Unit Plan: Description of the Unit

Unit: Biotechnology
Division or Area to Which You Report: Math & Science
Author(s) of this Unit Plan: Patricia P. Wu
Date: March 14, 2008

Mission Statement

- To implement Bay-LAB outreach project into local area high schools.
- To increase the number of underrepresented students that enter into biotechnology and/or other science disciplines.
- To establish a full-fledge biotechnology program at Chabot College.
- To increase enrollment through biotechnology program at Chabot College.
- To increase Chabot College’s visibility in the community.

The biotechnology program of the Math/Science division is in its second year. The biotechnology program is established as an alliance with Ohlone College which was expanding its biotechnology program in the Bay Area by forming partnerships with other community colleges and high schools.

As the coordinator of the biotechnology program, Patricia Wu has successfully identified Tennyson High School (THS) as the outreach partner in Chabot College’s district. THS has started the biotechnology program in Fall 2007 with 30 10th-grade students. This cohort will remain in the biotechnology program in their junior and senior years. Currently, THS 9th graders are recruited with possibly 2 cohorts to start in Fall 2008.

At Chabot College, 2 biotechnology introductory classes (Biotech 20 and Biotech 30) were approved by the Curriculum Committee. Biotech 20 and 30 are the equivalent to THS’ classes in 10th and 11th grades. THS students receive Chabot College units if they complete the classes with a grade of B or higher. Biotech 20 and Biotech 30 can be taken by adults at the college. These units are transferable to Ohlone College, and students may complete the biotechnology certificate program at Ohlone College.

Currently, new biotechnology classes which place heavy emphasis on laboratory skills are being planned. The new biotechnology classes will attract a wider audience who wishes to gain laboratory skills in order to obtain a job in a research or manufacturing facility. THS biotechnology students will also take these classes as the next step towards a career in biotechnology once they graduate from high school in 2010.
## Unit Plan: Accomplishments and Goals

**Unit:** Biotechnology  
**Division or Area to Which You Report:** Math & Science  
**Author(s) of this Unit Plan:** Patricia P. Wu  
**Date:** March 14, 2008

### Section 1: Accomplishments from Last Year's Unit Plan (What You Have Done):

<table>
<thead>
<tr>
<th>No.</th>
<th>Goal/Objective from last year’s Unit Plan</th>
<th>Activities Undertaken to Achieve the Goal/Objective</th>
<th>Results</th>
<th>Priority Objective / Strategic Plan Goal</th>
<th>Accomplished?</th>
<th>Did you receive additional funds to support this goal/objective?</th>
</tr>
</thead>
</table>
| 1   | Establish an outreach program with Tennyson High School (THS) | THS approved the outreach project. | High school facilitator selected.  
Curriculum and academic pathway approved by THS.  
THS success team identified to support and assist THS facilitator in implementing and establishing the project.  
Hayward Unified School District approved project.  
THS students were recruited to start the 1st cohort.  
Cohort met the min 50% Latino/Hispanic requirement to demonstrate THS commitment to the project.  
The outreach project was presented to cohort and parents.  
THS students in 1st cohort signed contracts to demonstrate commitment in outreach project.  
Textbooks were ordered and delivered to THS. | Goals 4, 8, 9, 15, 16, 17, 18 | Yes to all | No |
Lab equipment was ordered and delivered so labs can be done properly.

THS agreed to administer a basic-skills test as part of the final exam to receive Chabot College credits.

Cohort progress was closely monitored.

Tutor was provided to THS cohort.

1st cohort went on fieldtrip related to biotechnology industry.

<table>
<thead>
<tr>
<th></th>
<th>Develop Biotech 20 and Biotech 30.</th>
<th>Curriculum committee approved both classes.</th>
<th>Course outlines for Biotech 20 and 30 were developed and approved by Curriculum Committee. Both courses were scheduled for Fall 07 and Spring 08. Instructors were identified: Maggie Schumacher – Biotech 20, Patricia P. Wu – Biotech 30. Textbooks for both classes were selected. Class locations were determined.</th>
<th>Goals 4, 5, 8, 9, 15, 16, 17, 18</th>
<th>Yes to all</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Develop Biotechnology program at Chabot College</td>
<td>Identified key elements in developing Biotechnology program.</td>
<td>Biotechnology unit plan was developed. Budget was established. Chabot Biotechnology program was marketed to community through on- and off-campus activities.</td>
<td>Goals 4, 5, 8, 9, 15, 16, 17, 18</td>
<td>Yes to all</td>
<td>No</td>
</tr>
<tr>
<td>4</td>
<td>Develop Biotechnology laboratory at Chabot College</td>
<td>Identified essential equipment needed to establish a working lab for biotech students.</td>
<td>A request to purchase essential equipment needed for a biotechnology was made in unit plan.</td>
<td>Goals 4, 5, 8, 9, 15, 16, 17, 18</td>
<td>NO</td>
<td>NO</td>
</tr>
</tbody>
</table>
## Section 2: Goals/Objectives (What You Hope to Accomplish):

<table>
<thead>
<tr>
<th>No.</th>
<th>Goal/ Objective</th>
<th>What you hope to accomplish</th>
<th>Proposed Activities Completed to Achieve Goal/ Objective</th>
<th>Priority Objective / Strategic Plan Goal</th>
<th>Time Frame (semester, year, five years, etc.)</th>
<th>Are you including a request for additional resources in this unit plan? If yes, what type?**</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Assist THS to establish a long-term, self-sustaining biotechnology program.</td>
<td>Locate additional grants and sponsorships for funding.</td>
<td>Locate additional grants and sponsorships for funding.</td>
<td>Goals 4, 5, 8, 9, 15, 16, 17, 18</td>
<td>Now to 2010.</td>
<td>No</td>
</tr>
<tr>
<td>2</td>
<td>Develop Biotechnology laboratory at Chabot College.</td>
<td>Obtain equipment needed for a biotech lab to enhance students’ learning experience</td>
<td>Allocate money from the biotech budget to buy equipment.</td>
<td>Goals 4, 5, 8, 9, 15, 16, 17, 18</td>
<td>2008 - 2009</td>
<td>YES - equipment</td>
</tr>
<tr>
<td>3</td>
<td>Increase Chabot College Biotechnology program visibility in community.</td>
<td>Increase enrollment.</td>
<td>Participate in on- and off-campus and community activities. Establish industry relationships.</td>
<td>Goals 4, 5, 8, 9, 15, 16, 17, 18</td>
<td>2008 - 2010</td>
<td>YES - supplies</td>
</tr>
<tr>
<td>4</td>
<td>Identify new outreach high schools</td>
<td>Implement biotechnology program in other local high schools.</td>
<td>Approach high schools and invite them to visit THS.</td>
<td>Goals 4, 5, 8, 9, 15, 16, 17, 18</td>
<td>Now to 2010</td>
<td>YES - supplies</td>
</tr>
</tbody>
</table>

** List types such as “equipment,” “supplies,” “staffing,” “contractual services,” etc…
Unit Plan: Full-Time Faculty/ Adjunct Staffing Request(s) [Acct. Category 1000]

Unit: Biotechnology

Division or Area to Which You Report: Math & Science

Author(s) of this Unit Plan: Patricia P. Wu

Date: March 14, 2008

Biotechnology program is requesting 1 adjunct per semester to teach Biotech 20 or Biotech 30.

Current full-time instructors in the biology and chemistry subdivisions already have full teaching loads and other committee and/or program coordination duties. Also, increased course offering of the subdivisions (see Biology unit plan) added additional responsibilities other than classroom instruction will prevent current full-time instructors from teaching Biotech 20 and Biotech 30 classes.

The requested adjunct instructor for the biotechnology program will allow the program coordinator to concentrate on other program related activities to increase student enrollment and Chabot College’s visibility in the community.
Biotechnology program is requesting a part-time lab technician per semester to prep the labs of Biotech 20 and Biotech 30 classes.

Currently, the 2 full-time biology lab technicians are prepping all the labs in the biology subdivision. Due to increased course offering, it is not possible for the biology lab technicians to handle additional lab preps for Biotech 30. The same situation applies for the chemistry subdivision – Biotech 20.

The requested part-time lab technician will provide a safe environment for the students and decrease impact on full-time lab technicians’ work.
Unit Plan: Equipment Requests [Acct. Category 6000]

Unit: Biotechnology
Division or Area to Which You Report: Math & Science
Author(s) of this Unit Plan: Patricia P. Wu
Date: March 14, 2008

Brief Title of Request (Project Name): Biotechnology Program Laboratory Equipment Request

Building/ Location: 2100/ 2130

Request Amount (include unit cost, total cost, tax, and shipping): $12,677.49

Description of the specific equipment or materials requested:

<table>
<thead>
<tr>
<th>Description</th>
<th>Unit Price</th>
<th>Quantity</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. BIORAD SmartSpec Plus Spectrophotometer</td>
<td>$3,781.60</td>
<td>1</td>
<td>$3,781.60</td>
</tr>
<tr>
<td>2. BIORAD BR-2000 Vortexer</td>
<td>$228.00</td>
<td>2</td>
<td>$456.00</td>
</tr>
<tr>
<td>3. BIORAD Standard Cuvette, 1 - 3.5 ml, quartz</td>
<td>$138.00</td>
<td>1</td>
<td>$138.00</td>
</tr>
<tr>
<td>4. BIORAD Semimicrovolume Cuvette, 0.5 - 1.4 ml, quartz</td>
<td>$204.00</td>
<td>1</td>
<td>$204.00</td>
</tr>
<tr>
<td>5. BIORAD Microvolume Cuvette, 200 - 700 ul, quartz</td>
<td>$211.00</td>
<td>1</td>
<td>$211.00</td>
</tr>
<tr>
<td>7. BIORAD trUView Cuvettes, pack of 100</td>
<td>$105.00</td>
<td>1</td>
<td>$105.00</td>
</tr>
<tr>
<td>8. VWR Digital Unstirred Waterbath, 4.9L</td>
<td>$805.10</td>
<td>2</td>
<td>$1,610.20</td>
</tr>
<tr>
<td>9. VWR Digital Unstirred Waterbath, 11.9L</td>
<td>$942.47</td>
<td>1</td>
<td>$942.47</td>
</tr>
<tr>
<td>10. VWR Base Tray for 4.9L Waterbath</td>
<td>$74.07</td>
<td>2</td>
<td>$148.14</td>
</tr>
<tr>
<td>11. VWR Base Tray for 11.9L Waterbath</td>
<td>$75.58</td>
<td>1</td>
<td>$75.58</td>
</tr>
<tr>
<td>12. Wards Ohaus Adventurer Pro Analytical Balance</td>
<td>$1,816.00</td>
<td>1</td>
<td>$1,816.00</td>
</tr>
<tr>
<td>13. Wards Ohaus Scout Pro Electronic Balances</td>
<td>$422.00</td>
<td>3</td>
<td>$1,266.00</td>
</tr>
<tr>
<td>14. Wards Test Tube Cuvettes</td>
<td>$73.95</td>
<td>6</td>
<td>$443.70</td>
</tr>
</tbody>
</table>

Subtotal                                                        | $11,197.69 |
Tax                                                              | $979.80    |
Shipping                                                         | $500.00    |
What educational programs or institutional purposes does this equipment support?

All the requested equipment will not only support the biotechnology program (Biotech 20, 30 and new classes) of Math & Science division but also the entire biology subdivision. The requested equipment ensures that students will have the tools to perform proper laboratory procedures which will be applied in a research or manufacturing facility in the biotechnology industry. The requested equipment will replace the OBSOLETE (over TWENTY years old) equipment in the biology department. The obsolete equipment is NO LONGER USED in current/modern research or manufacturing facilities around the world. Only the new and current equipment will attract students to take the biotech classes and increase enrollment.

Also, Ohlone College has a brand new biotechnology building in Newark, CA with fully equipped labs. In order to increase enrollment and establish the biotechnology program, Chabot College must update the equipment in order to compete with Ohlone College for students.

Briefly describe how your request relates specifically to the Educational Master Plan and the Goals and objectives Section of your Unit Plan (Part II, Section 2)?

The Educational Master Plan states that the College will continue to improve the institution’s response to students through programs that support student access, development, equity, and success. One responsible way to support such growth is to provide needed equipment for students in the biotechnology program.

Also, Math & Science Division’s statement of philosophy states “The disciplines in the division strive to promote creativity and an appreciation for the wide applications of responsible science in the world they live in.” Using OBSOLETE equipment can not create or promote creativity and a sense of appreciation of the science world for our students. In fact, the obsolete equipment will only hinder students’ growth in the science world.

Why is this equipment necessary?

_x_ Immediate health, safety, or security issues

_x_ Increases enrollment

_x_ Prevents further deterioration of facilities
Briefly describe how the above criteria are satisfied:

**Health, safety, & security:**
Obsolete equipment can cause fire hazards in the classroom since the deteriorating parts of the equipment may produce sparks and ignite flammable chemicals used in the labs. Such fire will not only damage the classroom and/or the entire building but also cause great harm to students and damage the college’s reputation as well. The cost to repair damaged classrooms and/or building is much greater than replacing the obsolete equipment. Harm to students and college’s reputation, however, can not be repaired and not salvageable.

**Increases enrollment:**
Modern equipment will increase student success and retention. Students should be trained with the most current techniques so they will be successful in their academic and professional careers. Successful students are the best advertisement to increase student enrollment.

**Facilities deterioration prevention/ replaces deteriorated equipment or facilities:**
Deteriorating or non-functional equipment will force the program to offer less activities to our students, therefore, decrease student success and future enrollment.

**Cost Advantage:**
The cost of equipment keeps rising each year. Postponement of replacing obsolete/deteriorating equipment will only cost the college more in the future.

**Bond Program visibility:**
Biotechnology industry has been on the rise for the past 15 years, the demand for skilled workers has only increased not decreased. Neighboring community colleges have been taking advantage of biotechnology trend and attracting students from all over the Bay Area. Chabot College should be an active participant to provide what is needed in the community.

**Easily executed:**
No additional personnel or training is needed. Equipment can be installed and used immediately.
What is the consequence of not funding the equipment?

Without the equipment, students will not gain valuable modern experience which is needed in the 21st century. Chabot College will not be able to compete with neighboring community colleges which are able to provide the up to date service to the students.

What alternative approaches have been considered to meet programmatic demands for this equipment?

None. Biotechnology offers hands-on experience. Students can only gain such experience with the requested equipment.

How many students will be impacted by the purchase of this equipment? _ Over 2,500 students (combines Biotech and Biology)_

Do students use this equipment? _ x_ yes _____ no

Is this equipment a replacement? _ x_ yes _____ no **Some are replacement, some are new equipment**

Staffing requirements for new equipment (number of staff, are they available, training, etc.): none

Will training be required? _____ yes _ x_ no

At whose cost?

N/A.

What are the estimated ongoing costs (for maintenance, etc.)? None.

Are there potential utility costs/savings? YES!

Is this request CTE (Career Technical Education) Eligible? _____ yes _ x_ no
# Unit Plan: Supplies & Services Requests [Acct. Category 4000 and 5000]

**Unit:** Biotechnology  
**Division or Area to Which You Report:** Math & Science  
**Name of Person Completing this Form:** Patricia P. Wu  
**Date:** March 14, 2008

<table>
<thead>
<tr>
<th>Organization: Math &amp; Science/Biotechnology</th>
<th>Org. Number</th>
<th>Department/Program</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Budget Item Description</strong></td>
<td><strong>Funding Source</strong></td>
<td><strong>Total Cost ($)</strong></td>
</tr>
<tr>
<td>Biotechnology Program Lab Supplies</td>
<td>General Fund (X)</td>
<td>CTE* (X)</td>
</tr>
</tbody>
</table>