors Program, Spring and Fall 2009). 5. **Absalon Hidalgo** (EE, HCC, LSAMP, Fall 2009 – Spring 2010). 6. **Qudus Lawal** (ChE, HCC, Honors Program, Spring 2009); 7. **Nathan Latchman** (CE, HCC, Honors Program, Spring 2009); 8. **Wagner Ramos**, (CE, HCC, LSAMP, Spring 2010); 9. **Yubril Lawal**, (A.S. in Science, HCC, Honors Program, Spring 2011); 10. **Elvis Boves** (CE, HCC, LSAMP, Spring 2012 – Fall 2012); 11. **Thomas Baez** (CE, HCC, LSAMP, Fall 2012 – Spring 2013); 12. **Thomas Desena** (CE, HCC, LSAMP, Fall 2012 – Spring 2013); 13. **Abdoulaye Diallo** (ChE, HCC, Honors Program, Fall 2012); 14. **Ricky Bhola** (CE, HCC, Physics Peer Leader, Fall 2012 – present).



**ENGINEERING ORIENTATION DAY AT HCC**



**ENGINEERING ORIENTATION DAY**

- ◆ Overview of the program
- ◆ Requirements
- ◆ Advisement
- ◆ ePermit
- ◆ Policies and Procedures
- ◆ Transfer
- ◆ Questions and Answers session
- ◆ And more...



**SAVE THE DATE**

Thursday, October 31st, 2013

Room C-391

12:30PM.

**SEE YOU THERE!!**



For more information contact ▶▶▶

Mrs. Karla Contreras • Office of Academic Affairs,  
B-445 • 718-518-6735 Or

Prof. Yoel Rodriguez • 718-518-4134

<http://www.hostos.cuny.edu/oaa/ddp/>

**INTERSESSION STEM INSTITUTE 2013: FLYER AND BROCHURE**



**Eugenio María de Hostos Community College  
Natural Sciences and Mathematics Departments**

**Free STEM Summer Institute 2013  
June 17<sup>th</sup> – July 3<sup>rd</sup>**

The main goal of this institute is to provide the science and engineering students useful tools such as threshold mathematics and major physics, chemistry, engineering concepts for future success in their first college physics, chemistry, engineering courses.

**Bridge to General Physics I**

Time	Monday	Tuesday	Wednesday	Thursday
1:30 - 4:30	MAT A-534	CHE A-534	MAT A-534	CHE A-534

**Bridge to General Chemistry I**

Time	Monday	Tuesday	Wednesday	Thursday
9:30 - 12:30	MAT A-534	PHY A-534	MAT A-534	PHY A-534

**Bridge to Engineering 204 (Electric Circuits)**

Time	Monday	Tuesday	Wednesday	Thursday
12:30 - 2:30	ENGR 204 A-526	ENGR 204 A-526	ENGR 204 A-526	ENGR 204 A-526

**Bridge to Engineering 103 (Tools for Engineering)**

Time	Monday	Tuesday	Wednesday	Thursday
9:30 - 11:30	ENGR 103 C-556	ENGR 103 C-556	ENGR 103 C-556	ENGR 103 C-556

**Bridge to CE 23100 (Structural Mechanics)**

Time	Monday	Tuesday	Wednesday	Thursday
2:00 - 5:00	CE 23100 A-535	CE 23100 A-535	CE 23100 A-535	CE 23100 A-535



**HOSTOS** Community College

For more information about The STEM Institute contact:  
Ms. Karla Contreras, Dual Degree Advising Coordinator, Office of Academic Affairs B-445, Phone: 718-518-6735, Email: kcontreras@hostos.cuny.edu  
Prof. Yoel Rodríguez, Coordinator of Engineering Program, Natural Sciences Department, Email: yrodriguez@hostos.cuny.edu  
Sponsored by The Office of Academic Affairs, Hostos Community College and The Alliance for Continuous Innovative Learning Environments in STEM(CILES) from the U.S. DoE - #P031C110158.

**Eugenio María de Hostos  
Community College**  
Natural Sciences and Mathematics  
Departments  
Winter Institute 2013



**Winter  
INSTITUTE  
2013**

**Engineering at Hostos Community College  
Joint Degree/Dual Admission  
A.S./B.E. Programs  
with The City College of New York**

Chemical Engineering  
Civil Engineering  
Electrical Engineering  
Mechanical Engineering

For more information about the engineering programs contact:

Ms. Karla Contreras  
Advising Coordinator  
Office of Faculty Development and Curriculum  
Phone: 718-518-6735  
Email: kcontreras@hostos.cuny.edu

Prof. Yoel Rodriguez  
Coordinator of Engineering Program  
Natural Sciences Department  
Email: yrodriguez@hostos.cuny.edu

Time	Monday	Tuesday	Wednesday	Thursday
9:30 - 12:30	MAT A-534	PHY A-534	MAT A-534	PHY A-534

Time	Monday	Tuesday	Wednesday	Thursday
1:30 - 4:30	MAT A-534	CHE A-534	MAT A-534	CHE A-534

Time	Monday	Tuesday	Wednesday	Thursday
11:30 - 1:30	ENGR 204 A-526	ENGR 204 A-526	ENGR 204 A-526	ENGR 204 A-526

Time	Monday	Tuesday	Wednesday	Thursday
9:30 - 11:30	ENGR 103 C-556	ENGR 103 C-556	ENGR 103 C-556	ENGR 103 C-556

Time	Monday	Tuesday	Wednesday	Thursday
3:00 - 6:00	CE 23100 A-535	CE 23100 A-535	CE 23100 A-535	CE 23100 A-535




Sponsored by  
Office of Academic Affairs  
Hostos Community College/ City College  
Bridges to Engineering Success

The Office of Academic Affairs  
500 Grand Concourse, B439  
Bronx, NY 10451

**Eugenio María de Hostos Community College  
Mathematics and Natural Sciences Departments  
Winter Institute 2013**

**Bridge to Chemistry 210 & 220**

**Semester:** Winter Intersession 2013 (January 7 to January 24)  
**Instructors:** Prof. Francisco Fernández (Sciences Dept.) and Prof. Dionicio Taveras (Math Dept.)  
**Class Hours:** 1:30 pm – 4:30 pm  
**Class Room:** A-534  
**Class Days:** MAT: M & W CHE: T & TH

**Objectives:**  
On completing this course students should be able to start studying chemistry as part of the first college chemistry course (Chemistry 210, Chemistry 220)

**Threshold Concepts and their Applications:**

Math Threshold Concepts	Chemistry Application
<b>Basic mathematical Concepts:</b> <ul style="list-style-type: none"> <li>Calculators</li> <li>Unit Conversions</li> <li>Percent</li> <li>Scientific Notations</li> </ul>	<ul style="list-style-type: none"> <li>Applications in Chemistry</li> <li>Stoichiometry</li> <li>Thermo chemistry</li> <li>Solutions, Percent composition, Percent yield</li> <li>Solubility, ionic equilibrium</li> </ul>
<b>Other mathematical issues &amp; Algebra:</b> <ul style="list-style-type: none"> <li>Logarithms</li> <li>Significant Figures</li> <li>First Degree Equations</li> <li>Second and Higher degree equations</li> </ul>	<ul style="list-style-type: none"> <li>pH</li> <li>Equilibrium</li> <li>Thermodynamics</li> <li>Gases</li> <li>Chemical equations</li> </ul>
<b>Data Processing:</b> <ul style="list-style-type: none"> <li>Functional Relationships</li> <li>Graphs</li> <li>Problem Analysis</li> </ul>	<ul style="list-style-type: none"> <li>Gases</li> <li>Chemical Equations</li> <li>Balancing Redox Equations</li> <li>Hess Law</li> <li>Chemical Equilibrium</li> <li>Thermo chemistry</li> <li>Thermodynamics</li> <li>Applied Chemistry</li> </ul>

**Bridge to Physics 210**

**Semester:** Winter Intersession 2013 (January 7 to January 24)  
**Instructors:** Prof. Yoel Rodriguez (Sciences Dept.) and Prof. Ross Flek (Math Dept.)  
**Class Hours:** 9:30 am – 12:30 pm  
**Class Room:** A-534  
**Class Days:** MAT : M & W PHY 210: T & TH

**Objectives:**  
On completing this course students should be able to start studying mechanics as part of the first college physics course

**Threshold Concepts and their Applications:**

Math Threshold Concepts	Physics Application
<b>Trigonometry</b> <ul style="list-style-type: none"> <li>Right Triangle Trigonometry</li> <li>Definition of Trigonometric Functions: sin(a), cos(a), and tan(a); and their inverses: sin<sup>-1</sup>(a), cos<sup>-1</sup>(a), and tan<sup>-1</sup>(a).</li> <li>Identities</li> </ul>	<ul style="list-style-type: none"> <li>Physics-Related problems (Daily-life situations)</li> <li>Newton's laws of motion (First Law, Second Law, and Third Law of motion)</li> </ul>
<b>Linear Algebra</b> <ul style="list-style-type: none"> <li>Vectors and Vector Addition</li> <li>Unit Vectors</li> <li>Products of vectors</li> </ul>	<ul style="list-style-type: none"> <li>Physics-related problems</li> <li>Motion along a straight line</li> <li>Motion in two or three dimensions</li> <li>Newton's Laws of Motion</li> </ul>
<b>Calculus</b> <ul style="list-style-type: none"> <li>Derivatives</li> <li>Integrals</li> </ul>	<ul style="list-style-type: none"> <li>Motion Along a straight line</li> <li>Motion in two or three dimensions</li> <li>Newton's Laws of Motion</li> </ul>

**Bridge to Engr 103**

**Semester:** Winter Intersession 2013 (January 7 to January 24)  
**Instructor:** Prof. Clara Nieto  
**Class Hours:** 9:00 am - 11:00 am  
**Class Room:** A-117  
**Class Days:** M - TH

**Threshold Concepts and their Applications:**

<ul style="list-style-type: none"> <li>Coding</li> <li>Linear Algebra</li> <li>Numeric Integration</li> <li>Complex Numbers</li> <li>Statistics</li> </ul>
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**Bridge to Engr 204**

**Semester:** Winter Intersession 2013 (January 7 to January 24)  
**Instructor:** Prof. Clara Nieto  
**Class Hours:** 11:00 am - 1:30 pm  
**Class Room:** A-517  
**Class Days:** M - TH

Basic Concepts	Basic Laws:	Methods of Analysis
<ul style="list-style-type: none"> <li>Systems of Units</li> <li>Change and current</li> <li>Voltage</li> <li>Power and Energy</li> <li>Circuits Elements</li> </ul>	<ul style="list-style-type: none"> <li>Ohm's Laws</li> <li>Nodes, Branches, and Loops</li> <li>Kirchhoff's Laws</li> <li>Series Resistors and Voltage division</li> <li>Wye-Delta transformations</li> </ul>	<ul style="list-style-type: none"> <li>Nodal Analysis with Voltage Sources</li> <li>Mesh analysis with Current Sources</li> <li>Nodal and Mesh Analysis by Inspection</li> <li>Circuit Analysis with PSpice</li> </ul>
Circuits Theorems	Operational Amplifiers	Capacitors and Inductors
<ul style="list-style-type: none"> <li>Linearity Property</li> <li>Superposition</li> <li>Source Transformation</li> <li>Thevenin's Theorem</li> <li>Norton's Theorem</li> <li>Derivations of Thevenin's and Norton's Theorems</li> </ul>	<ul style="list-style-type: none"> <li>Operational Amplifiers</li> <li>Ideal Op Amplifiers</li> <li>Inverting Amplifier</li> <li>Noninverting Amplifier</li> <li>Summing Amplifier</li> <li>Difference Amplifier</li> <li>Cascaded Op Amp Circuits</li> </ul>	<ul style="list-style-type: none"> <li>Capacitors</li> <li>Series and Parallel Capacitors</li> <li>Inductors</li> <li>Series and Parallel Inductors</li> <li>Sinusoids/Phasors</li> <li>Source Transformation / Equivalent Circuits</li> </ul>

**Bridge to CE 23100**

**Semester:** Winter Intersession 2013 (January 7 to January 24)  
**Instructors:** Mr. Stanley Tineo (Civil Engr. Student) and Prof. Yoel Rodriguez (Advisor)  
**Class Hours:** 3:00 pm – 6:00 pm  
**Class Room:** A-534 **Class Days:** M - TH

<ul style="list-style-type: none"> <li>Statics of Particles: Vector Forces</li> <li>Rigid Bodies: Equivalent System of Forces</li> <li>Equilibrium of Rigid Bodies</li> <li>Distributed Forces: Centroids and Centers of Gravity</li> <li>Analysis of Structures: Trusses, Frames and Machines</li> <li>Beams: Shear and Bending Moment Diagrams</li> </ul>
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APPENDIX F

CONVERSATION WITH ADVANCED SCIENCE AND ENGINEERING STUDENTS

# Conversation with Advanced Science and Engineering Students

It's a big question, for sure, big enough that it's time to start thinking about it! But like all the great questions in life, there are no right and wrong answers.

*Let's Talk About it!*

Bring your questions, concerns or comments. This is the time to ask. Join us to continue exploring your future.

**Date:** Wednesday, November 13th, 2013  
**Time:** 2:00pm  
**Place:** A-534

**Guest Speakers:**

Mr. Thomas Baez, Mr. Elvis Boves,  
Mr. Ricky Bhola and Mr. Ibrahim Alassani

**EVERYONE IS WELCOME !**

For More information contact :  
Prof. Yoel Rodriguez Or  
Mrs. Karla Contreras  
Joint Dual Degree Office  
Office of Academic Affairs, B-445  
718-518-6735 or 718-518-4134



Do you want to know what are the differences between City College and Hostos?



Am I in the correct major?



This activity is endorsed by 2013-2014 Linkage Fellowship Grant-American Society for Cell Biology-PI: Nelson Nuñez-Rodriguez, The Office of Dual Degree Programs, Division of Academic Affairs, The Physics and Engineering Clubs.

**SURVEY - CONVERSATION WITH ADVANCED SCIENCE AND  
ENGINEERING STUDENTS**

Participation: 37 students (24 completed the survey)

## Conversation with Advanced Science and Engineering Students

Natural Sciences Department  
Hostos Community College of The City University of New York  
Fall 2013

### Rating

(Rating Scale: 5=Strongly Agree, 4= Agree, 3=Neutral, 2=Disagree, 1=Strongly Disagree)

1. Did you enjoy the event?  
5=17      4=6      3=1      2=0      1=0
2. Did you gain knowledge?  
5=17      4=7      3=0      2=0      1=0
3. Was there any change in your interest in science?  
5=7      4=0      3=6      2=2      1=9
4. This event encouraged me to continue taking science classes in the future?  
5=15      4=4      3=4      2=1      1=0
5. I would recommend this type of events for the future.  
5=21      4=3      3=0      2=0      1=0
6. This event encouraged me to explore Science Literature.  
5=13      4=6      3=3      2=2      1=0
7. My expectations for the event were met.  
5=17      4=6      3=1      2=0      1=0
8. The presenters were knowledgeable.  
5=20      4=4      3=0      2=0      1=0

**APPENDIX F**

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**9. How do you feel after the event?**

- I feel, I have to study even more. In order to be an engineering never it is enough.
- I feel that I learned what to expect in a senior college.
- It was a great presentation.
- Nervous
- The event was successful, knowledgeable
- Great!!!
- I feel as if I actually understand what professor Yoel Rodriguez told me
- Great!
- Empowered. Aware
- I feel that the experience of the presenters can encourage or discourage students to pursue engineering sciences.
- I have to go study
- Great
- Very comfortable
- Opened my eyes to the future I will face being an engineer student.
- Good star “vieny”
- Excited
- Confuse
- I feel more interest to transfer to City college
- That it doesn’t matter what career you want to pursue, it still going to be challenge, you have to work hard.

**10. What suggestions do have for future events?**

- They should have an event for people that study Forensic Science
- A student from John Jay for the Forensic science study so they could have an idea of what it is like over there
- I think they should have students from John Jay to come and talk to the Forensic Science students at Hostos.
- Bring someone professional that is in the Engineering field.
- This was very interesting and informative
- To present it to beginners engineers so they will think about pros and cons before they really get into the major.
- It was pretty well on its own.
- Physics and Math
- Food
- Provide more hope