

## **2014-15 Program Review**

Name of Program:       General Education Biology  
Name of Unit:           Math & Sciences  
Name of Area:          Academic Affairs  
Date Completed:        10/21/2013

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### Program's Mission Statement

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The General Education Biology Program offers quality general education biology curricula to all students of the College. This program delivers life science courses to complement and enhance the General Education offerings of the College and form an integral part of Area 5 for Rio Hondo College GE, Area 5B of IGETC and Area B for CSU. The Program presently consists of seven courses all of which satisfy these goals. These course are:

General Biology (BIOL 101)  
Human Biology (BIOL 105)  
Marine Biology (BIOL 111)  
Marine Biology Lab (BIOL 111L)  
Environmental Biology (BIOL 120)  
Environmental Biology Lab (BIOL 120L)  
Outdoor Biology (BIOL 112)

In addition to meeting the basic elements of a life science requirement, all general education biology classes emphasize critical thinking and problem solving skills particularly in the conduction of the laboratory activities. Some of the other skills emphasized within our courses include the use of mathematics and the ability to communicate clearly and effectively both orally and in writing. Lastly students in any general biology class will learn how to conduct a scientific inquiry and how to use scientific knowledge to solve problems and work in teams. In essence, the goal is to increase scientific literacy of students enrolled in any general biology course and foster skills that can be integrated and applied across all fields of study.

The General Education Biology Program supports Goal #1 of the college by providing excellent instruction in general education courses which will help students with degree completion and successful university transfer.

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### Program's SLO Information - Assessment Results (1a)

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1. The majority of students appear to be successful in achieving student learning outcomes for all courses taught within the general education biology program. Some of our courses have outcomes with 3 levels of proficiency: excellent, satisfactory, unsatisfactory. In those courses, we see that a portion of students are successful at the satisfactory level, we would like to see movement of students from satisfactory to excellent.
  2. In courses where students are asked to classify and characterize a specimen based on observable characteristics, the level of proficiency could be improved.

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### Program's SLO Information - Changes in Instruction (1b)

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1. Experiments have been re-designed to improve experimental results. This should improve student's interpretation of experimental results and aid in achievement of stated learning outcomes. We will assess this Spring 2013 semester to see if there is any evidence of improvement.
2. Increased emphasis placed on observational skills in the beginning laboratory activities may improve student's ability to recognize important characteristics. Also, practice questions at the end of a laboratory activity would allow students to recognize if they have mastered the content of the lab or need to spend some more time with the material before they leave.

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### Program's SLO Information - Requested Resources (1c)

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A request has been made for the following materials to be used either in lecture or lab, sometimes both locations: DVD's, short animations, specimens for dissection, microscope slides, models and visual aids (posters). Students cannot achieve the learning outcomes for the courses without access to laboratory materials.

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### Program's SLO Information - Assessment Reports (2)

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All general education biology courses that are regularly scheduled have at least two assessment reports completed at this time. However, they do not address multiple outcomes. Additional outcomes have recently been developed and input into solutions for the courses offered most frequently in the general education biology program and will be assessed regularly starting this Spring 2013 semester.

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### Program's SLO Information - Online Results (3)

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We have no courses within the General Education Biology Program that are currently offered online.

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### Program's SLO Information - Degrees and Certificates (4)

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There are currently no certificates or degrees offered within the General Education Biology program. Our courses are usually taken to fulfill general education requirements. The College does offer a General Studies degree with an emphasis in Science and Mathematics and a student learning outcome has been developed for this degree, we have not linked this outcome to specific courses at this time.

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### Program's Characteristics, Performance and Trends

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\*\*Updated Data for: 2014-2015 Program Year\*\*

<b>Rio Hondo College Total Enrollment</b>									
<b>Summer 2008</b>	<b>Fall 2008</b>	<b>Spring 2009</b>	<b>Summer 2009</b>	<b>Fall 2009</b>	<b>Spring 2010</b>	<b>Summer 2010</b>	<b>Fall 2010</b>	<b>Spring 2011</b>	<b>Summer 2011</b>
21,573	52,560	59,943	17,891	54,301	52,162	16,515	50,296	47,114	15,476

<b>General Education Biology Total Enrollment</b>									
<b>Summer 2008</b>	<b>Fall 2008</b>	<b>Spring 2009</b>	<b>Summer 2009</b>	<b>Fall 2009</b>	<b>Spring 2010</b>	<b>Summer 2010</b>	<b>Fall 2010</b>	<b>Spring 2011</b>	<b>Summer 2011</b>
271	653	798	327	733	684	318	744	735	310

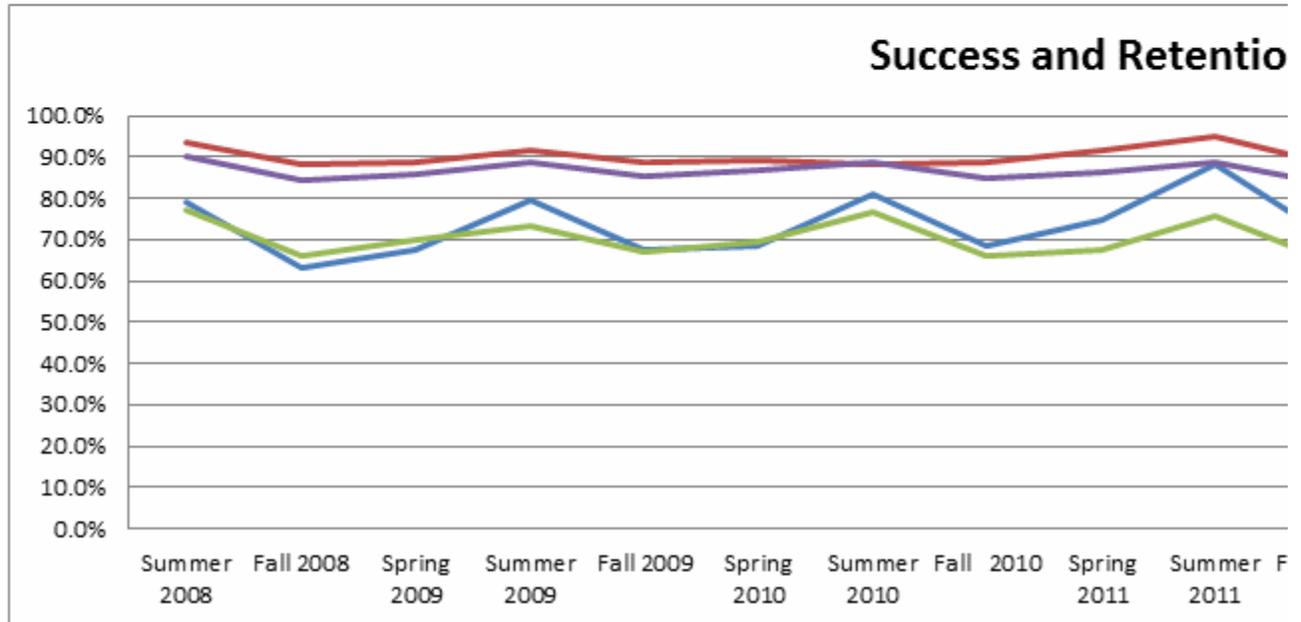
<b>Rio Hondo College Total Enrollment</b>									
<b>Summer 2008</b>	<b>Fall 2008</b>	<b>Spring 2009</b>	<b>Summer 2009</b>	<b>Fall 2009</b>	<b>Spring 2010</b>	<b>Summer 2010</b>	<b>Fall 2010</b>	<b>Spring 2011</b>	<b>Summer 2011</b>
21,573	52,560	59,943	17,891	54,301	52,162	16,515	50,296	47,114	15,476

<b>General Education Biology Total Enrollment</b>									
<b>Summer 2008</b>	<b>Fall 2008</b>	<b>Spring 2009</b>	<b>Summer 2009</b>	<b>Fall 2009</b>	<b>Spring 2010</b>	<b>Summer 2010</b>	<b>Fall 2010</b>	<b>Spring 2011</b>	<b>Summer 2011</b>
271	653	798	327	733	684	318	744	735	310

<b>General Education Biology FTES</b>									
<b>Summer 2008</b>	<b>Fall 2008</b>	<b>Spring 2009</b>	<b>Summer 2009</b>	<b>Fall 2009</b>	<b>Spring 2010</b>	<b>Summer 2010</b>	<b>Fall 2010</b>	<b>Spring 2011</b>	<b>Summer 2011</b>
39.6	109.1	127.1	43.6	118.5	111.7	41.8	119.2	114.5	39.0

General Education Biology Success and Retention								
	Summer 2008	Fall 2008	Spring 2009	Summer 2009	Fall 2009	Spring 2010	Summer 2010	Fall 2010
<b>Program Success</b>	79.3%	63.2%	67.3%	79.8%	67.4%	68.4%	80.8%	68.4%
<b>Program Retention</b>	93.4%	88.4%	88.8%	91.4%	88.8%	89.0%	88.1%	88.7%

Rio Hondo College								
	Summer 2008	Fall 2008	Spring 2009	Summer 2009	Fall 2009	Spring 2010	Summer 2010	Fall 2010
<b>College Success</b>	77.2%	66.3%	69.7%	73.5%	67.0%	69.3%	76.6%	65.9%
<b>College Retention</b>	90.0%	84.4%	86.0%	88.5%	85.3%	86.6%	88.7%	85.1%



General Education Biology Grade Distribution										
Grade	Summer 2008	Fall 2008	Spring 2009	Summer 2009	Fall 2009	Spring 2010	Summer 2010	Fall 2010	Spring 2011	Summer 2011
A	63	106	156	96	122	119	105	158	155	
B	82	152	165	94	166	152	91	166	191	
C	69	154	215	70	206	197	61	185	203	
CR	1	1	1	1	0	0	0	0	0	
D	10	60	54	15	65	62	6	64	58	
F	28	103	118	23	92	78	16	87	65	
I	0	1	0	0	0	0	0	0	0	
NP	0	0	0	0	0	1	1	0	1	
P	0	0	0	0	0	0	0	0	0	
W	18	76	89	28	82	75	38	84	62	
<b>Grand Total</b>	<b>271</b>	<b>653</b>	<b>798</b>	<b>327</b>	<b>733</b>	<b>684</b>	<b>318</b>	<b>744</b>	<b>735</b>	

General Education Biology % Grade of Distribution										
Grade	Summer 2008	Fall 2008	Spring 2009	Summer 2009	Fall 2009	Spring 2010	Summer 2010	Fall 2010	Spring 2011	Summer 2011
A	23.2%	16.2%	19.5%	29.4%	16.6%	17.4%	33.0%	21.2%	21.1%	
B	30.3%	23.3%	20.7%	28.7%	22.6%	22.2%	28.6%	22.3%	26.0%	
C	25.5%	23.6%	26.9%	21.4%	28.1%	28.8%	19.2%	24.9%	27.6%	
CR	0.4%	0.2%	0.1%	0.3%						
D	3.7%	9.2%	6.8%	4.6%	8.9%	9.1%	1.9%	8.6%	7.9%	
F	10.3%	15.8%	14.8%	7.0%	12.6%	11.4%	5.0%	11.7%	8.8%	
I		0.2%								
NP						0.1%	0.3%		0.1%	
P										
W	6.6%	11.6%	11.2%	8.6%	11.2%	11.0%	11.9%	11.3%	8.4%	
<b>Grand Total</b>	<b>100.0%</b>									

<b>General Education Biology Section Delivery</b>									
<b>Time Taught</b>	<b>Spring 2010</b>	<b>Summer 2010</b>	<b>Fall 2010</b>	<b>Spring 2011</b>	<b>Summer 2011</b>	<b>Fall 2011</b>	<b>Spring 2012</b>	<b>Summer 2012</b>	<b>Fall 2012</b>
Day	13	7	19	18	7	18	18	7	18
Evening	7	2	4	4	2	5	5	2	6
Weekend	1	0	0	1	0	0	1	0	0
Online	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0

<b>General Education Biology Success By Course</b>									
<b>Course</b>	<b>Summer 2008</b>	<b>Fall 2008</b>	<b>Spring 2009</b>	<b>Summer 2009</b>	<b>Fall 2009</b>	<b>Spring 2010</b>	<b>Summer 2010</b>	<b>Fall 2010</b>	<b>Spring 2011</b>
BIOL101	71.1%	54.1%	48.0%	68.8%	57.8%	58.5%	65.4%	59.8%	68.9%
BIOL111		77.4%	78.7%		82.5%	61.4%		81.0%	56.0%
BIOL111L		64.7%	92.6%		89.7%	84.6%		80.0%	79.2%
BIOL112	73.7%		45.5%	78.3%		62.5%	76.2%		50.0%
BIOL120	84.5%	66.0%	82.6%	80.5%	70.3%	75.3%	81.8%	70.1%	80.6%
BIOL120L	83.3%	79.8%	79.2%	89.7%	76.9%	84.3%	89.0%	81.6%	90.4%

<b>General Education Biology Enrollment Management</b>			
<b>Indicator</b>	<b>Summer 2012</b>	<b>Fall 2012</b>	<b>Spring 2013</b>
# Sections	9	24	20
Fill Rate	99%	114%	111%
# Students Over-/Under-Enrolled	-2	103	70
Section Cap (Average)	37.7	31.1	32.4
# Sections Over-/Under-Enrolled	-0.1	3.3	2.2
% FTEF Part-Time	N/A	44%	33%

The retention rate, since the summer of 2008, for all Biology general education classes combined is 91%. This retention rates compares favorably to the retention rate for Rio Hondo College as a whole (87%). The success rate for the same period is 75%. Again, this success rate compares favorably to the College as a whole (70%). While our retention rates are quite high, the general biology faculty would like to see continued improvement in success rates as we have shown only a modest increase over the last few years (For example, Fall 2011 = 70.5% success; Fall 2012 = 74.7% success).

Faculty continuously discuss methods designed to increase student success. There has been a

significant decline in enrollment from the period Fall 2012 to Spring 2013 (113 tudents), which can be attributed to a reduction in class offerings, some sections have been cancelled.

General Education Biology is a relatively small program yet it generates significant FTES's for the college. Looking at fall and spring numbers only, we averaged close to 118 FTES's over the past 5 years. The data show a slight decrease in FTES' this past spring (2013, 107.5), compared to previous semesters (spring 2012, 121.3), again due to the cancellation of some class sections. Enrollments are high in the courses we do offer and all sections are usually filled very soon after registration opens.

We seem to be attracting more students taking Biology 101 (General Biology) as a pre-cursor to pursuing programs in Health Science related fields. We have recently developed a seventh general education biology course, Human Biology, which meets the same goals as our other courses but which the Biology faculty feels may appeal to an even wider audience than some of our current offerings. This course in particular would serve Kinesiology, EMT, Emergency Services and Health Science majors. We eagerly await an opportunity to schedule this new course.

The Program's courses all provide solid general education biology curricula to the diverse population of Rio Hondo students.

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## Program's Strengths

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The strengths of this program lie in its diverse offerings and in the capabilities of its teaching faculty. In addition, consistency is maintained by close communication among faculty members (full and part-time) teaching a particular class and agreement to cover the same material and maintain a similar schedule. Faculty have also agreed to use the same textbook across all sections of a particular course. Every effort is made in ensure that students are receiving similar experiences in lecture and laboratory sections within a particular course. The Biology faculty feel strongly that the "family plan" (students enroll for a lecture/lab combination class, the ideal situation is for both to be taught by the same instructor) we have instituted for our largest offering (Biology 101) has helped increase student success. In other offerings lecture and lab can be taken separately, this provides flexibility for students and room scheduling.

Biology faculty have developed and produce in house (at a much reduced cost) laboratory manuals for General Biology, Environmental Biology and Marine Biology. This has allowed the laboratory experience to be matched to the exact capabilities of what our equipment will allow. Outdoor biology has always relied on instructor generated laboratory activities. This also means that we can easily change the focus of laboratory activities as new information or new technologies become available.

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## Program's Weaknesses

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As was stated in the Program Review of 2007-2008, the weaknesses in the program have to do with limited lab facilities to expand offerings (or run concurrent labs) and in limited financial resources to extend and update the quality and scope of the laboratory experiences. Inability to offer any sections of newly developed course.

The General Biology class is our largest course offering (5 lecture and 11 lab sections) and we often rely on part-time faculty to teach some lab sections. We have been fortunate in the past to have some long-term regular part-time instructors but, there has recently been some turn-over. This has brought to light the necessity to keep in constant communication with the part-time faculty in regards to lab preparation, maintenance of laboratory equipment and assessment of student learning outcomes.

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### Program's Opportunities

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The basic concepts of biological sciences have not changed significantly over the past few years, however scientific understanding of life processes is a rapidly evolving field and is expected to expand over the decade. The ability to pass on that new knowledge is dependent on keeping faculty current within their fields and in introducing new technologies into the classrooms. The on-going development and assessment of SLOs forms part of both the Accreditation Commissions recommendations as well as an evaluation of the scientific literacy of the students. The challenge for faculty appears to be finding ways to engage a student body with minimum understanding of the biological principles that impact their daily lives. One way to engage the current generation is with increased use of technology. Limited access to current scientific innovations and technologies may prevent the courses from being relevant and up-to-date.

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### Program's Threats

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The elimination of class sections has impacted the program's ability to support students. Also, limited resources put a strain on the ability to keep current with new technology and to replace old or malfunctioning equipment or to adequately repair and maintain already existing equipment that supports the courses.

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### Program's Accomplishments and Recommendations for Improvement

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Though limited data exists, the program seems to be meeting its intended short-term goals. There is room for expansion of the offerings within the program, but this is hampered by limited facilities and resources. Particularly in regards to the ability to offer concurrent laboratory sections, especially for the Biology 101 course. This course serves the most students within the General Education Biology Program. The ability to offer multiple lab sections during prime class time would improve scheduling conflicts, prevent long time intervals

between the lecture section and the laboratory section and allow students to schedule other classes or work more efficiently. Increased laboratory space, equipment and supplies for those laboratories, and added faculty would help alleviate this problem. Keeping faculty current in their scientific fields is a joint responsibility between the faculty member and the College and needs to be supported through Professional Development funds and opportunities.

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### Program's Strategic Direction

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It is difficult to predict future trends in college enrollment, most experts foresee a rise in the demand for community college courses. If the College's enrollment increases, so will the demand for the GE Biology courses. Without an increase in the offerings within this program that demand cannot be met. We have recently developed a new General Education Biology course, Human Biology. The Biology faculty believe this course would generate great interest from students, but we are unable to offer it do to current fiscal constraints.

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### Program's Staff Development

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Instructors need to attend symposia held by professional organizations in a variety of sub-disciplines to remain current with emerging trends in the field. Also, faculty had the opportunity to attend the National Association of Biology Teachers conference in the fall of 2011. This organization's charge is to "empower educators to provide the best possible biology and life science education to all students". The annual conference provides exposure to various pedagogical practices within the life sciences, allows contact with vendors of scientific equipment and supplies and promotes networking with other biology educators across the country. Faculty also regularly participate in community events that promote the life sciences such as: Sierra Club's nature knowledge workshops, California Native Plant Society activities, Audubon Society outings and local museum science faires.

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### Program Review - Additional Comments

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### Program Review - Executive Summary

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## Program Review - Response to the Executive Summary

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Goal #1 Long term (2-5 years) Corresponds with Institutional  
Goal # 5

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Status: in  
progress

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### Description of Goal

To increase success retention rates in all General Biology courses.

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### Evaluation of Goal

Review statistical data on success and retention rates and SLO data.

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### Objective #1.1

Status: in progress

Consider more frequent testing or adoption of computer tracking program like Mastering Biology which allows measurement of student learning on certain topics before moving on to new material.

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### Existing Resources

Publisher provides student access to website with purchase of textbook.

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### Objective #1.2

Status: in progress

Consider alternative evaluations schemes such as more frequent exams covering fewer topics, as well as both in class and take home assignments.

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### Objective #1.3

Status: in progress

Find ways to more effectively coordinate with part time faculty, particularly in those sections where the lecture and laboratory instructor are different. This goal will be measured by collection of SLO data on a semester by semester basis.

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Goal #2	Long term (2-5 years)	Corresponds with Institutional	Status: in
Goal # 10			progress

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### Description of Goal

Maintain and modify laboratory facilities for use of modern technology and to increase efficiency and effectiveness.

Maintain, replace, repair and update laboratory equipment in current use. Cataloging of equipment and facility needs by Faculty and Instructional Laboratory Technician.

### Evaluation of Goal

Annual review of equipment repair and recognition of future needs.

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### Objective #2.1

Status: in progress

Maintain, replace, repair and update laboratory equipment.

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### Resources from Other Sources

#### **Resources from Division Budget**

**Required for How Long:** Ongoing

**Requested:** \$10,000.00

**Received:** \$0.00

**Reason for the difference between the amounts:**

Fiscal climate provides no additional funds at this time for equipment repair, replacement or purchase.

#### **Resources from unknown**

**Required for How Long:** Ongoing

**Requested:** \$10,000.00

**Received:** \$0.00

**Reason for the difference between the amounts:**

State fiscal matters prevent any increase in funds for maintenance, repair and updating of laboratory materials.

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### Resources Needed: Additional Personnel

#### **Position Classification: Classified**

Required for How Long: Ongoing

Position Title: Instructional Laboratory Technician

Basic Position/Job Description:

lab tech

Estimated Salary Excluding Benefits: \$50,000.00

Supporting Rationale: Identify the basic need. Include specifically how your Program Review, Strategic Plan, Master Plan, Accreditation or other external review processes support this position. For permanent positions indicate what percentage you are recommending, i.e. this is a permanent position in Weekend College for 37.5%.

lab support

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### Resources Needed: Additional Technology

#### **Technology Classification: Non-computer Equipment (e.g., copier, etc.)**

**Requested Amount:** \$10,000.00

**Description:**

Equipment to support newly developed genetics and biotechnology classes that may be incorporated into the newly approved biology degree.

**Reason:**

conduct laboratory experiments in emerging biotechnology

**Location:** science building

**New or Replacement:** New Installation

**Services Required:** Electricity, Internet Access, College Network Access, Software Support, Hardware Support

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Goal #3 Long term (2-5 years) Corresponds with Institutional

Status: in

Goal # 10

progress

### Description of Goal

To offer additional laboratory sections at the same time. Obtain adequate materials for use in laboratories. This includes the addition of materials so that duplicate labs may be offered during peak demand times and to fit within times when administrative staff are on campus (particularly relevant for the Saturday courses).

### Evaluation of Goal

Ongoing analysis of scheduling patterns and enrollment numbers.

### Objective #3.1

Status: in progress

Obtain adequate materials for use in laboratories. This includes the addition of materials so that duplicate labs may be offered during peak demand times and to fit within times when administrative staff are on campus (particularly the Saturday courses). This will require funding provided by the college. The time line will based upon availability of funds.

### Resources Needed: Additional Budget

**Requested Item:** duplicate course materials

**Required for How Long:** 1 time

**Requested Amount:** \$1,000.00

**Description:**

Slides, posters and other lab equipment as needed to supplicate material currently used so concurrent sections can be offered.

### Supporting Rationale

To accomodate classroom scheduling and have to ability to offer concurrent lab sections on Saturday.

**Requested Item:** duplicated lab materials

**Required for How Long:** 1 time

**Requested Amount:** \$1,000.00

**Description:**

Duplication of lab materials which would allow running of concurrent lab sections.

### Supporting Rationale

Would allow more efficient scheduling.

**Requested Item:** lab materials

**Required for How Long:** 1 time

**Requested Amount:** \$10,000.00

**Description:**

Laboratory equipment

**Supporting Rationale**

Additional laboratory equipment will allow for increased offerings of labs during peak times and within college operational times (especially Saturday)

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## Appendix A

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## Individuals Who Participated in Developing this Plan

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The following people acknowledge that they participated in the development of or reviewed this plan.

<b>Name</b>	<b>Role</b>
1. Cummings, Fran	Review Manager
2. Spencer, Shelly	Participant
3. Ribaya, Jay	Participant
4. Koos, Karen	Participant
5. Keller, Terry	Participant
6. Katnik, Steve	Participant
7. Bethel, Robert	Participant