



# Annual Program Review 2011-2012 - INSTRUCTIONAL

## Division - Program

### BIOLOGY

#### Authorization

After the document is complete, it must be reviewed and submitted to the Program Review Committee by the Division Chair.

Author: Javier Gago, Maria Kretzmann, Lynn Mizuno  
 Division Chair: Lynn Mizuno  
 Date Received by Program Review: November 9, 2011

#### Overview of the Program

*All degrees and certificates are considered programs. In addition, divisions may further delineate and define programs based on their assessment needs (developmental sequences, career track, etc).*

**Statement of Purpose** – briefly describe in 1-3 sentences.

The Biology Division has three main areas of instruction: courses for students who wish to transfer to four year institutions and major in the Biological Sciences, courses for students who wish to apply to a Health Science program, and courses for students who take a Biology class to satisfy a general education requirement. The Biology courses provide a rigorous curriculum in which the students develop important skills in critical thinking, scientific investigation, and are prepared to transfer to the four year universities or Health Science degree programs.

Please list the **most significant achievement** accomplished since your last program review.

The most significant achievement accomplished since the last program review was the acquisition of funding using the assessment data from the Biology Health Science PLO. Professor Kindra Girard submitted a grant proposal to the GCC foundation requesting funding for additional models and skeletons for use in the Anatomy and Human Biology courses. This grant proposal was approved and these models will contribute to student learning by providing greater access to study materials in the laboratories and in the Tom Rike Biology Study Room.

List the current major strengths of your program

1. Superior academic preparation in biology for transfer to UC, USC, and CSU and Health Professional programs
2. High transfer rates to UC, USC and CSU campuses and acceptance into the Health professional programs .
3. High demand for Biology classes. The fill rate for most of the Biology classes consistently has been over 100% in the last 4 years.

## List the current weaknesses of your program

1. Currently, we do not have an effective cohort mentoring program for our students.
2. There is a need for our students to learn current library research techniques, which are not only useful tools in our courses but will be very valuable after transfer.
3. Aging equipment used in some of our labs prevents us from preparing our students for the use of current technology and the lack of models in the Anatomy and Human Biology courses makes it difficult for all students to gain access to study materials and to achieve academic success.

**1.0. Trend Analysis**

For each program within the division, use the data provided to indicate trends (e.g., steady, increasing, decreasing, etc.) for each of the following measures.

Program	Academic Year	FTEF Trend	FTEF Trend	WSCH / FTEF Trend	Full-Time % Trend	Fill Rate Trend	Success Rate Trend	Awards Trend
BIOLOGY	2007-2008	575	28.6	640	67.1%	108.6%	63.3%	1
	2008-2009	605	28.3	681	69.2%	115.9%	62.1%	2
	2009-2010	610	27.3	710	72.9%	118.7%	62.2%	3
	2010-2011	596	31.2	607	71.8%	110.2%	66.7%	2
	% Change	+3.7%	+9.3%	-5.1%	+7.1%	+1.5%	+5.2%	+100.0%
	4-Yr. Trend	stable	stable	stable	stable	stable	stable	increasing

## 1.1. Describe how these trends have affected student achievement and student learning:

All 4 year trends are stable but moving in a positive direction, except for WSCH/FTEF. The decline in the WSCH/FTEF may be because the FTEF in 2007-2008 did not include large lecture and the FTEF in 2010-2011 does include large lecture which gives the appearance that the FTEF increased when in fact the FTEF decreased in 2010-2011. This resulted in the decline in the WSCH /FTEF. The Fill rate for the Biology Division continues to be over 100% which indicates that there continues to be a large number of enrollments per faculty member and the efficiency remains high. The courses in the Majors Biology Program (Biology 101,102, and 103) are taught exclusively by full time faculty members in the Division, and this has contributed to the success rate of the students in the program over the last 4 years. Awards are not relevant for the Majors Biology Program, as the goal of our students is to transfer to a four year university, and almost none get an Associate's degree. Our success rates are not likely to increase substantially above current levels, as our Program requires a high degree of academic rigor to ensure transfer success.

## 1.2. Is there other relevant quantitative/qualitative information that affects the evaluation of your program?

Our non-majors Biology classes typically have fairly high withdrawal and low passing rates, as

many beginning community college students are not prepared for college level work. We strongly believe in maintaining high standards for these courses, which are the only science courses many of these students will ever take, in an effort to produce scientific literacy in all of our transfer students. Our non-majors courses taught at the field station in Baja California, Mexico, typically have higher success rates, due to immersion in the subject material and the development of a supportive learning community.

## 2.0. Student Learning and Curriculum

Provide the following information on each department and program within the division.

List each Department within the Division as well each degree, certificate, or other program* within the Department	Active Courses with Identified SLOs		Active Courses Assessed		Course Sections Assessed		If this area has program outcomes have they been assessed? Yes or No
	n/n	%	n/n	%	n/n	%	
BIOLOGICAL SCIENCE	3/3	100%	3/3	100%	6/6	100%	Yes
HEALTH SCIENCE	4/4	100%	4/4	100%	20/20	100%	Yes
NON-MAJOR COURSES	6/6	100%	6/6	100%	15/15	100%	N/A

2.1. Please comment on the percentages above.

The courses in the Biology Program were some of the first to fully complete their SLO course and Program Learning Outcome assessment cycle.

- 2.2. a) Please provide a *link*\* to all program assessment timelines here. This link could be to your division /department website, eLumen, etc.
- b) Briefly summarize any pedagogical or curricular elements of courses/programs that have been changed or will be changed as a result of developing assessment timelines and course/program alignment matrixes.
- c) Based on the program assessment timelines you have developed and the evidence you have gathered, please comment briefly on how far along your division/program is in the assessment process.

a) Link to assessment timelines: <http://www.glendale.edu/index.aspx?page=5123>

b) We have approved 3 program level PLOs for the Biological Science Program. The first is easy to assess based on work students complete in our courses, and the remaining two PLOs are directed at transfer rates, and success after transfer for our Biology majors. We are also considering modifying the SLOs for some of the majors biology courses in order to better meet the assessment timelines.

c) We completed two assessment cycles for PLO 2 of the Majors Biology Program regarding transfer rates in Spring 2010 and Spring 2011. The first PLO for the program will be assessed this semester ,Fall 2011.

d) We have approved 3 program level PLOs for the Health Science Biology Program. We have completed two assessment cycles for PLO1 for the Health Science Biology Program. We are currently obtaining the data for PLO3.

- 2.3 a) Please provide a **link** to any program and/or relevant course assessment reports. Does the evidence from assessment reports show that students are achieving the desired learning outcomes?  
 b) Please briefly summarize any pedagogical or curricular elements of courses and/or programs that have been changed or will be changed as a result of the assessments conducted.

a) Link to program level assessment report: <http://www.glendale.edu/index.aspx?page=4658>

Link to relevant course assessment reports: [ekarpp@glendale.edu](mailto:ekarpp@glendale.edu)

b) While UCLA remains the top transfer choice for most of our Biology majors, the current fiscal crisis has forced UCLA (and other institutions) to become more selective, and raise the minimum GPA for transfer from 3.2 to 3.4. As a result, only 44% of our applicants for transfer to UCLA were accepted there last Spring. However, most of our students were accepted at other UC campuses, or USC, especially after completing the entire Biology 101-102-103 series of courses.

We plan to follow up with our former students after a year at their transfer institutions, to determine how well-prepared they were for upper-division Biology coursework after transfer. To this end, we have included exit surveys in each of our courses, which will provide us with permanent contact and transfer information. We are also working with Ed Karpp's office to utilize Calpass.org (an information sharing network among institutions of higher education in southern California) to objectively measure our students' success after transfer.

The Biology 121, Physiology course, obtained the Biopac student lab system in Fall, 2010. This lab system allows the students to run their own electrocardiographs (ECGs) and to learn to evaluate the various waves, segments, and intervals generated by the electrical activity of the heart using the ECGs. As part of the assessment for PLO1 of the Health Science Biology Program, the cardiovascular exams in the capstone course, Biology 121, was compared in the semester before the use of the Biopac lab system, Fall 2010, with the semester in which the Biopac lab system was used. There was a 4% increase in the average grade on the cardiovascular exam in the Spring 2011 semester when it is compared to the average grade on the same exam in the Fall 2010 semester.

- 2.4 Please list all courses which have been reviewed in the last academic year.  
*Note: Curriculum Review is required by the Chancellors Office every 6 years.*

The course outlines for Biology 101,102,103,120,121,122,123,125,126,131, and 146 were all reviewed, updated, and approved by the curriculum and instruction committee in the past year. Biology 112 and 115 course outlines were updated with the addition of course SLO's and will be reviewed this year for any major revisions.

- 2.5 Please list all degree/certificate programs within the division that were reviewed in the last academic year.

The Biological Science Degree program was reviewed.

- 2.6 For each program that was reviewed, please list any changes that were made.

The Honors Biology 101, Honors Biology 102, and Honors Biology 103 courses were deleted from the catalogue. Students who wish to transfer to UCLA as a Biology major are required to have a minimum GPA of 3.4 in the majors Biology courses and enrollment in the Honors courses

did not provide an advantage to these students. In fact, the average GPA of the honors students (Biol 101 = 2.33, Biol 102 = 3.06, Biol 103 = 3.0) was below the GPA of 3.4 required for entrance into UCLA.

### 3.0. Reflection and Action Plans

3.1 What recent activities, dialogues, discussions, etc. have occurred to promote student learning or improved program/division processes?

An action plan from last year's program review was to have a meeting with prospective Biology students to provide them with information on how to be successful in the Majors Biology Program. We accomplished this goal by holding two mandatory meetings for incoming Biology majors in the Spring and Fall 2011 semesters, during which we outlined the requirements for transfer to UC, CSU and USC, and provided advice regarding some alternatives to medical/dental/pharmacy schools, the importance of good study habits and academic integrity. The following faculty and staff participated in these meetings: Dr. Keith Conover, Dr. Javier Gago, Dr. Maria Kretzmann, and Dr. Rob Mauk (Majors Biology Program faculty); Dr. Ron Harlan (Dean of Instructional Services); Kevin Meza (transfer counselor); James Castel De Oro (Student Services representative to the Biology Division). These meetings will be repeated on a regular basis to reach all prospective Biology majors and to work with the counseling staff to ensure that these students gain a better understanding of what is expected from them in order to successfully transfer to a four-year university of their choice.

To increase the chances of success in the Biology Courses, the Biology Division has the Tom Rike Study Room where students may check out lab study materials such as microscope slides, bone boxes, and Anatomy models.

The Biology evening lab technician only works 25 hours per week and 10 months a year. Increasing the evening lab technician's hours to 40 hours per week and 11 months a year will allow the students time to study the lab materials until 10:30 pm at night, on Saturdays, and in the evenings during the summer session. Students in the summer 2011 Anatomy course requested that the study room remain open during the evening hours. Because the lab tech is only a 10 month employee, the lab tech was available to man the evening hours of the study room for only the first exam. Funding was granted for only 3 additional days, one day before each of the last 3 lab exams. Having the Biology study room available in the evenings during the summer will likely increase the number of students who are successful in the course.

3.2 Using the weaknesses, trends and assessment outcomes listed on the previous pages as a basis for your comments, please briefly describe your plans and/or modifications for program/division improvements

Plans or Modifications	Anticipated Improvements
<p>We plan to develop an individual or cohort mentoring program for our students, including regular informational meetings for the Biology majors, with Biology and Chemistry faculty, counselors and transfer center personnel. Students would then be encouraged to follow up with additional meetings with one of the biology professors.</p>	<p>Improve the success of our students in the series of courses that are required for their major.</p> <p>Be able to provide our students with early counseling about the potential careers in the biological sciences and what is expected of them.</p>

Establish a program with our library staff to provide training to our students in current library research techniques.	Improve the library research capabilities of our students. This should help our students with some of the activities in our courses and in future upper division courses after they transfer.
Obtain funding for new equipment used in some of our labs (e.g., digital spectrophotometers).	Improve the laboratory training of our students by using current technology.
We plan to address the Health Science PLO3 to obtain data regarding how successful students who completed their prerequisite Biology courses at GCC are in the Pharmacology and Medical Surgical nursing courses compared to those students who did not take their prerequisite courses at GCC.	Evaluate the preparation of the pre-nursing students for the nursing curriculum.

**2011 PROGRAM REVIEW****BIOLOGY**  
***FT Instructor-Biology*****I: BIO-1****Section 4**  
**IHAC Request**

If this is a repeat request, please list the Resource ID code or year requested: \_\_\_\_\_

- 4.1** The Office of Instruction will provide data on instructional hires during the past five years, including zzzz the full-time percentage of each new hire.

a) Number of full-time faculty currently assigned to the Program	8
b) Number of full-time faculty assigned to the Program in 2005	7
c) Does this position cover classes currently taught by adjuncts? Yes or No	Yes
d) Does this position contribute to program expansion? Yes or No	Yes

**4.2** CPF Index (Committees Per Full-time Faculty)

1. Total number of full-time faculty members in this department/program.	8
2. Total number of committees in which all FT faculty members in this area participate (Governance and other campus related committees & participation).	11
3. CPF INDEX (Total of # 2 divided by #1)	1.38

**4.3** Status of Released Time Faculty

Faculty Name	Release Time Position	% RT	Term of Assignment
Lynn Mizuno-Masunaga	Division Chair	40%	3 years

**4.4** How does this assignment relate to the college's Mission Statement?

The new instructor would teach Human Biology and Human Anatomy courses. These courses provide a rigorous curriculum to prepare students for a career in the Health Sciences, including Nursing, Physical Therapy, Physician Assistant, and Pharmacy.

**4.5** How does this position relate to the objectives and functions of the college?

- |  |                              |
|--|------------------------------|
| a) Associate Degree                    | d) Basic Skills development  |
| b) Transfer to a four-year institution | e) Noncredit Adult Education |
| c) Career and Technical Education      | f) Personal enrichment       |

This new instructor would teach Human Biology and Human Anatomy courses which are requirements for the AA Health Science Degree and also are required for the Associate degree or Bachelor of Science degree in Nursing.

- 4.6** Describe how this position enhances student success. Ex: enhances instructional skills, meets community or industry needs. Contributes to state of the art technical education, etc. What measurable outcome will result from filling this request?

This new instructor would teach prerequisite courses that students must take before applying to various Health Professional programs. These courses provide the students with a solid foundation to be successful in the Health Professional program.

- 4.7** Are there anticipated negative impacts for not hiring this position? If so describe.

The Human Biology and Human Anatomy courses are in high demand and always close within the first three to four days of registration. In addition, the waiting list of 25 students also closes within the first week of registration and 25 or more students who were not able to get on the waiting list try to register for these classes on the first day of instruction without success. If the request for this new faculty position is granted, this would allow more students to enroll in the prerequisite courses that they need to apply to the Health Professional programs.

- 4.8** Are there any other special concerns not previously identified? If so, please explain.

The inability of the students to enroll in the Human Biology and Human Anatomy courses will remain an impediment to the students who wish to apply to a health professional program.



# 2011 PROGRAM REVIEW

**BIOLOGY**  
*FT Senior Laboratory Tech.*

**I: BIO-2**

## Section 4: CHAC REQUEST

If this is a repeat request, please list the year(s) requested: **2006, 2010**

**4.1.** Describe the position including the complete description used to advertise for the position. Also include the division/department/program or service and full-time percentage for the position.

The Biology Division is requesting a Full time Evening Senior Laboratory Technician. This is not a request for a new position but rather we are requesting that the 25 hours per week, 10 month Senior lab technician position be upgraded to a 40 hours per week, 11 month position.

**4.2** Criteria:

- a) Are there state or federal mandates particular to this program/service? If so, please describe.

No

- b) How does this position support the objectives and functions of the college in regards to the Mission Statement, EMP goals, annual college goals and/or student need?

The Chancellor’s Office is focusing on student success and there will be an increase demand on the community colleges to provide strategies to help the students succeed. Increasing the hours of the evening senior lab technician will have a direct effect on increasing the success rate of the evening students. The Biology Division has the Tom Rike Study Room where students may check out materials, such as microscope slides, bone boxes, and models to help them study for lab exams. In the student evaluation of evening instructors, in the section that asks “What else do you think we should do to serve you better?”, the evening students always comment that the study room should be open more hours in the evening and on Saturdays. Many of the evening students work during the day and they only have evening hours or Saturdays to review the laboratory material. The additional 15 hours per week for the evening lab technician will allow the Tom Rike Biology Study Room to remain open until 10:30pm on Mondays to Thursdays, Fridays from 3 to 7pm, and Saturdays from 9am-12pm, allowing the evening students more time to study the lab material. Currently, the study room is open from 7:30am to 9:00pm, Monday to Thursday and closes at 3:00pm on Friday. These additional hours to study will not only increase student learning outcomes but will increase student success in the Biology 115, 120, and 102 courses.

The evening lab technician is responsible for preparing materials for 9 evening labs and also for helping the day instructors break-down their labs (5 labs) since the day labs end at 4:50pm. This semester we were going to close the study room at 7:00 because the lab technician could not do both. However, we were able to temporarily borrow some student worker hours from another area to cover the study room.

- c) Please provide quantitative data to support your request (such as program review, research office reports, surveys, etc.)

The Biology 120 lab is very demanding because the students must be able to identify tissues, bone, muscles, blood vessels, nerves, and organs. From the Fall 2009 analysis of the success rate in the Biology 120 Human Anatomy course, the day students who had access to the study room from 7:30am to 9:00pm had a success rate of 67%. The evening Biology 120 students, if they worked full time during the day, only had access to the study room from 5:30 to 9:00pm on 2 nights since they are in class the other two nights of the week. The success rate for the evening students was only 56% compared to the 67% for the day students. This data indicates that it is imperative that we provide more time for the evening students to learn and review the lab materials.

The summer Human Anatomy course is only 6 weeks long and the students are in class from 9am to 4:25pm. The students must learn 2.5 times the material in one week than they would in the normal semester. Since the evening lab tech is only a 10 month employee, the study room closes at 4:00 pm when the day lab technician leaves. These students have no time to review material outside of class. This past summer 2011, for the first two weeks of the summer session the students were able to review lab materials after class from 4:25pm to 9:00pm since the evening lab tech was still working. For the last 4 weeks of the summer session, the students did not have access to lab materials outside of class. Students in the summer class requested that the evening lab technician work from 4 to 9 the day before the remaining 3 exams. Dr. Mary Mirch approved the 15 additional hours. The data collected from students signing a log every time they check out study materials shows that 24 out of the 29 students who completed the class utilized the study materials provided in the study room. Of the 24 students who utilized the study room, 18 earned a "C" or better grade in the course. This is a 75% success rate. When we add in the students who withdrew from the class, the success rate is 57%. Those students who use the study room are succeeding at a higher rate than those students who do not. See the attached email from the students to Dr. Mary Mirch.

- d) Is this request related to compliance with a collective bargaining agreement? If so, please explain.

No

- e) Are there industry standards that directly relate to this position? If so, please explain.

Yes, the mathematics division has a Senior Instructional Computer Lab Technician, who is a 40 hour/week, 11 month employee. The Chemistry Department has an evening laboratory technician in that was hired 4 years ago as a full-time, 40 hour a week, 12 months a year position. This position was previously a part-time position. This technician is responsible for from 6 (Fall 2011) to 9 labs (Spring 2011) depending on the semester. The Biology evening laboratory technician works 25 hours per week, for 10 months and is responsible for 8 (Spring 2011) to 9 (Fall, 2011) labs and is responsible for checking out study material to the students in the biology study room. The Biology evening lab technician will often stay longer than the time in which she is paid to help the evening instructors and the students.

- a) What implications does the addition of this position have on: budget, staffing, facilities and equipment?

The increase of 15 hours per week from 25 to 40 hours per week and 1 additional month per year from 10 to 11 months for the Senior lab technician would be at a cost of approximately \$24,000 and an increase in the health benefit from employee to family benefits.

- b) Discuss any benefits your program may have lost from not receiving this requested position.

The Biology Division has been requesting the increase in hours and months for the evening laboratory technician since 2006. The success rate in the biology classes has not significantly changed in the last 4 years. More students may have successfully completed the Biology courses if the lab technician had been granted the additional hours and the study room had been available until 10:30pm on Mondays to Thursday, on Friday evening and Saturday mornings.

- c) Are there any special concerns that are not addressed in this request? If so, please explain.

No

- d) Describe how this position enhances student success and/or program outcomes.

Increasing the evening lab technician's hours by 15 hours from 25 to 40 hours per week will allow the evening students to have access to the study materials on Friday evenings and Saturday mornings, times when the evening students would be able to utilize the room. Increasing the evening lab technician's months from 10 to 11 months will provide the students who are taking the quick paced demanding summer Anatomy course the ability to study the lab material at night, after class ends at 4:25pm. Granting of this increase in hours and a month will definitely enhance the student success (see the data in 4.2 (c)).

- 4.4** Please attach data from Human Resources on new classified hires in your program during the past five years, including the full-time percentage of each new hire.

There have been no new classified hires in the Biology Division in the past 5 years and we have no classified employee that is a 40 hour/week, 12 month employee.

***Please see Attachment on the next page***

**ATTACHMENT****From:** VIVIAN ANDERSON [mailto:vanders485@student.glendale.edu]**Sent:** Thursday, July 28, 2011 1:10 PM**To:** Mary Mirch**Cc:** quepasasarita@yahoo.com; asatorian@hotmail.com; gcovitt@glendale.edu; Imizuno@glendal.edu**Subject:** Study Lab hours for Anatomy Students

Dr. Mirch,

Our summer Anatomy class (Biology 120) just finished taking its final exam. On behalf of our class, I wanted to take a moment to thank you for approving extra hours for Naira, the Biology Lab technician, so that she could keep the Tom Rike Study Center open late the night before each of our exams. We really appreciated, and utilized the extra time to look at models and study, and honestly believe it helped us get the edge we needed for our exams. We all knew that we were taking a very challenging class in a very short time, but Dr. Mizuna, Dr. Covitt, Naira and Mariam really went above and beyond to make sure that we had every available resource for success. By approving those hours, you were also part of our success. Thank you again for your help, and understanding! Enjoy the rest of your summer!

Sincerely,

Vivian Anderson, and the entire Biology 120 class.

# 2011 PROGRAM REVIEW

**BIOLOGY**

*New Ice Machine*

**I: BIO-3**

## Section 4 Resource Request

### Type of Resource Request:

- Facilities/Maint.       Classroom Upgrades       New space       Conference/Travel  
 Instructional Equip.       Non-Instructional Equip       Training       Other  
 Computer/Hardware       Software/Licenses       Supplies

**Mandatory:** Is this request for one-time funding?  OR Does this request require ongoing funding?

If this is a repeat request, please list the Resource ID code or year requested: \_\_\_\_\_

Mark if the following apply to this request:  Health & Safety Issue       Legal Mandate  
 Accreditation Requirement       Contractual Requirement

#### 4.1. Clearly describe the resource request.

The Biology Division is requesting an ice machine that produces ice in flakes rather than cubes.

Amount requested \$ 4,000.00

#### 4.2. Justification and Rationale: What planning goal, core competency or course/program SLO does this request address? Use data from your report to support your request.

Flaked Ice is essential for the successful completion of the lab experiments in the following courses, Biology 101,103,112,121,122. Ice that is flaked rather than cubed is absolutely necessary to keep very cold the microtubes used in enzyme, recombinant DNA , and transformation experiments.

#### 4.3. What measurable outcome will result from filling this resource request?

The measurable outcome will be the successful completion of the experiment without the degradation of the enzyme and DNA molecules.

### APPROVALS

AGENCY	DECISION						
The Program Review Committee has reviewed the data, outcomes and plans in the report and finds this request to be:	Well supported						
	Adequately supported						<b>X</b>
	Not supported						
	Reason:	Sect.1: Data		Sect.2: SLOs		Sect.3: Plans	Other:
Standing Committee Review of Resource Request							Prioritization Score
<b>Committee: Academic Affairs</b>							