

Program/Discipline: Biol/EnvSc

Annual Program Review Update

Biology and Environmental Sciences

Annual Program Review Update

***Be sure to include information from all three campuses.**

Program/Discipline: Biol/ EnvSci

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Dean / V. P.: Rachel Anderson

Validation Date: _____

1. Program/Discipline Changes

Has there been any change in the status of your program or area since your last Annual Update? (Have you shifted departments? Have new degrees or certificates been created by your program? Have activities in other programs impacted your area or program? For example, a new nursing program could cause greater demand for life-science courses.)

Note: curricular changes should be addressed under **12 (Curriculum)**.

No (go to next question)

Yes (describe the changes below):

Biology:

Students are matriculating with clear awareness of new Associate's degrees in Liberal Arts: Science and Liberal Arts: Science Exploration. We must continue to work to clarify for students which degree is appropriate for life science majors and which is for students only generally interested in science with no intent to transfer and major in science. Advertising the Science Transfer Prep program and its faculty advising component are critical in this regard, as is staying in close contact with Counseling, and these combined efforts ensure that students who intend to transfer are steered early on into appropriate math, chemistry, physics and biology courses.

Increased nationwide interest in nursing careers continues to increase demand for pre-nursing life science courses. We have added sections of pre-nursing classes each semester, these sections are filling, and it appears that we have not yet reached saturation in this regard.

The biggest status change in our program concerns the way in which general enrollment increase, increased student demand for life science courses, and requests by the Administration to grow enrollment as much as possible all impact our budget and stockroom

staff. We have been successful in adding sections and filling them, not just in pre-nursing courses, but in all our courses. Biology courses are lab intensive and this is justified in terms of student learning. Scientific concepts are better grasped when applied, visualized and used as the basis for manipulative exercises. This means that our supply budgets are high, and our stockroom staff spend a great deal of their daily time base preparing for one lab and breaking down another. These daily tasks are in addition to ongoing responsibilities that include significant chemical and specimen inventory, equipment and specimen maintenance, and general equipment troubleshooting. We have reached a breaking point: our resources have not increase; our FTES and number of sections have increased, and we have run out of creative ways to operate more efficiently and more leanly. We cannot continue to add sections and students without a concomitant increase in 1) operating budget and 2) stockroom classified staff and 3) federal workstudy student allocation. This will be a recurring theme of this Annual Update.

Environmental Science:

The Environmental Science courses continue to be popular for nonmajors as well as students preparing for careers in environmental-related fields.

2. Program/Discipline Trends

Review and analyze the Enrollment data (Table 2.01) provided by Institutional Research and answer the following questions:

Table 2.01 Enrollments

Number of students enrolled at census date

For the purposes of these charts here, course sections have been broken down by class start time. The definitions for each start time are as follows:

- Early Morning Before 10:00AM
- Prime Time From 10:00AM to 2:30PM
- Late Afternoon From 2:30PM to 5:30PM*/6:00PM
- Evening 5:30PM*/6:00PM and later
- Weekend Saturday or Sunday classes
- TBA No scheduled start time

* Evening is defined differently for semesters prior to Fall 2009

Each classification was weighted according to the following schedule:

- Weekend
- Evening
- Late Afternoon
- Early Morning
- Prime Time

If a section had start times that fell into more than one category, it would be placed in the higher weighted category. For example, if a section met on a Saturday and started at 10:30AM, it would be considered a Weekend section.

		2005 - 2006							2006 - 2007							2007 - 2008							2008 - 2009						
		Early Morning	Prime Time	Late Afternoon	Evening	Weekend	TBA	Total	Early Morning	Prime Time	Late Afternoon	Evening	Weekend	TBA	Total	Early Morning	Prime Time	Late Afternoon	Evening	TBA	Total	Early Morning	Prime Time	Late Afternoon	Evening	Weekend	TBA	Total	
Biology	Fill Rate	82%	87%	96%	74%	75%	40%	83%	75%	83%	71%	79%	67%	25%	76%	68%	79%	90%	88%	30%	77%	84%	83%	85%	77%	68%	100%	82%	
	Enrollment	546	187	162	107	54	8	1,064	525	257	68	93	16	5	964	466	172	345	105	6	1,094	412	273	327	161	71	9	1,253	
	Sections	28	9	7	6	3	4	57	28	12	4	5	1	4	54	28	9	16	5	4	62	21	14	16	9	4	3	67	
	FTES	130.72	43.4	38.77	23.12	5.49	1.23	242.72	122.72	55.98	21.09	18.01	0.41	0.51	218.73	110.42	36.65	85.43	22.63	1.13	256.27	103.66	61.34	83.78	43.3	1.92	0.82	294.81	
	WSCH	3,006	936	792	540	117	324	5,715	2,952	1,242	540	420	14	324	5,492	2,844	900	1,782	504	378	6,408	2,412	1,512	1,872	1,116	59	162	7,133	
Environmental Science	Fill Rate	63%	74%					70%	73%	68%		33%			66%		69%	51%	50%		64%	71%	74%	72%	37%			70%	
	Enrollment	114	187					301	35	166		10			211		249	61	12		322	91	191	46	11			339	
	Sections	5	7					12	1	7		1			9		10	3	1		14	5	9	2	1			17	
	FTES	17.26	26.36					43.61	4.43	24.18		1.16			29.77		33.39	7.87	3.51		44.77	14.42	26.95	7.84	1.58			50.8	
	WSCH	342	450					792	54	468		54			576		648	198	90		936	378	558	144	54			1,134	

a. Describe how changes in the discipline or area are impacting the data shown in the table above.

Biology:

Total fill rates have stayed roughly the same. Total enrollment, number of sections, and FTES have increased relative to previous years. There may have been a slight decrease in FTES during early morning and primetime slots, and there is an apparent increase in late afternoon time slots. Percentages at off-peak times are roughly the same and this is largely due to the difficulty of our adding sections at times when we do not have stockroom staff support.

Environmental Science:

Total fill rates, enrollment, number of sections, and FTES are higher this year than previous years but there is no clear trend. Percentage of enrollment for classes offered at off-peak times has increased as we have experimented with different times. Several of our environmental science courses are lecture only and this makes them more amenable to a wider variety of scheduling options (and classroom sites) than biology classes.

b. Describe how changes outside the discipline or area are impacting the data shown in the table above.

Biology:

There has been general statewide growth in enrollment which is reflected in the data above. Also, increasing desire for nursing careers impacts enrollment in pre-nursing courses because there are many local students who wish to matriculate at HSU's and CR's nursing programs. Fill rates of the pre-nursing courses are consistently highest among all of our offerings.

Environmental Science:

Students nation-wide are increasingly interested in environmental issues and possible careers in environmental studies. An increased number of sections have been offered to satisfy this demand.

Review and analyze the Enrollment data (Table 2.02) provided by Institutional Research and answer the following questions:

2.02 Course Success Rates

Percentage of students enrolled at census receiving a grade of A, B, C, or Credit

5.1 b

		2004 - 2005		2005 - 2006		2006 - 2007		2007 - 2008		2008 - 2009	
		Success	Total Enrolled	Success	Total Enrolled	Success	Total Enrolled	Success	Total Enrolled	Success	Total Enrolled
Biology	BIOL-1	73%	393	68%	391	75%	327	71%	402	71%	547
	BIOL-10	86%	138	70%	145	78%	171	69%	216		
	BIOL-120E	94%	16	79%	14					80%	20
	BIOL-120H					100%	16				
	BIOL-120K	58%	26							87%	23
	BIOL-120M	82%	22	94%	17					90%	21
	BIOL-15	61%	79	76%	58	85%	33	72%	54	82%	33
	BIOL-16							63%	19	44%	9
	BIOL-17	62%	13			57%	23	74%	34		
	BIOL-18									83%	12
	BIOL-19	64%	11							73%	22
	BIOL-2	89%	153	96%	132	83%	127	84%	98	89%	193
	BIOL-20	63%	38	74%	68			58%	52	72%	50
	BIOL-21	53%	17					53%	15		
	BIOL-22			75%	12						
	BIOL-24			86%	7			63%	8		
	BIOL-25			59%	17			75%	4		
	BIOL-27	75%	12			100%	8			56%	9
	BIOL-3	90%	10	85%	13	71%	14	85%	13	88%	16
	BIOL-35	96%	23			91%	11				
	Biology	BIOL-4	88%	33	76%	34	78%	18	71%	28	54%
BIOL-40		100%	9	89%	9	100%	5	100%	6	67%	9
BIOL-5		62%	37	79%	24	78%	27	90%	21	87%	39
BIOL-6		75%	167	85%	110	82%	119	64%	127	69%	121
BIOL-7		95%	153	91%	148	88%	133	90%	124	84%	185
BIOL-8		73%	33			89%	37	100%	25	77%	13
BIOL-9		89%	9								
BIOL-99		52%	21								
BIOL-99B										90%	10
Total		78%	1413	78%	1199	80%	1069	73%	1246	77%	1367
Environmental Science	ENVSC-10	76%	87	64%	85	83%	63	65%	85	67%	122
	ENVSC-11	69%	223	71%	169	68%	56	75%	160	67%	162
	ENVSC-12	68%	74	66%	80	68%	85	70%	63	76%	58
	ENVSC-15			67%	24	52%	25	53%	58	70%	57
	ENVSC-22					69%	16				
Total	70%	384	68%	358	70%	245	68%	366	69%	399	
Total	76%	1797	75%	1557	78%	1314	72%	1612	75%	1766	

a. Describe how changes in the discipline or area are impacting the data shown in the table above.

Biology:

There are no statistically significant differences in total student success over the years analyzed, despite the increases in enrollment. Specific courses with lowest student success (below 70%) in 2008/2009 were Biol 4, Biol 6, Biol 16, Biol 27, and Biol 40. Possible reasons for this vary among the different courses. Biol 4 and 6 are especially rigorous courses for majors and pre-nurses, respectively, and both had sections at the Eureka campus taught by new instructors, and these sections had especially low success rates. Also, low grades in these courses negatively impact students achieving their goals so many students prefer to withdraw than receive a poor grade. Biol 40 is an independent study course with a final paper requirement. A couple of incompletes were given in 2008/2009 to students who turned project papers in late and these incompletes have not yet been removed from student records, affecting these data.

Environmental Science:

There are no statistically significant differences in total student success over the years analyzed.

b. Describe how changes outside the discipline or area are impacting the data shown in the table above.

Biology:

An increasing number of students are trying to enter the nursing field, which increases the number of academically unprepared or inexperienced students. This affects both retention and success in the pre-nursing courses.

Environmental Science:

Our environmental science classes are very popular general education courses, and an increasing number of students are interested in environmental issues. However, many are not aware of the genuine scientific rigor that is a necessary component of the environmental science field.

Review and analyze the Enrollment data (Table 2.03) provided by Institutional Research and answer the following questions:

Table 2.03 Course Retention Rate

Percentage of students enrolled at census receiving a grade other than W (Withdraw)

5.1 b

		2004 - 2005		2005 - 2006		2006 - 2007		2007 - 2008		2008 - 2009	
		Retained	Total Enrolled	Retained	Total Enrolled	Retained	Total Enrolled	Retained	Total Enrolled	Retained	Total Enrolled
Biology	BIOL-1	87%	393	84%	391	87%	327	87%	402	91%	547
	BIOL-10	96%	138	89%	145	91%	171	88%	216		
	BIOL-120	100%	16	100%	14					90%	20
	BIOL-120					100%	16				
	BIOL-120	77%	26							100%	23
	BIOL-120	100%	22	100%	17					100%	21
	BIOL-15	78%	79	86%	58	94%	33	89%	54	100%	33
	BIOL-16							95%	19	89%	9
	BIOL-17	77%	13			96%	23	97%	34		
	BIOL-18									92%	12
	BIOL-19	100%	11							95%	22
	BIOL-2	93%	153	98%	132	92%	127	88%	98	94%	193
	BIOL-20	89%	38	85%	68			83%	52	96%	50
	BIOL-21	71%	17					87%	15		
	BIOL-22			83%	12						
	BIOL-24			86%	7			88%	8		
	BIOL-25			76%	17			100%	4		
	BIOL-27	83%	12			100%	8			89%	9
	BIOL-3	90%	10	85%	13	71%	14	92%	13	100%	16
Biology	BIOL-35	100%	23			91%	11				
	BIOL-4	97%	33	91%	34	94%	18	82%	28	94%	35
	BIOL-40	100%	9	89%	9	100%	5	100%	6	100%	9
	BIOL-5	86%	37	92%	24	89%	27	95%	21	92%	39
	BIOL-6	87%	167	91%	110	91%	119	76%	127	78%	121
	BIOL-7	98%	153	93%	148	92%	133	94%	124	91%	185
	BIOL-8	94%	33			89%	37	100%	25	92%	13
	BIOL-9	89%	9								
	BIOL-99	100%	21								
	BIOL-99B									90%	10
	Total	90%	1413	89%	1199	90%	1069	88%	1246	91%	1367
Environmental Science	ENVSC-1	91%	87	85%	85	92%	63	80%	85	82%	122
	ENVSC-1	88%	223	85%	169	88%	56	89%	160	86%	162
	ENVSC-1	91%	74	84%	80	80%	85	94%	63	86%	58
	ENVSC-1			75%	24	80%	25	88%	58	84%	57
	ENVSC-2					94%	16				
	Total	89%	384	84%	358	86%	245	87%	366	84%	399
Total		90%	1797	88%	1557	89%	1314	88%	1612	90%	1766

a. Describe how changes in the discipline or area are impacting the data shown in the table above.

Biology:

Retention is extremely high (approximately 90% or higher) in all Biology courses except for Biol 6. This is probably the most rigorous course we offer, and many students only realize the degree of commitment expected of them after the first set of exams. Biol 6 letter grades are factored into ranking formulas for nursing school applicants, and because of this, there is a larger than average number of later drops in this course.

Environmental Science:

Retention is typically high in our Environmental Science courses (approximately 86%) but there are no obvious trends.

b. Describe how changes outside the discipline or area are impacting the data shown in the table above.

Biology:

Nationwide and statewide increase in desire for nursing careers, coupled with a poor economy in which many people are being laid off and medical fields continue to be good bets for employment drives many students into the pre-nursing courses. Biol 6 has no prerequisite (unlike Biol 2 and 7, also part of the pre-nursing curriculum but with a Biol 1 prerequisite) and so this unusually rigorous class is often one that untradition or underprepared students take first.

Review and analyze the Enrollment data (Table 2.04) provided by Institutional Research and answer the following questions:

Table 2.04 English and Mathematics Basic Skills Data for Course Success (F2005-F2008)

	PASSED 1A		ENGL-1A		ENGL-150		ENGL-350		READ-360		UNKNOWN	
	Success	Enrolled	Success	Enrolled	Success	Enrolled	Success	Enrolled	Success	Enrolled	Success	Enrolled
BIOL-1	79%	390	69%	304	55%	209	64%	25	38%	8	69%	268
BIOL-120E	100%	2	100%	3	100%	1	100%	1			57%	7
BIOL-120H	100%	1	100%	1							100%	14
BIOL-120M	100%	1	100%	1			100%	1			93%	14
BIOL-15	90%	61	88%	32	50%	18	100%	1			55%	33
BIOL-16	100%	4	33%	3							52%	21
BIOL-17	64%	11	63%	8	33%	6					75%	32
BIOL-2	92%	130	82%	95	64%	14	67%	3			91%	138
BIOL-20	84%	62	52%	27	50%	18					59%	34
BIOL-21	100%	1	67%	3							45%	11
BIOL-22	0%	1	100%	1							80%	10
BIOL-24	100%	3	50%	2	40%	5					100%	5
BIOL-25	75%	8	60%	5	0%	1					57%	7
BIOL-27	100%	5	67%	3	0%	2					86%	7
BIOL-3	79%	19	83%	6							80%	15
BIOL-35	83%	6	100%	2	100%	2					100%	1
BIOL-4	82%	34	60%	15	44%	9	50%	2			79%	39
BIOL-40	100%	10	83%	6							100%	8
BIOL-5	93%	28	86%	14	43%	7					78%	23
BIOL-6	76%	174	79%	84	59%	27	33%	3			77%	140
BIOL-7	89%	174	92%	97	82%	17	100%	1			90%	131
Total	83%	1125	76%	712	55%	336	65%	37	38%	8	77%	958
ENVSC-10	79%	119	65%	86	43%	40	67%	3	100%	1	75%	59
ENVSC-11	87%	170	63%	109	56%	84	73%	11	50%	2	64%	95
ENVSC-12	79%	62	68%	63	56%	48	44%	9			70%	46
ENVSC-15	68%	37	55%	33	46%	24	50%	6	0%	1	61%	36
ENVSC-22	100%	3	50%	6	100%	1					67%	6
Total	82%	391	64%	297	52%	197	59%	29	50%	4	67%	242

5.1 b

	TRANSFER-LVL		MATH-120		MATH-380		MATH-375		MATH-371		UNKNOWN	
	Success	Enrolled	Success	Enrolled	Success	Enrolled	Success	Enrolled	Success	Enrolled	Success	Enrolled
BIOL-1	82%	406	70%	185	62%	189	50%	108	52%	29	67%	287
BIOL-120E			100%	3	100%	1	100%	2	100%	1	57%	7
BIOL-120H	100%	2			100%	1					100%	13
BIOL-120M	100%	1	100%	2					100%	1	92%	13
BIOL-15	92%	50	95%	22	63%	16	64%	14	67%	3	58%	40
BIOL-16	100%	2	100%	1	100%	1	50%	2			50%	22
BIOL-17	67%	12	67%	3	50%	4	50%	4	100%	1	70%	33
BIOL-2	90%	111	88%	82	78%	50	82%	11	100%	2	90%	124
BIOL-20	84%	43	69%	16	60%	20	42%	19	40%	5	68%	38
BIOL-21	100%	2							100%	1	42%	12
BIOL-22			0%	1							82%	11
BIOL-24	80%	5	100%	2	50%	2	67%	3			67%	3
BIOL-25	83%	6	67%	3	67%	3	100%	1			38%	8
BIOL-27	100%	4	100%	2	33%	3	0%	1			86%	7
BIOL-3	80%	20	100%	1	100%	1					78%	18
BIOL-35	67%	3	100%	3	100%	3	100%	1	100%	1		
BIOL-4	79%	47	92%	13	43%	7	60%	5	0%	1	69%	26
BIOL-40	100%	13	75%	4	100%	1	100%	2			100%	4
BIOL-5	90%	29	75%	12	71%	7	0%	1			83%	23
BIOL-6	85%	156	70%	87	70%	40	47%	15	100%	3	72%	127
BIOL-7	90%	142	88%	91	89%	45	86%	14	50%	4	92%	124
Total	85%	1054	78%	533	68%	394	56%	203	60%	52	75%	940
ENVSC-10	78%	103	74%	50	64%	59	50%	28	67%	6	66%	62
ENVSC-11	84%	136	76%	86	64%	76	56%	45	42%	12	66%	116
ENVSC-12	79%	53	76%	45	61%	44	58%	31	75%	8	60%	47
ENVSC-15	64%	39	65%	23	65%	23	15%	13	100%	5	50%	34
ENVSC-22	100%	3	50%	2	50%	2	0%	1			75%	8
Total	79%	334	74%	206	64%	204	50%	118	65%	31	63%	267

Given the data, what patterns can be identified in the success rate in individual courses based on the students' skill level? Identify any important changes since the last review.

Biologv:

Both math and english level correlate strongly with success in Biology courses. This is not surprising since college biology texts are written at a high level, and math is a fundamental concept in science.

Environmental Science:

The trends for correlation between math and english background and success are similar in Environmental Science, though interestingly, the correlation between english level and success is even stronger than it is for Biology. This likely reflects the more conceptual and less quantitative nature of our ES 11 course, Environmental Ethics

How has the discipline/program responded to these patterns and how will the discipline/program respond in the next three years?

The patterns shown that students with transfer level math and English 1A do better in both Biology, it is possible that these data reflect not math and english competency but simply their experience as students. Students who have already taken several college classes may have better time management and study skills and be more likely to succeed. These would be interesting data to see.

Biology:

Regardless of the above caveat, the correlations between math and science are to be expected and as we revise curriculum we need to assess appropriate prerequisites on a course by course basis.

Environmental Science:

Although the Environmental Science courses do not have prerequisites for either English or Math, it is clear that skill level in both areas are tied to student success rates. In particular, ES 10 and 11 both require extensive analytical writing skills in order to achieve success.

3. Labor Market Review (for occupational programs)

Occupational programs must review their labor market data.

Provide a narrative that addresses the following issues

- a. Documentation of lab market demand

- b. Non-duplication of other training programs in the region.
- c. Effectiveness as measured by the employment and completion success of its students.

N/A

4. Budget Resources

List your area's budget for the following categories in the table below. Restricted funds have a sponsor/grantor/donor (federal, state, local government, etc). The funds are restricted by the sponsor/grantor/donor. Everything else is unrestricted.

Category	Unrestricted Funds	Restricted Funds
Supply and printing budget	EKA \$7751.00 (life science supplies) \$9240.00(printing for all Science except agriculture)	
Equipment replacement and repair budget	0.0	
Professional Development	0.0	
Work-study funding	EKA \$1541.00 (for all science)	EKA Federal Work Study \$10,500
Additional Budget Items	EKA \$3700.00 (service contract for autoclave)	

Is the funding for these areas adequate? Yes No

If not, describe the impact of unaddressed needs on your discipline or program.

Eureka Campus:

We have been seriously underfunded for several years now. Comparisons of 00/01 and 08/09 make this abundantly clear. 00/01 supply allocations were \$12,000; 08/09 supply allocations were \$7600.00. These data suggest a 30% decrease in FTES and yet our FTES (and headcount, and number of sections, etc.) are at an all time high. We are serving more students with less money, and while

we should be commended for our efficiency and commitment, we have reached a point where the quality of instruction is being denigrated and its demise is accelerating. We are not replacing broken items, maintaining existing items, or keeping up with methods and technologies in biology teaching. Basic equipment like balances, pH meters, and hot water baths are in too short a supply due to accumulated theft and breakage to allow all lab groups their own equipment, or even run two labs at one time that use the same equipment. We have four lab rooms and often have simultaneous classes in all four. Yet one lab has no microscopes, one lab has archaic microscopes, and all compound microscopes save for 12 (enough for half a class) are monocular, which seriously increases student eye strain and ability to grasp microscopic studies. Every week a few more microscopes go out of service due to routine wear-and-tear issues, and there is no budget for repair or replacement. Our cell and molecular biology class has no polymerase chain reaction (PCR) machine (a standard piece of equipment for any DNA studies); our microbiology lab has no sterile culture hood nor proper incubators, using instead, refurbished refrigerators. Finally, we have a natural history teaching collection that is far superior to HSU's and heavily used by Biol 1, 4, 15, 20 and many area schools and environmental education organizations, but no funds for the routine maintenance of this collection. These are just a few examples of the many ways in which we are growing beyond our ability to provide a quality educational experience to our students.

The following annual budget would allow us to offer the maximum number of sections to our students, and provide a top quality two-year Biology and Environmental Science education. We've broken the supply budget down course by course and section by section to clarify the effect of adding sections to high-demand courses.

ROUTINE OPERATING SUPPLIES:

New Equipment/Slides		\$400
Glassware		\$250
Stockroom Chemicals		\$250
Stockroom Supplies		\$2,000
Curation Chemicals		\$300
Bio 1 – General Biology - 20 Sections/year	\$50 per section	\$500
Bio 2 – Microbiology - 5 Sections/year	\$575 per section	\$2,875
Bio 3 – Cell Biology - 2 Sections/year	\$400 per section	\$800
Bio 4 – Zoology - 3 Sections/year	\$200 per section	\$600
Bio 5 – Botany - 3 Sections/year	\$100 per section	\$300
Bio 6 – Anatomy - Four Sections/year	Cadavers every four years	\$3250
	Preservative Solutions	\$250

	55-gallon Drums for disposal of cadaver juice		\$100
Bio 7 – Physiology - 5 Sections/year		\$75/section	\$375
Bio 8 – Human Biology - 3 Sections/year		\$100/section	\$300
Bio 15 – Marine Biology		\$150/section	\$150
Bio 17 – Wildflowers, Trees, Shrubs		\$50/section	\$50
Bio 18 – Natural History of North Coast Animals		\$50/section	\$50
Bio 20 – Natural History		\$100/section	\$100
Ag 23 - Intro. Plant Science – 4 sections/year		\$50/section	\$200
	ROUTINE OPERATING SUPPLY SUB-TOTAL = \$9850 (excluding cadaver purchase)		
MAINTENANCE AND REPAIR:			
Autoclave and Deionizer Service Contracts			\$5,500/ year
Microscope Service /Repair	25 scopes/year		\$1,500/ year
Equipment Service/Repair			\$300/ year
	MAINTENANCE AND REPAIR SUBTOTAL = \$7, 300/ year		
Work Study	20 hours/week @ 15 weeks/term @ 9.58/hour	2.5 terms/year	\$7,200/ year
	GRAND TOTAL for ANNUAL OPERATING EXPENSES = \$24,350 plus \$3250 if cadaver purchased that year		
NECESSARY CAPITAL IMPROVEMENTS:			
Water Bath			\$2,000
Fume Hood			\$3,500
Secondary Containment for all chemicals and preserved specimens			\$1,500
New Balances (installed and locked down in each lab)			\$2,500
Incubator			\$8,000
Replacement of Stolen Items:			\$300
	CAPITAL IMPROVEMENTS SUBTOTAL= \$17,800		

5. Learning Resource Center Resources

Is the level of resources provided by the Library (Learning Resource Center) adequate?

Yes No If No, Complete the following:

Library Needs Not Covered by Current Library Holdings¹ Needed by the Unit over and above what is currently provided.
These needs will be communicated to the Library

List Library Needs for Academic Year 09/10

Please list/summarize the needs of your unit on your campus below. Please be as specific and as brief as possible. Place items on list in order (rank) or importance.

1. Experienced Life Science Tutors

Reason: Despite the fact that there are many biology and environmental science students on campus, there is only one tutor with any expertise in this area and he is assigned to DSPS.

2. Subscriptions to Primary Literature (Online or Print)

Reason: The resource and journal materials are inadequate for meaningful research activities for many Biol and EnvSc courses. There are numerous journals focused on the specific disciplines of ecology, organismal biology, molecular biology, and environmental philosophy that would be beneficial to students in EnvSc courses and Biol courses, as well as faculty teaching these courses

3. Better Research Databases for Primary Literature

Reason: Faculty are handicapped in teaching students online research techniques because most of the online databases owned by the library are inappropriate for research into primary scientific literature.

4.

Reason:

5.

Reason:

¹ If your SLO assessment results make clear that particular resources are needed to more effectively serve students please be sure to note that in the "reason" section of this form.

<p>6. <u>Reason:</u></p>

6. Faculty

Table 6.01 – Faculty Load Distribution by semester

		2005 - 2006		2006 - 2007		2007 - 2008		2008 - 2009	
		FTEF	% of Total	FTEF	% of Total	FTEF	% of Total	FTEF	% of Total
Biology	Associate Faculty	1	12%	2	34%	2	35%	3	38%
	Large class Overload	0.11	10%	0.10	11%	0.05	5%	0.04	2%
	Regular Staff/Non-Overld	5.18	78%	4.27	54%	4.56	60%	5.00	60%
Total		6.05	100%	6	100%	6.83	100%	8.04	100%
Environmental Science	Associate Faculty	0.7	47%	0.53	50%	0.53	32%	0.67	36%
	Regular Staff/Non-Overld	0.57	53%	0.37	50%	0.97	68%	0.87	64%
	Total	1.27	100%	0.9	100%	1.5	100%	1.53	100%

a. Describe the status of any approved, but unfilled **full-time** positions.

Biology:
No approved full time positions.

- b. If you are requesting a **Full-Time Faculty** position, fill out the current faculty position request form and attach it to this document.

c. If your **Associate Faculty** needs are not being met, describe your efforts to recruit Associate faculty and/or describe barriers or limitations that prevent retaining or recruiting Associate Faculty

Biology:
We made a concerted effort last year to recruit new Associate Faculty and have built a pool of committed and talented faculty who are each able to teach a variety of classes. We still are unable to fill the gap left by Mr. Ralph Reiner's retirement but fortunately he has stayed on to teach as an Associate himself for the time being.

Environmental Science:

We have been trying to recruit new Environmental Science Associates to teach these popular classes. We had a "bad-fit" instructor last year who is no longer with us but are buoyed by the apparent talent and commitment of a new recruit.

7. Staff Resources

Complete the Classified Staff Employment Grid below (please list full- and part-time staff). This does not include faculty, managers, or administration positions. If a staff position is shared with other areas/disciplines, estimate the fraction of their workload dedicated to your area. (To add additional rows to this table, press **Tab** when the cursor is in the far right-hand cell)

Staff Employed in the Program				
Assignment (e.g., Math, English)	Full-time (classified) staff (give number)	Part-time staff (give number)	Gains over Prior Year	Losses over Prior Year (give reason: retirement, reassignment, health, etc.)
EKA Biol	1		no change	no change
EKA Biol/ Chem	1 @ .25 in Biol		no change	no change
MSE	1 (shared by entire Division)		no change	no change

Do you need more full-time of part-time classified staff? Yes No

If yes, fill out the current staff request form (**to be provided by Administrative Services**)

8. Facilities, and Classroom Technology

Are teaching facilities adequate for achieving the educational outcomes of this discipline/program? Yes No

If No was checked, complete a Facility Form for each instructional space that does not meet the needs of this discipline/program. Additional facilities forms are available at the end of this document for each separate facility being addressed.

Facilities, and Classroom Technology Form
Program/Disciplines: Biol/ Env Sci Submitted by: K. Reiss
Year: 2009/ 2010

List classroom or instructional space name/number: LS 102			
Check if any of the following are not adequate:			
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Ventilation / room temp	ADA access	Number of seats / work stations	Technology (computers, projectors, internet)
<input type="checkbox"/> Other (briefly describe):			
Describe the specific action and cost to make this space adequate for your instructional needs: This classroom needs a new LCD projector. The old one started smoking last spring and was deemed irreparable. The current one in use is a loaned table top model. Cost approximately \$1500. The only ADA accomodation is a chair at a table at the front of the room. It is very difficult for a student using that space to see the entire board and the screen. Also, it isolates the student away from the rest of the class. Students need proper front-facing desks with wheelchair accessibility. Unable to estimate cost.			
List the average number of discipline/program sections scheduled in this room each semester, and the total number of students enrolled in these sections.			
Sections: 15 sections for 8 courses		Students: 360-500	

Describe how these changes will improve student learning outcomes: Faculty need to have multimedia presentation capabilities to utilize all available teaching resources and serve all student learning styles.

9. Equipment

Is the available equipment (other than classroom specific equipment described in the facilities section) adequate to achieve the educational outcomes of your program/discipline? Yes No

If No was checked, complete an equipment form.

If No was checked, complete the following grid for each piece of equipment being requested for this area/discipline:

(To add additional rows to this table, press **Tab** when the cursor is in the far right-hand cell)

Equipment	Price, include tax and shipping	Number of students using equipment each semester	Describe how the equipment allows achievement of program/discipline educational outcomes
Olympus binocular microscopes	24 X \$500 = \$12,000	100 (all students taking classes in LS112)	Students need to see microscopic material to learn biology; these would fill our 4th lab room with scopes, ease scheduling constraints, and prevent microscope breakage when carted from room to room.
Water bath	\$2000	275 (Biol 1, 2 and 3 students predominantly)	A basic piece of equipment; not very portable, necessary for many biological experiments; we only have one which must be carted from room to room
Fume hood	\$3500	>1000 (all)	Stockroom staff have no high

			quality hood within the LS building for preparation of volatile reagents
Incubator	\$8,000	50 (Biol 2 students predominantly)	Microbiological cultures typically take several days to grow; refrigerator and incubator space is in short supply
Balances (installed and locked down in each lab)	\$2500	>1000 (all)	Every laboratory should have its own locked balance to enable use in all classes at all times
2 Refrigerators	\$800	50 (Biol 2 students predominantly)	Microbiological cultures can be stored after incubation; we currently do not have enough room in our refrigerators for all student cultures.
Video microscope with digital camera attachment and image capture software	\$6000	75 (Biol 2 and 3 students predominantly)	We have two of these systems in the zoology/ anatomy and botany labs. We need one in the microbiology/ cell biology lab so that students can capture images of the slides they make for their own lab reports and presentations, and for the instructor to project microscopic materials for student viewing.

Equipment Repair

5.1 b

Does the equipment used for your discipline/program function adequately, and does your current budget adequately provide adequate funds for equipment repair and maintenance? *This does not include classroom specific equipment repair described in the facilities section.* Yes No

If No, provide the following information to justify a budget allotment request:
 (To add additional rows to this table, press **Tab** when the cursor is in the far right-hand cell)

Equipment requiring repair	Repair Cost / Annual maintenance cost	Number of students using equipment each semester	Describe how the equipment allows achievement of program/discipline educational outcomes
Autoclave Service Contract	\$5500	>1000 (all, but especially Biol 2)	An autoclave is necessary to sterilize all glassware and kill pathogenic microbiological cultures between uses. Our autoclave is in constant use.
Microscope Service /Repair 25 scopes/year	\$1500	>1000 (all)	Microscopy is an essential part of the biology skill set and learning experience; the condition of our microscope affects image quality which directly impedes student learning.
Miscl. Equipment Service/Repair	\$300	>1000 (all)	Broken equipment can't be used, and if it is, gives spurious results and/or is downright dangerous.

10. Learning Outcomes Assessment Update
Program and Course Learning Outcomes

Refer to the assessment analysis forms that track discipline meetings held to summarize and discuss SLO assessment. Use that information to complete the following table for each SLO and/or PLO analyzed during the previous academic year. Additional tables are available at the end of this document to summarize the results for each SLO and/or PLO analyzed.

	<p>Course SLO Measured: BIOL 1Apply the scientific method to critically evaluate observable phenomenony: <u>Or</u> PLO Measured :</p>																														
<p>Describe assessment tool/ assignments faculty/staff used to measure the SLO or PLO.</p>	<p>Rubric: 1 point- Describe the scientific method process (observation, question, hypothesis, experiment, conclusion) 1 point- Experiment should include control group and replications 1 point- Apply the scientific method to this specific example 1point- Question regarding god is untestable and therefore beyond the realm of scientifically observable phenomena:</p>																														
<p>Summarize the overall results of your department, including performance data if applicable.</p>	<p>Data for the 2008-2009 academic year compiled for 9 sections of Biology 1 are as follows (total = 203 students assessed):</p> <table border="0"> <tr> <td>Score</td> <td>Percentage of Students</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>0</td> <td>19%;</td> <td>1</td> <td>26%;</td> <td>2</td> <td>23%;</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>3</td> <td>21%;</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td>4</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td>11%</td> </tr> </table> <p>More than half the students (55%) were able to understand that the question is based upon solving the problem using the scientific method. Although more than half of the students grasped the concept of the scientific method to solve the problem, many had difficulties in designing an appropriate experiment. Only 11% were able to not only identify the steps but also design an appropriate experiment for this example including both replications and control group. Out of the total, 19% of the students did not understand that the question required them to invoke the scientific method. It is unclear if this was a simple misunderstanding of the question or reflected their inability to grasp the concept.</p>	Score	Percentage of Students					0	19%;	1	26%;	2	23%;					3	21%;						4						11%
Score	Percentage of Students																														
0	19%;	1	26%;	2	23%;																										
				3	21%;																										
					4																										
					11%																										

<p>How will your department address the needs and issues that were revealed by your assessment?</p>	<p>State goals or objectives of assignment/activity more explicitly. Employ different/ revised teaching methods.</p> <p>A large proportion of students (19%) did not understand the question and simply attempted to answer based on their own experiences. It is unclear whether these students should be included in the assessment since they may not have understood the intent of the question. Additionally, this question was only asked at the beginning of the semester (1st lecture exam) with no follow up question at the end of the semester. This will be remedied by posing a similar type of question on the final exam to see how well students have improved in their ability to achieve this student learning outcome. The question regarding the limitations of science involved the idea that seeing god is untestable and therefore beyond the realm of science. In order to avoid offending some students that may see this as a challenge to their faith, an alternate question will be posed based on a less contentious metaphysical phenomenon.</p>
<p>List the TOP 3 TO 6 actions/changes faculty judge will <u>most</u> improve student learning</p>	
<p>Provide a timeline for implementation of your top priorities.</p>	

	<p>Course SLO Measured: BIOL 2 Apply the scientific method to critically evaluate observable phenomena.</p> <p style="text-align: center;"><u>Or</u> PLO Measured :</p>
<p>Describe assessment tool/ assignments faculty/staff used to measure the SLO or PLO.</p>	<p>Essay question on an exam. The question asked students to design a way to scientifically test for the source of a disease outbreak. Students were specifically directed to use all steps of the scientific method in their answers.</p>

<p>Summarize the overall results of your department, including performance data if applicable.</p>	<p>All students understood that a hypothesis and testing of that hypothesis were required steps. Approximately 75% of the students provided a clear explanation of all of the steps required. Around 10% of the students provided only perfunctory answers such as "Make an educated guess about the cause and test your hypothesis" without providing any information as to how that testing could be done. The remaining 15% who did not get all the steps correct typically left out the concept of needing the results to be repeatable.</p>
<p>How will your department address the needs and issues that were revealed by your assessment?</p>	<p>Students grasp scientific concepts best when given ample opportunities to discuss them and apply them. Group work and one-on-one tutoring are advantageous. In class concept testing can be useful, as can group homework assignments. We would like to have professional tutors available through the LRC, but given the current financial climate that doesn't seem likely. We are discussing the possibility of a Tutoring Biology independent study course for more advanced students, and setting up a peer tutoring network within the discipline.</p>
<p>List the TOP 3 TO 6 actions/changes faculty judge will <u>most</u> improve student learning</p>	<p>1) Ensure that students enter the class academically prepared to do college level reading and writing. 2) Facilitate outside-of-class learning experiences including peer tutoring.</p>
<p>Provide a timeline for implementation of your top priorities.</p>	<p>Trial peer tutoring program planned for Spring 2010.</p>

Indicate where learning outcome assessment forms (Course-Discipline, Course-Section) are archived (e.g, Division Office, Dean’s Office). This is required to provide accreditation documentation of the District’s assessment activities.

We have not yet collated all of our Discipline assessment activity but will do so by the Novemeber 13 deadline. Currently, each faculty is responsible for the assessment materials for their own courses.

11. Curriculum Update

Identify curricular revisions and innovations undertaken

a. in the last year.

Biol 8 was revised to include an increased number of units and modified content to maintain its CSU/ UC transferability and satisfy the needs of the LVN program which is eliminating LVN 114 from their degree program and instead adding Biol 8. Biol 18 was revised to reduce overlap with Biol 20 and better serve the interests in students looking for enrichment in the life sciences. Many many other courses were updated and revised to bring our all of our biology course outlines into compliance.

b. planned for the coming year.

Biol 3, 4 and 5 are due for revision. We are committed to developing lecture only general education Biol classes to give students more flexibility in satisfying their degree requirements (currently all Biol classes have an associated lab). Planned offerings include a GE Biology of Dinosaurs course and a GE Stem Cell Biology and Regenerative Medicine course. We are also developing a multi-faculty interdisciplinary Ecology of Place course to be offered summers and/or winter and spring breaks.

c. Complete the grid below. The course outline status report can be located at:

http://www.redwoods.edu/District/IR/Reports/Curriculum/Curriculum_Course_Outlines.htm

(To add additional rows to this table, press **Tab** when the cursor is in the far right-hand cell)

Course	Year Course Outline Last Updated	Year Next Update Expected
Biol 1	2008	2012
Biol 2	2008	2012
Biol 3	2005	this year
Biol 4	2005	this year
Biol 5	2005	this year
Biol 6	2007	2011
Biol 7	2007	2011
Biol 8	2009	2013
Biol 9	2008	2012
Biol 15	2007	2011

5.1 b

Biol 16	2007	2011
Biol 18	2008	2012
Biol 19	2007	2011
Biol 20	2007	2011
Biol 21	2007	2011
Biol 22	2007	2011
Biol 23	2007	2011
Biol 24	2007	2011
Biol 25	2007	2011
Biol 26	2007	2011
Biol 27	2007	2011
Biol 88A	2006	2010
Biol 99A	2009	2013
Biol 99B	2009	2013
Biol 99C	2009	2013
EnvSci 10	2009	2013
EnvSci 11	2007	2011
EnvSci 15	1989	overdue!!
EnvSci 22	1988	overdue!!

If the proposed course outlines updates from last year’s annual update (or comprehensive review) were not completed, please explain why.

The only two courses that are overdue are Environmental Science courses that are typically taught by Associate faculty. We will need to work colegendly to remedy the situation this year or inactivate the courses.

12. Action Plans

List any action plans submitted since your last annual update. Describe the status of the plans. If they were approved, describe how they have improved your area.

No action plans were submitted.

13. Goals and Plans. Address either item a. or b. in the section below

a. If you have undergone a comprehensive review, attach your Quality Improvement Plan (QIP) and address progress made on the plan and list any new plans that have been developed (using a new QIP form).

QIP Attached

b. If you do not have a QIP, refer to the goals and plans from your previous annual update.

For each goal and/or plan, comment on the current status of reaching that goal and/or completing the plan.

Biology:

From the 2008/2009 Annual Update:

Our goals for the coming year are:

- 1) to complete the assessment cycle and begin implementing the necessary adjustments to our courses and/or course outlines to achieve our objectives;
- 2) to start, with science colleagues, defining program-level outcomes and assessment for the new LA: Science and LA: Science Exploration degree pathways;
- 3) to start incorporating biotechnology labs into our curriculum, taking advantage of recently acquired DNA-analysis equipment and reagents (thanks to a 2007/2008 Block Grant);
- 4) to take steps to increase FTES by adding a new full time faculty member, and new classroom equipment and technologies.

With regards to these goals, progress is as follows:

- 1) We have completed the first round of assessment by focusing on one SLO in each course. In some cases this have led to interesting discussions among colleagues regarding both defintion of reasonable outcomes and assessment strategies, reaffirming the value of the SLO/ assessment paradigm. (Linked to Strategic Plan Goal #3.)
- 2) Through collegial consultation and discussion we generated a set of PLOs for both the LA: Science and the LA: Science Exploration degree pathways. We also began the process of creating a Science Advisory Committee by drafting a letter of invitation to local faculty, K-12 educators, and scientific professionals. (Linked to Strategic Plan Goal #3.)
- 3) We have been stymied on this front due to two unfortunate circumstances. First, the PCR machine did not materialize due to a purchasing snafu related to turnover in our stockroom manager position, and by the time we realized this the funds were "gone" because of fiscal year closure. Second, Dr. Diqui LaPenta's sabbatical request to study biotechnology, stem cell biology and regenerative medicine at HSU, and develop a GE lecture and online course in Stem Cell Biology and Regenrative Medicine was denied. This professional development opportunity for Dr. LaPenta was critical to attaining our goal to modernize our molecular and cell biology curriculum. (Linked to Strategic Plan Goals # 1 and #2.)
- 4) We have been unsuccessful in our attempt to fill the position vacated by Mr. Reiner. We have requested this position every year since he retired, have received widespread capus support for its approval, and yet it has not been approved in part because of the overwhelming number of vacant positions across our large district. (Linked to Strategic Plan Goals # 1 and #2.)

Environmental Science:

The 2008/ 2009 Annual Update put forth the main objective of updating and revising all curriculum, and starting to develop more field offerings in Evironmental Science. We have addressed the first of these and are still in progress on the second. (Linked to Strategic Plan Goal # 1 and #3.)

List any new goals and plans your area has for the coming year, and indicate how they are aligned with the goals/objectives in CR's Strategic Plan. (CR's strategic plan is located on the web at <http://inside.redwoods.edu/StrategicPlanning/strategicplan.asp>).

Biology:

Our goals this year are not surprisingly tied to our goals from last year. In particular:

- 1) We want to continue to assess our course student learning outcomes in a meaningful way. This leads to valuable dialog among faculty, but also points out ways in which our curriculum may need modification. As we update courses on schedule for revision we will be scrutinizing our SLOs and the prerequisites for our courses. (Linked to Strategic Plan Goal # 3.)
- 2) Now that we have identified program-level student learning outcomes we need to have discussions on how to start assessing these, and hope to report progress in this area in next year's Program review. Also, we need to assemble the Science Advisory Committee to provide a wider perspective on the quality and relevance of our program. (Linked to Strategic Plan Goal #3.)
- 3) Dr. LaPenta intends to apply again for her sabbatical leave at HSU. It is a high priority for our department to do everything we can to assure her success, and our student's learning will be impacted if she is not successful. Molecular and cell biology is one of the most rapidly advancing disciplines in the life sciences, biotechnology continues to be an area with a tremendous amount of job opportunity at technician and professional levels, and biotechnology and medical advances continue to permeate the political arena and yet the public is often relatively ignorant of the science behind the issues. CR has a very real opportunity to help educate citizens, train a technical workforce, and give potential medical researchers and professionals the foundation they need to succeed after transfer to a four year institution. Meeting these lofty goals require a faculty with current training, and time to develop and implement appropriate curriculum. (Linked to Strategic Plan Goals # 1 and #2.)
- 4) We will apply, once again, for a full time faculty position that replaces Mr. Reiner and will serve as a primary instructor in the pre-nursing courses (sole responsibility for Biol 7 and 8, and shared responsibility for Biol 2 and 6) and as a liaison between the biology and nursing programs. (Linked to Strategic Plan Goals # 1 and #2)

Environmental Science:

Our main goal this year for Environmental Science is to reinvigorate discussions that started and abated 5 years ago...discussions regarding the benefits of creating Environmental Studies degree and certificate programs. A trained workforce is always in high demand in both the private sector and government agencies. Also, Environmental Studies is an increasingly popular major that is fundamentally interdisciplinary, and as such, distinct from allied life science fields. We already have some of the lower division required courses for the typical major (i.e., EnvSc 10 and 11) but would like to create a focus group to investigate whether moving in this direction would be prudent for our discipline and for the college. (Linked to Strategic Plan Goals # 1)

Additional Forms

Facilities and Classroom Technology Form

List classroom or instructional space name/number: EKA LS 112			
Check if any of the following are not adequate:			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Ventilation / room temp	ADA access	Number of seats / work stations	Technology (computers, projectors, internet)
<input type="checkbox"/> Other (briefly describe):			
Describe the specific action and cost to make this space adequate for your instructional needs: The thermostat needs to be adjusted to cool down the room. The mulitmedia system needs a splitter to allow the computer monitor and LCD projector to be viewed simultaneously.			
List the average number of discipline/program sections scheduled in this room each semester, and the total number of students enrolled in these sections.			
Sections: 10		Students: 240	
Describe how these changes will improve student learning outcomes: Hot students can't think; opening the windows all winter causes moth and fungal contamination of specimens housed in that room. Instructors can't view computer input on the monitor and projector simultaneously which is inconvenient and creates difficulties when trying to shut down the quipment (if you shut the projector off you can't see what the computer is doing, and vice versa).			

Facilities and Classroom Technology Form

List classroom or instructional space name/number: EKA LS108			
Check if any of the following are not adequate:			
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Ventilation / room temp	ADA access	Number of seats / work stations	Technology (computers, projectors, internet)
<input type="checkbox"/> Other (briefly describe):			
Describe the specific action and cost to make this space adequate for your instructional needs: Purchase and installation of videomicroscope and Motix image capture software.			
List the average number of discipline/program sections scheduled in this room each semester, and the total number of students enrolled in these sections.			
Sections: 3		Students: 75	
Describe how these changes will improve student learning outcomes: Videomicroscope systems enable the instructor to choose high quality, relevant and living microscopic examples and images to demonstrate to the students, and also allow students to capture images from their own cultures to use for discussion, presentation, and lab reports.			

Facilities and Classroom Technology Form

List classroom or instructional space name/number: CRMC 120			
Check if any of the following are not adequate:			
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Ventilation / room temp	ADA access	Number of seats / work stations	Technology (computers, projectors, internet)
<input type="checkbox"/> Other (briefly describe): The room requires safety and lab upgrades. These include an eye-wash station, new chairs, soap dispenser, and towel rack There is not enough space to run a lab if there is anyone with a wheelchair in the class . Currently in the Ag 63 and Ag63L class there is a student in a wheelchair. Access is crowded and unsafe. The room was supposed to be upgraded during the last bond election because of ADA, health , safety issues but it was put off . This room is also used by half of the biology classes on campus some more inforamtion about hthis room is under CRMC room 122 as they share a number of problems.			
Describe the specific action and cost to make this space adequate for your instructional needs:			
Eyewash fountain	1		\$ 242.00 (installation not included)
Ergonomically correct student chairs 24	(\$ 69.05 ea)		\$2,485.80
-must be durable, and with resistant surfaces for laboratory conditions.			
Expanding the size of the room by moving the west wall back.This cost was supposed to be borne by measure Q funds. It never happened. Cost unknown.			
List the average number of discipline/program sections scheduled in this room each semester, and the total number of students enrolled in these sections.			
Sections: 7		Students: 100	
Describe how these changes will improve student learning outcomes:			

Facilities and Classroom Technology Form

List classroom or instructional space name/number: **CRMC 122**

Check if any of the following are not adequate:

<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Ventilation / room temp	ADA access	Number of seats / work stations	Technology (computers, projectors, internet)

Other (briefly describe): The room requires safety and lab upgrades. These include new chairs, soap dispenser, and towel rack. There is not enough space to run a lab if there is anyone with a wheelchair in the class. Using chemicals, bunsen burners and other lab equipment is hazardous. Access is crowded and unsafe. The room was supposed to be upgraded during the last bond election because of ADA, health, safety issues but it was put off. This room is used by half of the biology classes on campus including biology, chemistry and marine studies.

Problems encountered include:

1. Science classroom 120 is not wheelchair accessible. Benches are too close together to allow safe egress for all students.
2. Science classroom 122 bench heights are too low for today's wheelchair access standards.
3. Ventilation in science classrooms is not adequate when occupancy is approaching the maximum capacity. Room 122 is especially bad with no cross ventilation. This means the level of formaldehyde fumes becomes intolerable when students are dissecting. With the door propped open, the fumes enter the main hallway and affects the rest of the buildings air quality
4. Science prep room has no fume hood.
5. Technician's office ventilation is inadequate and there is no source of natural lighting
6. Fume hoods need to have new exhaust fans in room 122. The fans are aging and subsequent certification lowers the sash settings to maintain adequate air flow. The lowering of the sash reduces the working space. On one of the hoods the low sash height prohibits the safe transfer of liquids in anything taller than a 100 ml graduated cylinder.
7. The floor in room 122 is cracked down the center of the room. The gap at the widest point, in an aisle way, is wide enough to be a trip hazard. Since the heating system is in the floor, this may soon lead to system failure.
8. The greenhouse area is not secure. There are no locked storage areas for equipment and supplies. Theft and vandalism has been a problem.
9. Both science classrooms (rooms 120 and 122) are too small to allow safe laboratory procedures. Room 122 has 24 seats and room 120 has 22 seats. When the classrooms are at maximum capacity there is not enough desk top space for experiments (hot plates, glassware, microscopes and student notebooks)
10. Both science classrooms (rooms 120 and 122) lack enough side bench area to put demonstration items and source chemical and

<p>glassware for laboratory exercises.</p>	
<p>Describe the specific action and cost to make this space adequate for your instructional needs: Ergonomically correct student chairs 24 (\$ 69.05 ea) \$2,485.80 -must be durable, and with resistant surfaces for laboratory conditions</p> <p>Expanding the size of the room by moving the west wall back. This cost was supposed to be borne by measure Q funds. It never happened. Cost unknown.</p>	
<p>List the average number of discipline/program sections scheduled in this room each semester, and the total number of students enrolled in these sections.</p>	
<p>Sections: 7</p>	<p>Students: 100</p>
<p>Describe how these changes will improve student learning outcomes:</p>	

Program and Course Learning Outcomes

	<p>Course SLO Measured: Biol 4 Recognize animal life, identify animals to major taxon on sight, and be able to use resources such as field guides and dichotomous keys to identify animals more specifically</p> <p style="text-align: center;"><u>Or</u> PLO Measured :</p>
Describe assessment tool/ assignments faculty/staff used to measure the SLO or PLO.	Average grade of 70% or higher on specimen-based practical exams
Summarize the overall results of your department, including performance data if applicable.	<p>-3 semesters of data from 3 practical exams per semester, n=24 students per section</p> <p>-mean score = 74%</p> <p>-Little variation year to year, no trend of improving performance as semester progresses and students gain experience</p>
How will your department address the needs and issues that were revealed by your assessment?	<p>Students are attaining the benchmark performance we hoped for, but could conceivably do even better. In particular, students don't seem to easily grasp how to study for practical exams. Active learning strategies are critical for practical skills and students need to have these demonstrated for them. Peer tutoring can be very advantageous here since students who have been through similar courses understand better the level of detail required, and how to study for good recall in a practical testing situation. We are discussing the possibility of a Tutoring Biology independent study course for more advanced students, and setting up a peer tutoring network within the discipline.</p>
List the TOP 3 TO 6 actions/changes faculty judge will <u>most</u> improve student learning	1) Facilitate outside of class learning experiences including peer tutoring.
Provide a timeline for implementation of your top priorities.	Trial peer tutoring program planned for Spring 2010.

Program and Course Learning Outcomes

	<p>Course SLO Measured: Biol 6 Identify and classify the major tissue types, organs and organ systems in the human body, microscopically and on cadavers</p> <p style="text-align: center;"><u>Or</u> PLO Measured :</p>
<p>Describe assessment tool/ assignments faculty/staff used to measure the SLO or PLO.</p>	<p>Average grade of 70% or higher on specimen-based practical exams</p>
<p>Summarize the overall results of your department, including performance data if applicable.</p>	<p>-3 semesters of data from 4 practical exams per semester, n = 40 students -Mean score = 81% one year; 72 % the other two years -Definite trend towards higher scores as semester progresses and students gain experience</p>
<p>How will your department address the needs and issues that were revealed by your assessment?</p>	<p>Students are attaining the benchmark performance we hoped for, but could conceivably do even better. In particular, students don't seem to easily grasp how to study for practical exams. Active learning strategies are critical for practical skills and students need to have these demonstrated for them. Peer tutoring can be very advantageous here since students who have been through similar courses understand better the level of detail required, and how to study for good recall in a practical testing situation. We are discussing the possibility of a Tutoring Biology independent study course for more advanced students, and setting up a peer tutoring network within the discipline. Instructor experience may also be an important factor. The two semesters with lower performance were semesters in which a new instructor was responsible for the laboratory component of the course. We anticipate an increase in student success with increasing experience of these instructors.</p>
<p>List the TOP 3 TO 6 actions/changes faculty judge will <u>most</u> improve student learning</p>	<p>1) Facilitate outside of class learning experiences including peer tutoring.</p>

<p>Provide a timeline for implementation of your top priorities.</p>	<p>Trial peer tutoring program planned for Spring 2010.</p>
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Program and Course Learning Outcomes

	<p>Course SLO Measured: EnvSc 10 Apply ecological principles to the analysis of current environmental problems.</p> <p style="text-align: center;"><u>Or</u> PLO Measured :</p>
<p>Describe assessment tool/ assignments faculty/staff used to measure the SLO or PLO.</p>	<p>Question on exam: Draw and label the components found in an ecosystem. Include structural and process components in your diagram.</p> <p>Criteria for Assessment: 6 Points- Identify biotic and abiotic structural components of an ecosystem; for full credit student must list six parts (water, nutrients, energy source, decomposers, primary producers, and consumers) 3 Point- Identify energy flow (one-way) and biogeochemical (cyclical between major reservoirs, i.e., hydrosphere, atmosphere, lithosphere, and biosphere) processes 1 Point - Include a diagram illustrating the above components and their interactions</p>
<p>Summarize the overall results of your department, including performance data if applicable.</p>	<p>This SLO will be assessed for the first time this year.</p>
<p>How will your department address the needs and issues that were revealed by your assessment?</p>	

<p>List the TOP 3 TO 6 actions/changes faculty judge will <u>most</u> improve student learning</p>	
<p>Provide a timeline for implementation of your top priorities.</p>	

Program and Course Learning Outcomes

	<p>Course SLO Measured:</p> <p style="text-align: center;"><u>Or</u> PLO Measured :</p>
<p>Describe assessment tool/ assignments faculty/staff used to measure the SLO or PLO.</p>	
<p>Summarize the overall results of your department, including performance data if applicable.</p>	
<p>How will your department address the needs and issues that were revealed by your assessment?</p>	
<p>List the TOP 3 TO 6 actions/changes faculty judge will <u>most</u> improve student learning</p>	
<p>Provide a timeline for implementation of your top priorities.</p>	