
	ACADEMIC YR: 2013-14	DIVISION/AREA: Math-Phy-Sci and Technology	DIVISION CHAIR/DIRECTOR: L. J. McKenzie
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UNIT PLAN “PART A”
Program/Pathway Update
Form Approved CPC: October 22, 2012

Program/Pathway: Math-Phy-Sci and Technology**Date:** January 16, 2013

College Mission: Los Angeles Harbor College fosters learning through comprehensive programs that meet the educational needs of the community as measured by student success, personal and institutional accountability, and integrity

Division Mission: the mission of the Mathematics, Physical Sciences and Technology Division is to provide students with a foundation of STEM skills and competencies needed to satisfy a variety of degree and careers goals. Recognizing the diverse background of students, this foundation includes AA degree and transfer level courses that aim to contribute to workforce development and improvement. In all aspects of its mission, division’s goal is to provide a supportive learning environment that imparts student success in analyzing, quantifying and developing critical thinking skills. The curriculum focuses on recognizing the interdependence between theory and application.

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1. Assessment of Program Review

The Math-Phy-Sci and Technology Division is receptive to state and nationwide STEM (Science, Technology, Engineering, and Mathematics) and essential skills initiatives calling for greater numbers of local under represented transfer students to pursue STEM majors at four year colleges and universities. To this extent the college applied for and was awarded two grants.

For the next four years Harbor College, via STEM disciplines, will use a National Science Foundation Title III HSI-STEM grant to “transform STEM education by attracting students to STEM majors, increasing their ability and motivation to succeed in and complete STEM fields (*Absolute Priority 1*), and providing model articulation agreements for transfer to four-year STEM degrees (*Absolute Priority 2*). To ensure the success of program participants, each phase of the grant project development will be informed by high quality, timely student achievement and outcomes data that will be used to improve student outcomes related to enrollment, persistence, and completion, and leading to career success.”¹

Computer Science faculty will review and update curriculum in consultation with the transfer institutions and the Computer Software Pathway Advisory Committee. Continue to offer online courses and a schedule courses on a rotating basis to allow for a wider enrollment and transfer completion. The Title III HSI-STEM will be used to explore curriculum development in the area of cyber security industry certification (CIW or Microsoft) and mobile applications development.

The Technology Pathway is also at the forefront of the STEM initiative spearheaded by a \$2.8M U.S. Department of Education Title V HSI grant. This grant establishes career and four year university transfer pathways in engineering which is a way for local students to seize the opportunity to replace retiring incumbent workers in the aerospace industry. To facilitate the transfer process, the Technology Pathway is developing engineering major specific transfer agreements with CSU Los Angeles. Currently CSU Los Angeles and Los Angeles Harbor College are collaborating to ensure that Harbor’s accelerated curriculum, which is being designed to offer students shorter term classes and more robust STEM subject matter, aligns with CSULA College of Engineering program requirements to make certain that the transfer process for engineering students is seamless and that students are well prepared for engineering courses at a four year university.”²

The Technology Pathway will continue to reinforce their partnership with Banning High School by offering afternoon and outreach classes.

The Stars 4 Kids Program will be restarted as soon as the planetarium renovation is completed in order to assist local K-7 schools in the development of student scientific inquiry.


¹ HSI-STEM Grant Narrative

² Title V- HSI Grant Narrative

2. Activities to address program needs:

The Mathematics Department will continue to address state and nationwide basic skills initiatives by requesting to hire a second mathematics instructional assistant. Institutionalization of tutorial services in the Math Lab will be addressed by requesting funding via Academic Cluster priorities.

Physical sciences faculty will continue to work with the Science Complex construction team to ensure that program space is correctly addressed and make a smooth transition into the new building. Due to the generosity of LA County taxpayers, the Physical and Life Sciences disciplines will be housed in a single beginning fall 2013.

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The division intends to submit annual requests to replace a physics laboratory technician who retired in 2007, as well as to FHPC to replace faculty retirement positions as they come due in viable departments

Institutionalize winter and Summer Math Fast Track Program

3. How are your program improvements associated with your SLOs?

“Only 25% of those enrolling in Math at the transfer level pass the first time they take the course, only 40% ever pass, and only 12% (10% Latino) do so within 3 years of matriculation (LAHC First Time Student Completions 2010). As a result, many of our students (including an over representation of Latino students) spend **two or more years in math remediation**, effectively discouraging them from courses that require additional, higher-level math, such as Chemistry 101 (only 31% of students are Latino) and Physics 6 (38% Latino), and thus from STEM majors for which these are required courses.

Need for Increased Enrollments/Graduates in STEM majors: Predictably, then, STEM courses and programs at LAHC have **low enrollments** (less than 4% of students major in STEM fields), **low success rates** (43-56%), and **very few graduates** (less than 2% of graduates). Data for Latino students is, in most cases, even more dismal, as shown below.”₃
₃ HSI-STEM Grant Narrative.

Tutorial support. LAC data collection of grades and retention in individual classes for which they receive tutoring indicate that over 70% received grades of A, B, or C. For those who dropped or received substandard grades, further assessment is needed. Assessments revealed that none of the students receiving individual math tutoring did well in their classes. Changes made using these assessment results were to suspend all individual math tutoring and refer all students needing assistance in math to the math lab.

Lab Support services for the Math Lab: the 2009, 2010 and 2011 LAC student satisfaction surveys indicated that students are satisfied with these services.

Assessment of the Fast Track Program indicates that students were able to make progress toward their goals, especially in the winter and summer programs. Further evaluation of spring and fall offerings in this program are being recommended. Student satisfaction surveys indicate very positive results.

4. Staffing requirements:


- a. Replace Physics Laboratory technician when the college budget stabilizes
- b. Replace faculty in disciplines when retirements occur
- c. Request the replacement of a chemistry faculty position when the college budget stabilizes

5. Technological requirements: adequate


6. Facilities requirements: push for completion of the planetarium

7. Implementation plan: make sure requests make into the cluster priorities list

- a. Funding of tutorial support for the Math Lab needs to be addressed through the college’s general budget
- b. Funding for upgrades and maintenance of on-line tutoring services and tracking software to be addressed through the college’s general budget

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- c. Institutionalization of Fast Track requires coordination with Library and Learning Resources staff.

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UNIT PLAN "PART B"
Core Personnel/List of Permanent Staff

Assigned Time	Responsibility	Estimated Cost	Funding Source
16.0	<i>Teaching</i>	\$1,782,911	10100
3.0	<i>Staff</i>	\$207,307	10100

Unit:

Total FTEF: Sixteen (16) Full-Time faculty

Total Hours taught: 432 FT and 345 adjunct


Total Hours of reassigned time: 24

Total Cost for Instructors: FT (\$1,782,911) + Adjunct (\$575,000) = \$2,357,911

Total Cost for Administrators: N/A

Total Cost of Classified Staff: \$207,307

Total cost FTEP = Full Time Equivalent Personnel: \$ 2,565,218

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UNIT PLAN "PART C" Core Expenses

Division Prioritization	Description of activity	Estimated Cost	Proposed Funding Source	Justification	Code
1	Adjunct salaries	\$575,000	General Fund	Meet College FTES	

Narrative justification: List statutes which require this expenditure.

N/A

UNIT PLAN "PART D" Essential Activities

Only place expendable request in this field.

Division Prioritization	Description of activity	Estimated Cost	Proposed Funding Source	Justification	Code
1	Chemistry Probationary Faculty	\$90,000	Program 100	Program demand	
2	Fund Math Tutors	\$50,000	Program 100	Basic Skills and STEM Initiatives	
3	Physics Lab Tech	\$60,000	Program 100	Program demand	

Justification Narrative: How does your activity support the college Educational Master Plan?

Courses taught by adjunct faculty are necessary to meet student educational goals.

Tutorial services support state and nation wide basic skills and STEM Initiatives

Physics Lab Tech will be required to handle equipment and facilities needs in the new Science Complex building.

UNIT PLAN "PART E" Non-cost Essential Activities

List Non-cost activities here

N/A

Part "E"

Justification: How does your activity support the college Educational Master Plan?