Basic Program Information

Department Name: Biology Department

Division Name: Biological and Health Sciences

Program Mission(s):

1. Prepare students for a successful career in the biological sciences, including students planning to transfer to a four-year school.
2. Prepare students to be savvy consumers of scientific information, and provide a general education in the life sciences.
3. Provide students with the background knowledge and critical thinking skills required to understand important issues such as environmental science, climate change, evolution, genetics, disease prevention and basic nutrition.
4. Support programs in allied health by providing an education in biological principles including anatomy, physiology, microbiology, nutrition and pharmacology.

Please list all Program Review team members who participated in this Program Review:

Name	Department	Position
Hilary Benton	Biology	Part-time faculty
Roseann Berg	Biology	Part-time faculty
Laura Branagan	Biology	Part-time faculty
Guido Bordignon	Biology	Part-time faculty
Sara Cooper	Biology	Faculty (full-time)
Kathleen Duncan	Biology	Faculty (full-time)
Amy Edwards	Biology	Faculty (full-time)
Karen Erickson	Biology	Faculty (full-time)
Carolyn Holcroft	Biology	Faculty (full-time)
Anna Le	Biology	Part-time faculty
Joanne Lopez	Biology	Faculty (full-time)
Martin Melia	Biology	Faculty (full-time)
Dadbeh Roukbashch	Biology	Part-time faculty
Lisa Schultheis	Biology	Faculty (full-time)
Gillian Schultz	Biology	Faculty (full-time)

Please include the following information about your program:

Total number of Full Time Faculty:	9
Total number of Part Time Faculty:	22
Total number of Classified Professionals:	1.4

Please list all existing Classified positions:
Lab Technician, FT; supports all aspects of department

Lab Technician, PT (40%); supports classes in 5100 (primarily supports microbiology; to a lesser extent supports Bio 40A, and Bio 1C labs)

List all Programs* covered by this review & check the appropriate column for program type:

Program Name	Certificate of Achievement Program	Associate Degree Program	Pathway Program
Biology		XXXX	

*If you have a supporting program or pathway in your area for which you will be making resource requests, please analyze it within this program review (i.e. Integrated Reading and Writing, Math My Way, etc.) You will only need to address those data elements that apply.

Section 1: Data and Trend Analysis

Please complete the appropriate data elements.

A) Instructional Program Data:

Data will be posted on http://foothill.edu/staff/irs/programplans/programreviewdata.php

You must manually copy data in the boxes below for every degree or certificate of achievement covered by this program review.

Certificate and Degree Programs	2011-2012	2012-2013	2013-2014	% Change
A.S. Biological Sciences	15	5	**9**	**80%**

	2011-2012	2012-2013	2013-2014	% Change
Enrollment	4584	4407	4469	1.4%
Productivity (College Goal 2014-15: 535)	650	608	589	-3.2%

Using the data entered for your program above, briefly comment (1-3 paragraphs) on changes in students or staff served, enrollment and/or productivity for your program in the last year.

What changes have been made or are planned as a result of your analysis of the data? (for example, new curriculum, new pre-requisites, a focus on student retention, changes in teaching approaches informed by SLO Assessments, changes in when classes are scheduled, better use of technology, etc.)

While our overall enrollment went up slightly (1.4%), our productivity decreased slightly. This can be explained by the additional offerings in Microbiology (Biology 41) and Anatomy and Physiology (Biology 40 series) of courses as single sections (meaning one lecture with one lab section). We offered these single sections in response to increased demand from waitlists and to try to increase the diversity of times we offer Microbiology. If demand grows, our productivity can be increased by adding second lab sections to an existing lecture with one lab.

Even though we've had a slight productivity decrease, we are still above the college target of 535. Our productivity of 589 is 110% of the college target.

Section 2: Student Equity

The college is committed to student equity, defined by the Student Equity Workgroup as fostering similar outcomes for all students. One targeted area for improvement in this year's Student Equity plan is to increase the course completion rates for African American, Latino, and Pacific Islander students over the next three years by 3 percentage points.

Please describe how you see members of your program contributing to this goal.

The targeted groups succeed in biology courses at a rate that is similar to their success rates for the overall college. We are aware of the need to further identify and mitigate the disproportionate impact they face in our classes. The biology faculty (both full time and part time) have been active participants in the equity initiative. Many of us have attended professional development events related to equity over the last year, in an effort to learn more about strategies we can use in our classes.

Please review the equity data available to you on the students served in your program and their outcomes by ethnicity (including, for instructional programs, course success rates by ethnicity). If differences exist, what efforts have members of your program undertaken or discussed to address them? If your program has undertaken any initiatives or interventions as a result of these efforts or discussions, please share what you have learned as a result of these initiatives.

Overall, targeted groups have shown a slight upward trend in success in biology courses over the last three years, while success in the non-targeted groups has remained steady. Because the gains are so small, these should not be considered statistically significant, but rather only as an indicator of a potential trend in increased success. Roughly two-thirds (69%) of our students are in non-targeted groups and 1/3 (31%) are in targeted groups. Our current standing in regards to the college-wide initiative to 'increase the course completion rates for African American, Latino, and Pacific Islander students over the next three years by 3 percentage points' are described below.

For targeted groups:

- African American students are showing higher gains in success in biology courses (average of 65%) relative to the overall college (average of 61%) over the last three years.

- Pacific Islander students are showing higher gains in success in biology courses (average of 71%) relative to the overall college (average of 64%) over the last three years.

- Filipino students had the same success rate in biology courses (average of 73%) relative to the overall college (average of 73%) over the last three years.

- Latino/Latina students showed a slightly lower success rate in biology courses (average of 68%) relative to the overall college (average of 70%) over the last three years.

For non-targeted groups:
Success rates for some non-targeted groups (Asian and White) were 80% and above in biology and at the college level.

As a department, we are looking to the college for more professional development opportunities in equity training.

In striving to increase the success rates of both the targeted and non-targeted groups, we have been discussing different ways that we can get students to know and access the support resources available to them at the college including (but not limited to) the PSME center, the Teaching and Learning Center, and the Health and Psychological services. We are brainstorming ideas of how to implement an early alert system **and** intervention, as it is not enough to not just identify those students but to also help them take steps in using those resources. Other possible strategies we are considering are (1) building cohorts within the allied health preparation courses (2)embedding tutors in some pathway courses (e.g. Biology 40 A for the Anatomy and Physiology series and Biology 1A for the Biology majors) and (3) physically taking students to the PSME center.

Section 3: Outcomes Assessment Summary

A) Attach 2013-2014 Course-Level (for Instructional Programs Only) – Four Column Report for CL-SLO Assessment from TracDat, please contact the Office of Instruction to assist you with this step if needed.

B) Attach 2013-2014 Program Level – (for all programs) Four Column Report for PL-SLO Assessment from TracDat, please contact the Office of Instruction to assist you with this step if needed.

Section 4: Assessment and Reflection

Based on your assessment data and reflections, please respond to the following prompts.

A) For instructional programs only, what curricular, pedagogical or other changes have you made as a result of your course level student learning outcomes (CL-SLO) assessments?

In general, both our full-time and part-time faculty continuously engage in professional development opportunities both on campus, regionally and nationally. Some of our activities to improve classroom instruction include participation in Reading Apprenticeship training, CCB Fest(Community College Biology Faculty Enhancement through Scientific Teaching) workshops, as well as student equity and authentic assessment professional development workshops. One challenge that we face as a department is getting full participation from our part-time faculty in creation, assessment and reflection of CL-SLOs. Based upon discussions with our part time faculty, we believe that much of this is related to workload issues and time constraints as they work at multiple institutions. We feel that if they were paid to participate, there would be a greater incentive to actively participate in the process. Part-time participation would further enhance our SLO process as 58% of our classes were taught by part time faculty in 2013-2014. In addition, we have had feedback that the current configuration of TracDat limits part-time involvement as they cannot fully and completely access the database to see the reflections of others for both current and past quarters. We would really like to see TracDat access be opened to all of our part-time faculty.

Specific Changes implemented or suggested (based on the 39 page Unit Course Assessment Report for 2013-2014)

Bio 10: SLO 1: PSME Workshops to help students better understand the scientific method. SLO 2 is being replaced with other SLOs that will explore the concepts of evolution and ecology.

Bio 12: SLO 1: While the target was met, reflection states that PSME workshops could also provide another avenue for practice in genetics problems. SLO 2: Target not met, again PSME Workshops could potentially increase student retention

Bio 13: Not assessed

Bio 14: Target met

Bio 15: not taught in 2013-2014

Bio 17: not taught in 2013-2014

Bio 1A: SLOs 1 and 2 – Target met. SLOs 3 and 4 Targets not met. Faculty are trying new methods in lab that would increase the amount of time spent on the scientific process and

Bio 1B: SLO 1: Target not met, increase time for review in lecture on particular subject area. SLO2: target met.

Bio 1C: SLO 1: different assessment strategies between the two instructors have led to a general discussion about the SLO and the approach to teaching and assessing it. Schultheis will be (hopefully) using part of her PDL project to develop a service learning component for the course to have students directly engage in the ecosystems in active learning/experiential learning activities. SLO 3: while students generally do a good job of demonstrating their understanding of evolutionary relationships, they still lack the resources to accurately identify many of the organisms that they find. As a result, we would request additional books and identification guides to supplement existing materials.

Bio 1D: Target met

Bio 40A: SLO 1 & 2: Results vary by instructor. Example of target not met for SLO 1; The class was not able to meet the target percentage of 80% for both questions. This indicated that more work needs to be in the lab and lecture connecting what is learned about these two systems with the concept of homeostasis. To help students make this connection I would recommend bringing into the lab exercises that address this issue directly. This would require more lab supplies and some new equipment.

Bio 40B: Additional visual aids, including models, slides and videos that could be used to help students understand physiological processes. Some of these should also be purchased for use in the PSME center for tutoring and review sessions.

Bio 40C: Students are able to explain the basics of the processes but unable to put them into a comprehensive picture.

Bio 41: Targets met

Bio 45: Targets met, but instructor notes that students have a hard time reading the data reports necessary to do a thorough analysis. Time and resources to make an instructional video to help them could improve the outcomes.

Bio 54H: Targets met

Bio 58: Targets met

Bio 8: Targets met, though requiring English as a prereq could improve quality of student work.

Bio 9: not assessed.

B) <u>For instructional programs only</u>, how has assessment of program-level student learning outcomes led to certificate/degree program improvements? Have you made any changes to your program based on the findings?

We have found that overall students are meeting the stated goals of the Program level SLOs, however, discussions among the faculty that teach these courses have led to some changes:
In **Biology 1A**, first course in major's series, students are now pairing labs in which they are doing a protocol and then developing a second experiment related to the protocol that they conduct. Emphasizes process of science and provides experience with hypothesis formation and testing, data collection and analysis, producing and interpreting graphs, and critically thinking about results to draw conclusions. Additionally, the group lab project has changed focus to allow students a chance to delve deeper into DNA technology.
In **Bio 1B** – students engage in a multi-week research project with an associated oral presentation and written paper. The approach has been successful so far so we have not made changes.
In **Bio 1C** – to further engage students in process of science and ecological relationships, students are conducting quarter long research projects on plants and animals on campus and submitting data to public databases, which will be used to compare differences in animal behavior and plant life activities between sites (and after a few years) over time. We are also planning to redesign some labs to engage students with ecosystem level processes evident in our region through field experiences and, where applicable, participation in service activities.

<u>For all programs: Instructional, Students Services, Administrative</u>

C) **How do the objectives and outcomes in your area relate to the program-level student learning outcomes and to the college mission?**

Mission Statement: Foothill College offers educational excellence to diverse students seeking transfer, career preparation and enhancement, and basic skills mastery. We are committed to innovation, ongoing improvement, accessibility and serving our community.

BASIC SKILLS: We are not primarily a basic skills department, but we offer many general education courses that do not have English or mathematics prerequisites, so basic skills students can enroll in these and progress toward their degree or certificate goals even while they complete their basic skills coursework. These GE courses also offer opportunities to build skills in reading, writing and basic math and we strive to continually reinforce the importance of these abilities.

TRANSFER: The final version of the Transfer Model Curriculum for Biology has just been released and is due in February. We will develop a TMC-aligned AS-T in biology to meet that deadline.

CAREER PREPARATION: Although not a "traditional" workforce program, the biology department offers many classes (Biol 40 ABC, 41, 45, 58) in support of allied health (AH) programs at Foothill and at other colleges throughout California and the United States. AH support classes in our department represent 61% of enrollment (2,706 enrolled students compared with a total enrollment of 4469 students).

Biol10 is both a GE course and a prerequisite for some of the AH programs. To support students in their pathway to and through these programs, the biology department schedules each AH support class every quarter at a variety of days/times, works with the allied health directors when making any curriculum updates or changes, secure tutors for classes, and communicates with counselors as needed.

D) What do members of your program do to ensure that meaningful dialogue takes place in both shaping and evaluating/assessing your program's student learning outcomes?

We hold department meetings 3-5 times/quarter and faculty within each sub area (GE, Majors and AH preparation) informally meet to discuss course outlines of record and student learning outcomes as necessary. We also spend a significant amount of time every week and often every day discussing teaching and learning with our colleagues. Many of these discussions focus on teaching experiences (both positive and negative) and strategies to improve student success. One of the areas that we feel is lacking is in streamlining the ability of our part time faculty to fully participate in the SLO process, if they so choose. We have identified a significant barrier to this participation: access to TracDat. One of the benefits of Trac Dat is that it has the capacity to house the discussions/reflections of multiple faculty for each SLO each quarter. At this point, our part-time faculty primarily contribute by sending an email submission to a coordinating full time faculty member and that is all they ever hear about it. The ability for them to see the reflections and solutions of others would make the process more meaningful. We think, as a department, that we would like all of our part time faculty to have full access to Trac Dat.

Section 5: Program Goals

Please comment on progress you have made on program goals from prior program reviews.
Check the appropriate status box & provide explanation in the comment box.

Goal/Outcome (This is NOT a resource request)	Related to prior resource request (Y/N)	Status: Completed, In progress or Revised	Comment on Status
1. Program Goal: complete AS-Transfer degree in Biology	No	In progress	This will be completed for the February 2015 deadline to be implemented in the 2015-2016 Academic Year.
2. Program Goal: design capstone course for majors	No	Revised	As the Associate Degree for Transfer may not include such a course, we will no longer be pursuing this goal
3. Program Goal: increase involvement with PSME Division/STEM	Ongoing	In progress	Our students are not using the PSME center as much as they could. We think that changing the name to be more inclusive so that Biology students feel comfortable going there, and possibly having embedded tutors in some key courses could help with this goal.
4. GE Goal: develop Honors course/increase involvement with Honors Program	Ongoing	Revised	As overall enrollment at the college is not growing, we have considered how adding an additional course would impact existing classes; we feel that we should not be developing new courses.
5. General: develop interdisciplinary courses with other departments on campus	No	In progress	We did develop a course with PSME and have yet to offer it. As enrollment is down, we are cautious about offering new classes when we cannot fill existing ones.
6. General: maintain course offerings, scheduling diversity, and quality of instruction	Ongoing	Yes	We have continued to offer a variety of courses with good diversity of times and days available. We also continue to hold ourselves to the highest quality of instruction.
7. General: address faculty teaching workload to allow time to accomplish other important departmental activities	NO	Completed	
8. General: build a community of biology learners	No	In progress	Our faculty attend student equity workshops and actively discuss mechanisms to improve biology teaching.

9. General: develop service learning opportunities for biology students	Ongoing	Yes	Gillian Schultz currently offers students credit/ course projects based upon volunteer activities that include journaling and reflections on their experiences in her classes. Lisa Schultheis has proposed a PDL project that will increase the number of relationships and opportunities with community organizations to develop scalable, more formalized processes for service learning in our courses. Together with faculty from Dental Hygiene, the department has successfully sponsored three years of international service learning through the Foothill College Medical and Dental Global Brigades Club. With the commitment of interested faculty in our department and division, we expect this activity to continue. In 2014, many participating students took advantage of the option to enroll in AHS 55.
11: General: Transform existing pedagogical approach to teaching majors and non-majors classes to a more active learning, project based learning pedagogy, including having students address a hypothesis, gather data and analyze the results to draw proper conclusions. This would work well in the context of the natural features available on and near our campus.	ongoing	yes	We have made significant progress on our goal over the last year, although resources are still needed to reach the full potential of the projects started: 1. Over the last year, M. Melia, L. Schultheis and G. Schultz worked together on the Outdoor Spaces for Classrooms project to identify places on campus suitable for use as outdoor Biology research spaces. Our efforts have subsequently been included in the Campus Master Plan). As part of this project, we have also initiated planning for the evolutionary plant garden that will ultimately be established on the hill in front of the 8400 classrooms. 2. Development of project-based learning opportunities requires funding for equipment and site development as well as for the

			development of course curriculum. Three division faculty (L. Schultheis, and G. Schultz Biology and D. Sauter, Env. Hort) were awarded Campus as a Living Labs grant in collaboration with San Jose State University and De Anza to write modules that highlight environmentally sustainable features of Foothill Campus, including composting, plant adaptations to dry climates and phenology labs. As this project was completed last year, there is not funding to further develop these features (e.g. with educational signage) as well as additional modules for use in classes across the campus. 3. With help from the Environmental Horticulture Department, we have redesigned the Biology pond to be a more "natural" environment that will be more suitable for teaching biology.
12. Increase the number of underrepresented students earning the A.S. degree in biology	No	Ongoing	We should be able to better evaluate the completion rates and data with the institution of the AS-T Biology starting next year. As student equity efforts increase and improve on the campus, we also expect to better be able to address this goal.
13. Increase student success in our courses, particularly for targeted populations.	No	Ongoing	We should be able to evaluate progress on this goal using annual completion data.
14.a. Develop a way to identify students at risk of failing early in the quarter (particularly in majors sequence) and refer them to appropriate resource(s)	No		We have discussed this in department meetings, but as we also have a lot of minutia to cover in those meetings, these topics are often pushed to the end when time is short. We are discussing possible use of the PSME center and embedded tutoring as possible interventions and are also waiting to see what campus-wide proposals/solutions will be brought forward as a result of the 3SP mandate.

14. b. Develop active learning supplemental instruction opportunities over and above traditional "tutoring"	No	Ongoing	Document opportunities developed and subsequently offered through PSME center or other means. We are hoping to hold quarterly biology department summits that would allow us to exchange ideas and experiences with different techniques and their efficacy.
15. Increase the number of online offerings	No	Ongoing	Lisa Schultheis will be developing a Biology 10 (GE General Bio) hybrid option with online lectures and face-to-face labs as part of her PDL.

Please list any new goals for your program you would like to undertake this year. The goals should be linked to the college mission and be driven by data (including student and program learning outcomes reflections).

Goal/Outcome (This is NOT a resource request)	How will this goal improve student success or respond to other key college initiatives?	How will progress toward this goal be measured?
1. Biology faculty Summit	By providing a formal, quarterly opportunity for Biology faculty to meet and discuss active learning and other advances in pedagogy and their specific use in our classrooms.	Brief reports on topics presented and discussed and we can ask for faculty who participate to apply and reflect upon the techniques that they use in their classrooms.
2. Increased participation opportunities in the SLO process and professional development for our part time faculty.	Would increase overall participation in CL-SLO and PL-SLO cycles of assessment and reflection and help our part-time faculty to be better able to participate in professional development to enhance classroom teaching.	We can measure the increase in direct participation of part-time faculty.

Section 6: Program Resources and Support
<u>To be completed only if making a new resource request.</u>
Using the tables below, summarize your program's <u>unfunded</u> resource requests. Refer to the Operations Planning Committee website: http://foothill.edu/president/operations.php for current guiding principles, rubrics and resource allocation information.

Full Time Faculty and/or Staff Positions

Position	Related Goal from Table in section 5 and how this resource request supports this goal.	Was position previously approved in last 3 years? (y/n)
Full time lab tech in	This goal is related to Goal 6	N

5100	in section 5. We have two separate laboratory buildings and our full time lab technician is needed primarily to support classes in the 8700 building. Our 5100 building currently has one part-time staff member who primarily prepares the microbiology lab materials and is unable to provide support to the other biology classes in the 5100 building. Two specific concerns are that we need the additional lab tech to ensure safety and prep assistance while classes are occurring as there is currently no one present during the bulk of lab times.	
More compensated time for our part-time faculty to participate in departmental and college-level activities	This goal is related to goals 6,7 and 11 in section 5. By compensating part-time faculty for participation in departmental meetings and college-level activities, we ensure a more robust teaching and learning environment for our students and increased participation in our cycles of SLO assessment and reflection.	N

Unbudgeted Reassigned Time (calculate by % reassign time x salary/benefits of FT)
Indicate duties covered by requested reassign time:

Responsibility	**Related Goal from Table in section 5 and how this resource request supports this goal.**		**% Time**
Department Chair	<u>All of our goals</u> are aided by the return of funding for our department chair. This position is vital for the continued functioning and growth of the biology department. Without it, we do not have a designated person to	20% time ~ $20,000 to $25,000 (amount would depend on the salary of the particular faculty who serves	

	handle the design of new courses or programs including the AS-T Biology. Also, one of our goals is the increased involvement with other departments on campus. This is something that the Department Chair could help facilitate through meetings with the other STEM departments, but something that individual faculty members do not have time to do. In addition, help with set-up and running of the open lab space that is crucial for other goals would fall on the Department Chair. Without the return of this position, many of our goals are in jeopardy of not being met.	

One Time B Budget Augmentation

Description	$ Amount	Related Goal from Table in section 5 and how this resource request supports this goal.

Ongoing B Budget Augmentation

Description	$ Amount	Related Goal from Table in section 5 and how this resource request supports this goal.
114000141021040100 (Biology)	$20,000/year minimum	<u>Goals 5, 6, 11</u> We need this increase in ongoing funds to support our classes in the department. Loss of purchasing power in recent years has

		impacted our ability to provide students with adequate reagents or to update lab activities that require additional supplies and reagents. Lab materials also suffer from normal wear and tear and occasionally need replacing (e.g. models, slides). We need this augmentation to continue to offer the high level of instruction we currently do to Biology students. Without an increase in our B budget, we will be unable to offer additional sections of existing courses or to develop new courses.

Facilities and Equipment

Facilities/Equipment Description	**$ Amount**	**Related Goal from Table in section 5 and how this resource request supports this goal.**
Microscopes -dissecting (N=16) -compound light (N=33)	$1700-$2500 each (total amount depends on number purchased)	Goal 6 Each laboratory classroom needs a complete set (24-32) of functioning microscopes. We have never had a complete set in all of our classrooms and wish to augment what we do have with newer models. The department realizes the quantity of microscopes requested is great and the likelihood of receiving funding for all at once is slim. Therefore, the department has decided that if lesser sums of money are awarded for microscopes, half will be spent on dissecting and half on compound, buying as many as possible, until the full complement of new scopes is realized. The current status is such that the third course of the majors series (Biology 1C) does not have enough microscopes such that each student can have one and that in some of the GE classes, microscopes literally have to be carried back and forth between classrooms to ensure that there are enough even for sharing of microscopes (1 microscope/2 students).
Outdoor classrooms - Development of several campus locations for use as outdoor classrooms. These areas would include the open area bounded by the lower campus Biology building and the new counseling and records and admissions building	$1,000,000 (looking for foundation or grant funding for this)	Goal 11 Project based learning is a good way to enhance student knowledge of concepts and processes in biology as well as deepen their understanding of the scientific method. It will enhance student retention and success and, if done properly, could lead to greater enrollment as the 'word' gets out among students about how we have a

for an evolutionary plant garden. Other areas include the creek and its adjacent banks running through the lower campus, the drainage creek running in front of the new lower campus buildings, the native plant garden as well as several other locations.		dynamic and interesting approach to teaching biology. In addition, appropriate signage would enhance these resources for use by other groups outside of the biology department including the general public by highlighting the many natural features of the Foothill College campus.

Emergency Lottery Expenditures		
Instructional Material	CLASS	COst
Slides	BIOL 40 A, B & C	$500
Mini Skeletons	BIOL 40 A, B & C	$320 each total is $2560
Diaphragm Model	BIOL 40A	$1070
Dissection Equipment	BIOL 40B & C	$200
Electrodes for physiology kits	BIOL 40B	$200
5 LED lights of different wavelengths	BIOL 40A	$145 each for $725
Flower Dichot Model	BIOL 1B &C	$400
Dry Preserved Swine Lung	BIOL 40B	$38
Miscellaneous Disposable Lab Supplies Pipettes, tubes, petri dishes, sterile media, sterile gloves, lab coats, masks, eppendorf tubes, pipet tips	All	$5000

Section 7: Program Review Summary

Address the concerns or recommendations that were made in prior program review cycles, including any feedback from Dean/VP, Program Review Committee, etc.

Recommendation	**Comments**
1. The biology department needs space for a dedicated learning center on the lower campus that would serve students by offering instructional support curriculum.	While we feel that this would help our students succeed, we recognize that we should also find ways to encourage our students to use the existing resources in the PSME center.
2. There is also a need for a full-time laboratory technician to allow for growth in the number of sections offered.	While we have hired a new full-time instructor, we still need a second full time laboratory technician to ensure safety and support in the 5100 bldg.
3. A department chair would be a valuable asset to the organization and growth of the biology department.	Currently the dean is paying a stipend to a faculty member to carry out the basic scheduling and minimum organizational responsibilities for the department, but a dedicated funding/release time would increase the ability and activities that could

	be carried out by a department chair.
"Inequitable load distribution is a constant topic of discontent (in BIO) with no easy resolution resulting in frustration and fatigue. It is a volatile topic which often hijacks and trumps all other discussions. Because of the amount of time the faculty must spend in classrooms to meet their contract obligations, they are unwilling to volunteer for other campus responsibilities thereby negatively impacting the highly prized vision of "shared governance" at Foothill College." (Dean's comments)	We are very grateful that this has been resolved through the hard work and negotiations between FA and the District. As a result of these load changes, faculty are already spending more time actively participating in professional development and campus wide committees including the following examples: Lisa Schultheis: GRANT for student success equity Carolyn Holcroft: Academic Senate President, Professional Development Committee, Student Equity Workgroup, Martin Melia: coordinating efforts to develop Evolutionary Garden Kathleen Duncan: Student Equity Committee Karen Erickson: FA, co–advisor Medical Brigades; continued involvement with SEPAL (visiting scholar); Kaider Scholarship Committee; Gillian Schultz: Sustainability Committee; Probably the absolute best outcome of the load equity is that we are all also spending more time on the development of activities that enhance teaching and learning in our classrooms. As Karen Erickson so eloquently put it "Quite honestly, I am doing more meaningful work in class (which translates to increased assignments and grading) because I have a little more breathing room in my week."
As the college focuses on equity and enhancing the success of targeted populations, the Biology faculty must develop strategies to enhance the success rates of their African American and Latino/a students. The key will be to identify students who are struggling earlier and have strategies in place that can be quickly implemented. However, as repeatedly stated in this program review, time constraints are a major roadblock to the development and implementation of any innovative strategies by the Biology faculty. (Dean's concerns)	As discussed throughout our program review, we have been working on ideas as to how to improve the success of targeted populations. We think that as a department, trying embedded tutoring in some key courses may help us to increase retention and success. We would like to heave some help to identify the courses with the greatest need from the research office. We also think that opportunities to spend dedicated time discussing teaching and learning with our biology colleagues on a quarterly basis will allow us to better share as a group, strategies and teaching techniques that enhance overall student success.

a. After reviewing the data, what would you like to highlight about your program?

- High quality classes, diverse offerings, excellent preparation for transfer and entry into allied health fields.
- A genuine desire to increase success in targeted groups, but a need and desire to determine the best course(s) of action to do so
- A desire to foster campus community through interdisciplinary courses, honors courses, cooperation with PSME, participation in campus wide sustainability community, and an increased physical connection to our natural outdoor resources.
- Our faculty have tremendous passion and a multitude of ideas for trying new approaches for increasing student success. Here are some of our recent accomplishments:
    - Several of us participated in a quarter-long study conducted by the SEPAL lab at SFSU in which we piloted using non-intrusive sound recording devices to monitor classroom activities and assess the amount of active learning (Lisa Schultheis, Amy Edwards, Kathleen Duncan, Sara Cooper)
    - Karen Erickson completed a sabbatical educational research project entitled "Understanding Student Attitudes Toward Active Learning in their Community College Biology Classrooms" with SEPAL and continues to evaluate the data and outcomes of this pilot project - hoping to expand upon it with faculty in other disciplines and institutions.
    - Gillian Schultz and Roseann Berg completed a 3 unit course on using Reading Apprenticeship in the classroom.
    - Sara Cooper is participating in another research project from SEPAL at SFSU to see how active learning is tied to the shifting student's perceptions of common misconceptions. The project begins during the Winter Quarter.
    - Roseann Berg, Laura Branagan and Nirmal Gosavi completed a course on online teaching.

Section 8: Deans Feedback and Follow Up

This section is for the Dean to provide feedback.

A) Strengths and successes of the program as evidenced by the data and analysis:

The Department of Biology continues to provide excellent instruction for our students interested in degrees in the biological sciences and our Allied Health Career Technical Programs. Their productivity consistently exceeds the college targets with success rates almost identical to the overall college percentages.

B) Areas of concern, if any:

The Biology Department (like every department at the college) struggles with increasing the enrolment in general, and more specifically increasing enrolment of targeted students. Furthermore, the success rates of targeted ethnicities trails behind those of the non-targeted students.

C) Recommendations for improvement:

The program review outlines measures being discussed at the department level for increasing enrolment (development of online GE Biology 10 class) and increasing success of targeted students (embedded tutors, more utilization of the PSME center). Implementation of these ideas are critical to enable the type of impact on our student population that the faculty envision.

D) Recommended next steps:

__X_ Proceed as planned on program review schedule
___ Comprehensive Program Review (Out of cycle) Recommended
___ Remediation Plan Recommended

Upon completion of section 8, the Program Review should be returned to department faculty and staff for review, and then submitted to the Office of Instruction and Institutional Research for public posting. See timeline on Program Review Cover Sheet.

Unit Course Assessment Report - Four Column

Foothill College

Department - Biological Sciences (BIOL)

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Department - Biological Sciences (BIOL) - BIOL 10 - GENERAL BIOLOGY: BASIC PRINCIPLES - SLO 1 - Scientific Process - Explain the scientific method and demonstrate an ability to use this method of study. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** Embedded questions on final and lab quizzes. **Assessment Method Type:** Exam - Course Test/Quiz	07/01/2014 - LAB ASSESSMENT: Group Project - students design, conduct and report on an experiment conducted over 3 weeks of the quarter. Median score = 90% 85% of students scored above 70% LECTURE ASSESSMENT: Exam questions on first midterm - identifying type of variables and analyzing results of an experiment Median score = 70% 64% of students scored above 70% Exam questions on second midterm Median score = 72% 54% of students scored above 70% **Result:** Target Not Met **Year This Assessment Occurred:** 2013-2014 **Resource Request:** Workshops and instruction in the PSME center for students **GE/IL-SLO Reflection:** Consistently students continue to do well when working collaboratively, while individual work is far less successful, suggesting that too many students are not actively participating in the collaborative group work. While there was some improvement over last year, more improvement is needed. Plan: Implement workshops for the PSME center and require students scoring below 80% on lab quizzes to attend workshops and/or work individually with a tutor or the instructor before midterm exams. Some of the design work was completed last year,	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
		but the workshops have yet to be implemented. Changes in teaching schedules should allow development and implementation this year.	
		01/16/2014 - Students answers questions on lab quizzes and lecture exams throughout the quarter. Three questions on the final specifically addressed the scientific method. Over 80% of the students answers all three questions correctly (86%, 92%, 83%). In general students performed well on quiz and exam questions. The assignment where I observed the lowest scores was one where each student had to prepare a table or graph displaying results of a multi-week experiment, and accompany this with a written description of their results. The average score was just 76%. Based on this, I plan to incorporate more graphing and data interpretation into the lab. (Submitted by L. Schultheis) **Result:** Target Met **Year This Assessment Occurred:** 2013-2014	01/16/2014 - Incorporate more graphing and data analysis into the labs. Perhaps devote a lab early in the quarter to the topic of graphing. Work with the PSME center to make graphing workshops available for students.
Department - Biological Sciences (BIOL) - BIOL 10 - GENERAL BIOLOGY: BASIC PRINCIPLES - SLO 2 - Disease Prevention - Describe the risk factors and methods of prevention for cardiovascular disease and cancer. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** List 5 characteristics of cells - first week of quarter. Revise list - end of quarter. **Assessment Method Type:** Essay/Journal **Target for Success:** 85% of the students will show improved use of vocabulary, depth of response in the "after" list when compared with the "before" list.		
	Assessment Method: Embedded questions on final **Assessment Method Type:** Exam - Course Test/Quiz	07/01/2014 - LAB ASSESSMENT: Online nutrition lab - students evaluate foods for complete protein, RDI analysis and disease prevention Students can collaborate and use references;	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
		students may not repeat lab to improve score. Median score = 84%; 83% of students scored above 70% 12% of students did not complete lab. LECTURE ASSESSMENT: Final exam - 21 questions Median % of correct responses for these questions = 88% **Result:** Target Met **Year This Assessment Occurred:** 2013-2014 **Resource Request:** None **GE/IL-SLO Reflection:** Discussion with faculty has led to a change in SLOs instituted this quarter. This slo will no longer be used. It is being replaced with the following: Explain the concept of evolution and the mechanism of natural selection. Recognize the role human behavior plays in environmental problems and solutions.	
Department - Biological Sciences (BIOL) - BIOL 12 - HUMAN GENETICS - SLO 1 - Patterns of Inheritance - Demonstrate an ability to use Mendelian principles to predict genetic inheritance. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** Embedded exam question **Assessment Method Type:** Exam - Course Test/Quiz	07/01/2014 - Results from two multiple choice questions showed that 88% of the students correctly answered questions concerning Gregor Mendel's history and 90% had a thorough understanding of the experimental system and approach used in Mendel's experiments. Results from a set of true false questions showed that 80% of the students had a good understanding of the setup and results from Mendel's crosses. Finally, results from a matching question showed that 88% of the students were able to clearly define each of Mendel's laws of Dominance, Segregation and Independent Assortment. **Result:**	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
		Target Met **Year This Assessment Occurred:** 2013-2014 **Resource Request:** Workshops and instruction in the PSME center for students **GE/IL-SLO Reflection:** Spending time performing example problems in class seemed to help improve students' understanding and I continued, this past quarter, to add in-class time covering example problems. Perhaps including students more directly in solving the in-class problems will keep them more engaged and help in their learning of the material.	
	Assessment Method: homework assignment.	07/01/2014 - For the homework problems, 82% of the students were able to determine the genotypes given phenotypes for three characteristics. 76% were able to determine the probability for a phenotypic outcome given the genotypes of the parents, 82% were able to correctly determine the gametes produced by parents when given genotypes for three separate genes, 85% were able to correctly use the gametes previously determined in a Punnett square to determine the possible phenotypic and genotypic outcomes, 78% were able to determine the genotypes of parents given the parental phenotype and progeny of the cross when following two characteristics. **Result:** Target Met **Year This Assessment Occurred:** 2013-2014 **Resource Request:** Workshops and instruction in the PSME center for students **GE/IL-SLO Reflection:** Spending time in class and in the PSME center working on problems seems to help improve student understanding. Like most	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
		math oriented work, time on task with a little help seems to be the key to success.	
Department - Biological Sciences (BIOL) - BIOL 12 - HUMAN GENETICS - SLO 2 - DNA Fingerprint - Demonstrate an ability to interpret a DNA fingerprint. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** Embedded exam question. **Assessment Method Type:** Exam - Course Test/Quiz	07/01/2014 - Exam problem: Given the genotypes of the parents (showing a drawing of VNTRs for each), students were asked to fill in a “blank autorad” showing what the results would look like (the band pattern). They also needed to indicate that the DNA in the gel had migrated toward the positive electrode (due to its negative charge) The question involved students indicating the gel polarity and drawing in the “bands” depicting the autoradiograph that would result from cutting the example DNA sequences followed by electrophoresis and Southern Blotting. 55% of the students showed that the DNA migrates toward the positive electrode. 29% showed the proper relative location of bands on the gel for each individual. Both of these are worse than the last time I did SLOs for this class and was a disappointing outcome. **Result:** Target Not Met **Year This Assessment Occurred:** 2013-2014 **Resource Request:** Workshops and instruction in the PSME center for students **GE/IL-SLO Reflection:** Although my coverage is quite technical, I would like to keep it the same. This is because I believe that being able to properly interpret biological data requires having a good understanding of how those data were obtained. Students need to do a similar problem on	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
		their own. Just doing an example problem in class is not enough. This is especially true considering that some of the students may have missed that days' lecture. Including a problem in a homework assignment would be helpful. I will likely be adding a DNA Forensics question to the homework, this could be used for the assessment in addition to or instead of the exam question. We need to develop some workshops for the PSME center to assist students in learning this skill.	
Department - Biological Sciences (BIOL) - BIOL 13 - MARINE BIOLOGY - SLO 1 - Evolution - The student can describe the theory of evolution. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** Question embedded in the final exam. **Assessment Method Type:** Exam - Course Test/Quiz		
Department - Biological Sciences (BIOL) - BIOL 13 - MARINE BIOLOGY - SLO 2 - Global/Community Conciousness - The student can make well informed decisions as a consumer based on their understanding of sustainable fishing practices and evaluate how their own behavior affects future fish conservation. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** Question embedded in exam. **Assessment Method Type:** Exam - Course Test/Quiz **Assessment Method:** Five-week survey/experiment about sustainable fishing practices and overfishing. Required to develop a presentation explaining the concepts of overfishing and evaluating their own behavior. **Assessment Method Type:** Class/Lab Project		
Department - Biological Sciences (BIOL) -			

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
BIOL 13 - MARINE BIOLOGY - SLO 3 - Scientific Process - The student can understand how to collect scientific data quantitatively and present those data graphically. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** Question embedded in final lab assignment. **Assessment Method Type:** Class/Lab Project		
	Assessment Method: Students were given five weeks to develop their own survey/experiment about sustainable fishing practices and overfishing. Required to develop a presentation explaining the concepts of overfishing and evaluating their own behavior. **Assessment Method Type:** Class/Lab Project		
Department - Biological Sciences (BIOL) - BIOL 14 - HUMAN BIOLOGY - SLO 1 - Evolution - The student will be able to describe the theory of evolution by natural selection and explain how it unifies all living things at least three different levels of the biological hierarchy. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** Each lecture exam (there are three total) will have questions asking students to related the unity and diversity of life as explained by evolutionary theory at the levels of the biological hierarchy that are relevant to the information covered on that exam. For example: on the first exam, the students are asked to discuss the how all living things are unified and differentiated at the molecular and cellular levels and how this demonstrates descent with modification by natural selection. Assessment consists of tracking number of points earned out of total possible points (8 pts) for the question. **Assessment Method Type:** Exam - Course Test/Quiz	04/06/2014 - I assessed this SLO slightly different as compared to what is described, the students were evaluated based on a post lab homework assignment and two embedded test questions, one T/F question requiring an explanation, and a short essay question. Among three sections of Bio 14 students, 88% of the students correctly answered the post lab assessment question, and 85% of the students answered the T/F question correctly, although not all could provide a complete explanation. On the last short essay question, which deals with unity at the molecular level across a variety of organisms, only 71% received full credit for their answers, although many more had a partial answer. I believe the number of students who could fully satisfy the question was lower than on the other assessments because a substantial amount of time had passed. Overall, I feel that the target was met for 2/3 assessment items, but in the future I will try to revisit this topic over the quarter more regularly. (RB F14) **Result:** Target Met **Year This Assessment Occurred:**	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
		2013-2014	
Department - Biological Sciences (BIOL) - BIOL 14 - HUMAN BIOLOGY - SLO 2 - Scientific Process - The student will be able to evaluate basic scientific research as described in the popular press and explain the study in terms of the scientific method. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** The students will be assessed on each exam with questions related to processing the scientific method. For example, on the first exam, the students are asked to visit the website www.sciencedaily.com or similar reference and to choose a study to evaluate. They are asked to identify the question(s) asked, the hypothesis of the research, the independent, dependent and controlled variables and to discuss whether or not the researchers supported or falsified their hypothesis and to explain their answers. I track the number of correct answers based on points earned (out of 8 points on the first and last exams.) **Assessment Method Type:** Exam - Course Test/Quiz	04/06/2014 - I assessed this SLO using a lab activity and future lab quiz questions, as well as with a homework assignment where the students chose a journal article of interest to them and then evaluated it and identified the key components of the scientific method as described in the article. This quarter I gave them extra practice articles to work with each other and more time in lab to compare with other students, which I feel improved the outcomes compared to my past sections. 86% of students could correctly identify all the components in their chosen articles, and 79% correctly answered questions on a subsequent lab quiz. (RB F14) **Result:** Target Met **Year This Assessment Occurred:** 2013-2014	
Department - Biological Sciences (BIOL) - BIOL 15 - CALIFORNIA ECOLOGY/NATURAL HISTORY - SLO 1 - Scientific Process - The student will master basic techniques of field biology, including taking field notes, identifying organisms in the field, and using survey and sampling techniques. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** The student will be required to enter at least 7 entries into a field journal (Modified from John McLaughlin, Western Washington University) Here is the assignment: For an ecologist or field biologist, the field notebook is a record of their observations and the conditions of their study sites. One emphasis of this course is to learn basic field techniques, your field notebooks will be one of your most important tools. You should record all of your observations, hypotheses about natural history patterns, and other ideas related to natural history in your notebooks. Your notebook should	10/10/2014 - This class was not taught in 2013-2014 **Result:** Target Not Met **Year This Assessment Occurred:** 2013-2014	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
	contain entries from each field trip in the course, supplemented by natural history observations you make outside of the course. (You might want to carry your notebook with you at all times this quarter. Perhaps you will enjoy natural history so much that this will become a life-long habit). There is a great book about keeping a field journal: Keeping a Nature Journal by Clare Walker Leslie and Charles E. Roth (2000) that might be useful. **Assessment Method Type:** Essay/Journal **Target for Success:** 90% of students should be able to do this with a B or better. **Related Documents:** Rubric/Criteria for Field Notebook Biology 15		
Department - Biological Sciences (BIOL) - BIOL 15 - CALIFORNIA ECOLOGY/NATURAL HISTORY - SLO 2 - Ecological Principles - The student will explain basic principles of organismal, population, community and ecology (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** The student will use the information gathered in their field journal to write a natural history report describing the ecology of an ecosystem visited during the course. Natural History Report #2 Select a distinct ecological community that we have visited in the San Francisco Bay Area. For this assignment please make your observations within the ?interior? of the community (avoid edge habitats). Observe the community and answer the following questions. Feel free to support your written answers with drawings, photographs, or non-living, non-toxic, non-infectious samples. Your report need not exceed 2-3 pages in length (single-spaced). Please list	10/10/2014 - This class was not taught in 2013-2014 **Result:** Target Not Met **Year This Assessment Occurred:** 2013-2014	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
	references at the end of your report. **Assessment Method Type:** Case Study/Analysis **Target for Success:** 90% of students will complete the report with a grade of B or higher. **Related Documents:** Rubric/Criteria for Natural History Report 2Biology 15		
Department - Biological Sciences (BIOL) - BIOL 17 - BIOTECHNOLOGY & SOCIETY - SLO 1 - Application of Biotechnology - Students can give specific examples of biotechnology-related products or applications. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active			
Department - Biological Sciences (BIOL) - BIOL 17 - BIOTECHNOLOGY & SOCIETY - SLO 2 - Personal Relevance of Biotechnology - Students can relate biotechnology-related products or applications to their daily lives (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active			
Department - Biological Sciences (BIOL) - BIOL 17 - BIOTECHNOLOGY & SOCIETY - SLO 3 - Evaluate Biotechnology information - Students can evaluate information about biotechnology-related products or applications. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active			

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Department - Biological Sciences (BIOL) - BIOL 190X - DIRECTED STUDY - SLO 1 - Demonstrate Understanding - Student can demonstrate an understanding of a major concept discussed in class. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active			
Department - Biological Sciences (BIOL) - BIOL 190X - DIRECTED STUDY - SLO 2 - Communication - Student can communicate understanding of a major concept discussed in class. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active			
Department - Biological Sciences (BIOL) - BIOL 1A - PRINCIPLES OF CELL BIOLOGY - SLO 1 - Cellular level of life - Students can describe life at the cellular level. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** List 5 characteristics of cells. **Assessment Method Type:** Pre/Post Test **Target for Success:** The post-test answers should demonstrate increased comprehension, as evidenced by use of appropriate (and new) vocabulary and higher-level knowledge. All students should show an improvement.	12/02/2014 - In winter of 2014 students were asked to describe attributes of life and various cellular structures. 80% of the students scored fairly high in both categories (85% or better). It appears that a large number of the students enter the class with a reasonable understanding of cells and characteristics of living organisms **Result:** Target Met **Year This Assessment Occurred:** 2013-2014	
Department - Biological Sciences (BIOL) - BIOL 1A - PRINCIPLES OF CELL BIOLOGY - SLO 2 - Compare prokaryotes and eukaryotes - Students can compare and contrast prokaryotic and eukaryotic life. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** Compare/contrast questions on the final exam. Questions are not restricted to structures, but include all life processes. **Assessment Method Type:** Exam - Course Test/Quiz **Target for Success:** 85% correct.	12/02/2014 - Winter and spring quarters 2014 - 21 final exam questions. 8-9/21 questions missed more than 27% of the time. 1/21 questions missed 17-29% of the time. 6.5/21 (avg) questions missed 10-15% of the time. Students are getting better with structure comparisons but still struggle with processes. Over 80% of the questions still being missed by more than 15% of the students. It appears that students are easily bored in class, and spend more time on their electronic devices rather than pay attention! The general quality of	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
		written/submitted work is poor and this reflects on exam scores. Also, students do not retain information from one week to the next (perhaps shorter attention span?!). Case in point - I asked an in-class question, after extensive review, that 100% of the class got correct during class. This same exact question, 4 weeks later on the final exam, less than 20% got it right! **Result:** Target Not Met **Year This Assessment Occurred:** 2013-2014	
Department - Biological Sciences (BIOL) - BIOL 1A - PRINCIPLES OF CELL BIOLOGY - SLO 3 - Scientific Process - experiment - Students can pose questions, state hypotheses, and identify variables from any given experiment. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** Students are given an abstract or other article summarized from an original research publication. After reading the selection, they will rephrase the question in a "How does ____ affect ____?" format, identify the independent and dependent variables from the question, and state the hypothesis in an "If ... then ..." format. **Assessment Method Type:** Case Study/Analysis **Target for Success:** Average 75% on assignment.	12/02/2014 - Winter 2014 - average 72% **Result:** Target Not Met **Year This Assessment Occurred:** 2013-2014	
Department - Biological Sciences (BIOL) - BIOL 1A - PRINCIPLES OF CELL BIOLOGY - SLO 4 - Scientific Process - graphs - Students can graph experimental results. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** Students will make a graph of their experimental data from any appropriate lab activity. **Assessment Method Type:** Class/Lab Project **Target for Success:** Average 80% on assignment.	12/02/2014 - Winter 2014/Spring 2014. Continue to provide students with "How to Make a Graph" handout. Winter graph scores: 1st = 70%, 2nd = 81%, 3rd = 73%. Spring graph scores: 1st = 80%, 2nd = 80%, 3rd = 73%. Students appear to rely more on software for graphing, and spend less time trying to understand graphing. This, perhaps can be seen in the drop in scores from the 2nd to the 3rd graph. I have noticed some students copy computer graphs by hand onto graph paper. **Result:** Target Not Met **Year This Assessment Occurred:**	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
		2013-2014	
Department - Biological Sciences (BIOL) - BIOL 1A - PRINCIPLES OF CELL BIOLOGY - SLO 5 - Scientific Process - conclusion - Students can analyze experimental results to draw a conclusion. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** Students will be given a graph or table of experimental results and asked to write a conclusion based on the data. **Assessment Method Type:** Class/Lab Project **Target for Success:** Average 80% on assignment.	12/02/2014 - Spring 2014 - students were given a graph of hypothetical experimental results and asked to identify the conclusion. This was a simple, multiple choice exercise. Out of 64 responses, 35 were correct. This represents 55% which illustrates that even with a selection (multiple choice) students struggle with identifying a result statement from a conclusion statement. **Result:** Target Not Met **Year This Assessment Occurred:** 2013-2014	
	Assessment Method: Students can distinguish between results and conclusions from their own, or other published, data. **Assessment Method Type:** Class/Lab Project **Target for Success:** Average 80% on assignment.	12/02/2014 - Spring 2014 - students were given a graph of hypothetical experimental results and asked to identify the conclusion. This was a simple, multiple choice exercise. Out of 64 responses, 44 were correct. This represents 69% which illustrates that even with a selection (multiple choice) students struggle with identifying a result statement from a conclusion statement. **Result:** Target Not Met **Year This Assessment Occurred:** 2013-2014	
Department - Biological Sciences (BIOL) - BIOL 1B - FORM & FUNCTION IN PLANTS & ANIMALS - SLO 1 - Physiological Processes - The student will compare and contrast the functioning of physiological systems in plants and animals. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** During the quarter students will answer exam questions testing their knowledge of plant (growth, development, reproduction, water and nutrient transport, hormones, responses to external environmental cues) or animal (nervous, muscle contraction, digestive, circulatory, respiratory, excretory, reproduction, development) systems. Questions assessing their ability to compare and contrast animals	10/03/2014 - Spring 2014: 72% answered the first question correctly. 77% answered the second question correctly. There is no improvement compared to past years. A last lecture review that explicitly compares and contrasts plant and animal form and function could help. This lends itself well to a "graffiti carousel" active learning activity. This requires a slot of 20-30 minutes of available time in our last lecture meeting. (Submitted by Schultheis) **Result:**	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
	and plants will appear on a cumulative final exam as multiple choice and/or essay questions. These could include questions addressing the determinate versus indeterminate growth of animals versus plants, differences in development due to cell walls in plants, the role of pressure gradients in both animal and plant transport, and similarities and differences in gametogenesis. Multiple choice questions are typically worth 2-3 points, and essays 5-10 points. **Target for Success:** 80% of students will answer questions correctly (if multiple choice) or receive passing scores (if written responses).	Target Not Met **Year This Assessment Occurred:** 2013-2014	
Department - Biological Sciences (BIOL) - BIOL 1B - FORM & FUNCTION IN PLANTS & ANIMALS - SLO 2 - Scientific Process - Students will be able to communicate the results of scientific research to an audience of peers. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** Students discuss topics to research for a multi-week laboratory experiment. In groups of 3 or 4 students, they decide which specific hypotheses they will test, and then design and carry-out an appropriate experiment. Each group reports their results in a 15 minute oral-presentation following a format typical of scientific meetings. Individuals write papers in the format of a typical scientific paper and submit them for peer-review by their classmates. Using feedback from the peer-review process, group members prepare a written group report graded by the instructor. Points are awarded based on the quality of presentations, participation in the peer-review process, the outcome of the peer-review process, and the quality of the group paper. **Assessment Method Type:** Research Paper **Target for Success:**	10/03/2014 - The pattern is similar to past years. Scores improved from the initial individual introduction (64%) to the full paper (89%) to the final group paper (92%). Students consistently have trouble with proper literature citation in their initial introductions. I plan to incorporate a guided reading assignment of a published paper prior to writing the introduction so they can see examples of proper citations in the context of a full paper. (Submitted by Schultheis) **Result:** Target Met **Year This Assessment Occurred:** 2013-2014	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
	80% of students receive a passing score on the research paper.		
	Assessment Method: Students discuss topics to research for a multi-week laboratory experiment. In groups of 3 or 4 students, they decide which specific hypotheses they will test, and then design and carry-out an appropriate experiment. Each group reports their results in a 15 minute oral-presentation following a format typical of scientific meetings. Individuals write papers in the format of a typical scientific paper and submit them for peer-review by their classmates. Using feedback from the peer-review process, group members prepare a written group report graded by the instructor. Points are awarded based on the quality of presentations, participation in the peer-review process, the outcome of the peer-review process, and the quality of the group paper. **Assessment Method Type:** Presentation/Performance **Target for Success:** 80% of groups receive passing grades on presentations.		
Department - Biological Sciences (BIOL) - BIOL 1C - EVOLUTION, SYSTEMATICS & ECOLOGY - SLO 1 - Ecosystem Processes - Students will be able to describe an ecosystem in terms of the flow of energy and cycling of matter between the abiotic to the biotic components of that ecosystem. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** The student will be asked to choose an ecosystem and describe it for two parameters: energy and matter 1) in terms of the flow of energy from the sun through the trophic levels. A good answer will include a discussion of primary productivity, secondary productivity, the inefficiency of energy transfer through the ecosystem and why the inefficiency limits length of food webs and the population size of the higher trophic levels.	10/10/2014 - Students still have a hard time making absolute connections between all of the factors that drive the flow of energy and cycling of matter. I think that they get it in principle but their ability to apply their knowledge in a practical way is still lacking. For example, on the final exam, I ask the students to describe the Baylands ecosystem, which just happens to be one that we visit and discuss for a full lesson. I specifically ask them to address the topics described in the assessment above. Most (80%) kind of provide a basic description, but it really lacks the depth that	10/10/2014 - We (the two instructors who teach the class) have decided to try adding some directed service learning to our class involving restoration activities. LS will be working on this during Spring 2017 sabbatical quarter.

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
		indicates an understanding **Result:** Target Not Met **Year This Assessment Occurred:** 2013-2014	
	2) In addition the student will discuss at least two biogeochemical cycles between the biotic and abiotic components of the ecosystem. For example, if they choose the nitrogen cycle, they must discuss which members of the ecosystem are responsible for making it biologically available, how it moves into the autotrophs and then into the heterotrophs, the role of the decomposers in cycling and finally why the nitrogen is important for living things and why it is often considered a limiting factor in ecosystems. Other biogeochemical cycles they can choose are the hydrologic cycle, the carbon cycle or the phosphorus cycle. **Assessment Method Type:** Exam - Course Test/Quiz **Target for Success:** 80% of students will answer the test question correctly (if multiple choice) and/or will receive a passing score (if a written response).	05/03/2014 - Winter 2014. A series of 9 multiple choice questions on the final exam covered trophic structure, energy flow, productivity, and biogeochemical cycles. The % of students providing correct answers ranged from 59-98%. The average % who answered correctly for these 9 questions was 80%. While the average reaches the target for success, it is disappointing that scores were below 80% on almost half of the questions. Primary coverage of these topics comes late in the quarter. Students need more time on task with this material. If we can streamline coverage of major phyla in the middle of the quarter, this would free more needed time to cover ecology. **Result:** Target Met **Year This Assessment Occurred:** 2013-2014	
	Assessment Method: Depending on the quarter, students are engaged in sampling soil invertebrates from contrasting communities. During lab, the students identify invertebrates from their samples, pool class data, and characterize each community in terms of species richness and diversity using appropriate species diversity indices. Students offer hypotheses to explain observed differences, including hypotheses based on energy input into the system and litter decomposition rates. **Assessment Method Type:** Class/Lab Project **Target for Success:**		

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
	80% of the lab groups can successfully calculate species richness and diversity and can articulate reasonable hypotheses to explain differences observed in contrasting communities.		
Department - Biological Sciences (BIOL) - BIOL 1C - EVOLUTION, SYSTEMATICS & ECOLOGY - SLO 2 - Evolution - Students will explain natural selection of populations under different selective pressures. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** Students will conduct an experiment that examines the loss of antibiotic resistance (carried on a plasmid) in environments with or without the antibiotic (which is the selective pressure). The students are required to turn in a written report with their hypotheses, predictions, results and conclusions including a explanation of why adaptations might be favored or selected against under different environmental conditions. **Assessment Method Type:** Essay/Journal **Target for Success:** 80% students receive a passing grade on the written report.	10/10/2014 - Students are able to demonstrate their understanding of natural selection of populations under different conditions **Result:** Target Met **Year This Assessment Occurred:** 2013-2014	
Department - Biological Sciences (BIOL) - BIOL 1C - EVOLUTION, SYSTEMATICS & ECOLOGY - SLO 3 - Phylogeny - Students will explain the phylogenetic relationships of all living things in terms of derived and ancestral traits. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** Students will be required to carry out a quarter long project in which they collect representatives of 10-12 phyla profiled in the course. In approximately week 8, the students will bring in their collections for presentation to the class. The class will discuss the different phyla collected and their characteristics. Each student will then pick three organisms from one phylum that were collected by the class and describe the common features of these organisms (body plan, habitat, etc.)as well as the differences between them. Because the students are required to memorize the characteristics of about 35-40 phyla in the course, this	10/10/2014 - The students are doing an outstanding job on this project generally though their ability to identify species correctly still needs some tweaking. We are also thinking about changing the pacing of the project so that students bring in representatives on an ongoing basis over the quarter instead of a major collection at the end of the quarter. **Result:** Target Met **Year This Assessment Occurred:** 2013-2014 **Resource Request:** Increased resources to support the identification of species. **Resource Request:**	10/10/2014 - while the internet supplies a wide variety of resources to aid in identification, increased purchase of books and other identification manuals would further help the students to improve their observation and identification abilities.

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
	exercise will also serve to help them make associations to these groups. **Assessment Method Type:** Class/Lab Project **Target for Success:** 80% of student groups receive a passing grade on the collection. 80% of individual students receive a passing grade on the phylum essay.	Increased resources to support the identification of species. **GE/IL-SLO Reflection:** This SLO helps students effectively meet communication (in presentation of their collections) and critical thinking in their analysis in the application of their knowledge of phylogenetic relationships in the construction of the tree representing the collections. **GE/IL-SLO Reflection:** This SLO helps students effectively meet communication (in presentation of their collections) and	
Department - Biological Sciences (BIOL) - BIOL 1C - EVOLUTION, SYSTEMATICS & ECOLOGY - Ecological relationships - Students will be able to demonstrate an understanding of the ecological relationships between organisms and their environment. (Created By Department - Biological Sciences (BIOL)) **Assessment Cycles:** End of Academic Year **Start Date:** 04/07/2014 **Course-Level SLO Status:** Active	**Assessment Method:** Phenology Project **Assessment Method Type:** Class/Lab Project		
Department - Biological Sciences (BIOL) - BIOL 1D - MOLECULAR GENETICS - SLO 1 - Structure and function - Explain the relationship between structure and function as observed in key enzymes used in DNA replication, transcription and translation. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** Embedded test question on exam and/or quiz. **Assessment Method Type:** Exam - Course Test/Quiz **Target for Success:** 80% of students will be able to correctly answer embedded quiz/exam question(s).	07/01/2014 - ONLINE QUIZ covering structure and function of molecules. Students can collaborate & use references; students may repeat quiz (up to three attempts) to raise score. Mean score = 97% MIDTERM Mean = 86% of students correctly answered questions on this topic.	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
		FINAL Mean = 80% of students correctly answered questions on this topic. **Result:** Target Met **Year This Assessment Occurred:** 2013-2014 **Resource Request:** None **GE/IL-SLO Reflection:** The format of course works very well - students continue to exceed expectations. The combination of a small class size and highly motivated students makes this course consistently highly successful.	
Department - Biological Sciences (BIOL) - BIOL 1D - MOLECULAR GENETICS - SLO 2 - Scientific Process - Demonstrate an understanding of how experimental evidence is used to draw conclusions regarding the structure and function of important genetic molecules. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** Embedded test questions, written and/or multiple choice. **Assessment Method Type:** Exam - Course Test/Quiz **Target for Success:** 80% of students will be able to successfully answer the embedded question(s) on the exam/quiz.		
	Assessment Method: Embedded questions on course quizzes and exams. **Assessment Method Type:** Exam - Course Test/Quiz **Target for Success:** 80% of students can correctly answer the embedded questions.	10/10/2014 - ONLINE QUIZ on classic experiments. Students can collaborate & use references; students may repeat quiz (up to three attempts) to raise score. Mean score = 100%. MIDTERM Mean = 84% of students correctly answered questions on this topic.	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
		FINAL Mean = 78% of students correctly answered questions on this topic. **Result:** Target Not Met **Year This Assessment Occurred:** 2013-2014 **Resource Request:** None **GE/IL-SLO Reflection:** Would like to see some improvement on the final exam. I'd like to explore adding some case studies where students apply what they know to design some experiments to explore a topic in molecular genetics.	
Department - Biological Sciences (BIOL) - BIOL 23 - INTRODUCTION TO BIOTECHNOLOGY - SLO 1 - Application of Biotechnology - Students can explain what biotechnology is, and how it influences medicine, agriculture, and daily life. (Created By Department - Biotechnology (BTEC)) **Course-Level SLO Status:** Active	**Assessment Method:** Students are asked to research and orally present both the positive and negative aspects of a specific, current topic in biotechnology. **Assessment Method Type:** Observation/Critique		
Department - Biological Sciences (BIOL) - BIOL 23 - INTRODUCTION TO BIOTECHNOLOGY - SLO 2 - Scientific Process - Students can apply the scientific method to study a question (Created By Department - Biotechnology (BTEC)) **Course-Level SLO Status:** Active	**Assessment Method:** Students are given multiple opportunities throughout the quarter to apply the scientific method, such as simple, student-driven lab experimentation and other inquiry-based biotechnology activities. **Assessment Method Type:** Class/Lab Project **Target for Success:** 85% of the students should show mastery of the concepts of the scientific method by the end of the quarter, as measured by		

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
	improvement on related assignments.		
Department - Biological Sciences (BIOL) - BIOL 40A - HUMAN ANATOMY & PHYSIOLOGY I - SLO 1 - Homeostasis - The student can identify how the integumentary and skeletal system contributes to homeostasis (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** Embedded question on an exam (Bio 40A). **Assessment Method Type:** Exam - Course Test/Quiz **Target for Success:** 80% of the class will correctly answer the question on the exam (Bio 40A).	11/23/2014 - Students were able to successfully determine the role of skin in maintaining homeostasis. 94% of the students correctly answered this exam question on how the integumentary system contributes to homeostasis. [Bio 40A, Winter 2014, Lopez] **Result:** Target Met **Year This Assessment Occurred:** 2013-2014 **Resource Request:** Histology slides of skin are limited in the lab and PSME center **GE/IL-SLO Reflection:** Students were able to indentify the role of skin of the intergumentary system in maintaining various features of homeostasis. Although target met for SLO #1 it would be helpful for structure and function and homeostasis question concerning the skin to include more histology slides in lab and in PSME center in the future. [Lopez Bio 40A Winter 2014]	
		10/13/2014 - This assessment is for Bio 40A Fall 2013. This SLO was addressed by two different questions, one for the integumentary system and one for the skeletal system. Students answered the question for how the skin contributes to homeostasis with 78% of the class answering the question correctly. For the question on how the skeletal system contributes to homeostasis 76% of the class choose the correct answer. The class was not able to meet the target percentage of 80% for both questions. This indicated that more work needs to be in the lab	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
		and lecture connecting what is learned about these two systems with the concept of homeostasis. Students did well with questions concerning the mechanics of how these two systems work but did not connect their understanding to the larger picture of homeostasis. To help students make this connection I would recommend bringing into the lab exercises that address this issue directly. This would require more lab supplies and some new equipment. I will also address this disconnect by re-framing and putting more emphasis on the discussion of homeostasis in both lecture and lab. (Melia Bio 40A) **Result:** Target Not Met **Year This Assessment Occurred:** 2013-2014 **Resource Request:** Money for disposable lab supplies, slides and models.	
Department - Biological Sciences (BIOL) - BIOL 40A - HUMAN ANATOMY & PHYSIOLOGY I - SLO 2 - Structure and function - The student can identify the importance of structure/ function relationship. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** Embedded question on an exam (Bio 40A) **Assessment Method Type:** Exam - Course Test/Quiz **Target for Success:** 80% of the class will correctly answer the question on the exam (Bio 40A).	11/23/2014 - 78% of the students answered the question correctly concerning Structure and Function of Bone Tissue in growth of long bones. Results are slightly under the target set at 80%. Some students were unable to determine how changes in the structural features of bone tissue disrupted normal long bone growth function. [Bio 40A, Winter 2014, Lopez: YR 2013-3014] **Result:** Target Not Met **Year This Assessment Occurred:** 2013-2014 **Resource Request:** Lab models and histology of bone tissue development **Resource Request:**	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
		Lab models and histology of bone tissue development **GE/IL-SLO Reflection:** The process of long bone growth involves many steps and is covered in the lecture. Will emphasize in lab and lecture how alterations in these steps can dramatically alter function. Would like to see if histology slides of long bone growth development are available for use in lab (or models) to incorporate this concept in lab as well as lecture. [Bio 40A, Winter 2014, Lopez: YR 2013-3014] **GE/IL-SLO Reflection:** The process of long bone growth involves many steps and is covered in the lecture. Will emphasize in lab and lecture how alterations in these steps can dramatically alter function. Would like to see if histology slides of long bone growth development are available for use in lab (or models) to incorporate this concept in lab as well as lecture. [Bio 40A, Winter 2014, Lopez: YR 2013-3014]	
		10/13/2014 - More than 80% of the class was able to correctly identify the relationship between form and function. (Melia Bio 40A) **Result:** Target Met **Year This Assessment Occurred:** 2013-2014	
Department - Biological Sciences (BIOL) - BIOL 40B - HUMAN ANATOMY & PHYSIOLOGY II - SLO 1 - Homeostasis - The student can identify how the nervous	**Assessment Method:** Embedded question on an exam (Bio 40B). **Assessment Method Type:** Exam - Course Test/Quiz	10/08/2014 - For homeostasis involving the cardiovascular system and nervous system; 71% of the class got this question correct, which was below the target of 80%. I will reassess the	10/08/2014 - Look for alternative ways in lab with models, slides and film to bring in the dynamics of interactions between Cardiovascular

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
system and cardiovascular system contributes to homeostasis. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Target for Success:** 80% of the class will correctly answer the question on the exam (Bio 40B).	knowledge presented in lecture concerning how an increase in Blood Pressure affects other systems for example how the Autonomic Nervous responds to the increase in blood pressure. (J. Lopez Sp'14) **Result:** Target Not Met **Year This Assessment Occurred:** 2013-2014 **Resource Request:** More Models, histology slides, films to depict the Cardiovascular and Nervous System **Resource Request:** More Models, histology slides, films to depict the Cardiovascular and Nervous System	System and Nervous System for better grasp of concept of homeostasis involving these systems. Look for materials to add to PSME center for student use. Will continue to lecture on these topics and assess lecture content for comprehension by students. (J. Lopez, 40B , Sp'14)
		04/11/2014 - In order to correct for a decrease in blood pressure: A) Parasympathetic stimulation increases and sympathetic stimulation decreases B) Stroke volume and heart rate increase C) Blood vessels dilate to increase vascular resistance D) A and B are correct E) A and C are correct 92% of the classs correctly answered this question. The uqestion was possibly too simple by the arrangement of the options since most students have mastered the basic roles of the sympathetic and parasympathetic nervous systems so that A was easily assessed as incorrect ruling out 3 possible answers. The question will be reqorded in future. HB Winter 2014 **Result:** Target Met **Year This Assessment Occurred:**	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
		2013-2014 **GE/IL-SLO Reflection:** This question adresses the critical thinking requirement.	
		04/06/2014 - 92% of students could adequately explain how the nervous system contributes to homeostasis when responding to a written exam question. 85% of students provided a satisfactory answer to a similar question about the cardiovascular system, while several additional students provided partial or incomplete answers. (RB W14) **Result:** Target Met **Year This Assessment Occurred:** 2013-2014	
Department - Biological Sciences (BIOL) - BIOL 40B - HUMAN ANATOMY & PHYSIOLOGY II - SLO 2 - Structure and function - The student can identify the importance of structure/ function relationship. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** Embedded question on an exam (Bio 40B). **Assessment Method Type:** Exam - Course Test/Quiz **Target for Success:** 80% of the class will correctly answer the question on the exam (Bio 40B).	10/08/2014 - 83% of the class correctly matched the structure/function relationship of blood flow through veins and role of; valves in veins, skeletal muscle, and blood pressure. (J Lopez, 40B, Spring2014) **Result:** Target Met **Year This Assessment Occurred:** 2013-2014	
		04/06/2014 - 92% of the students correctly answered a multiple choice question addressing the structure-function relationship, but only 76% of the students provided a concise and well articulated answer to a short essay prompt on the final exam. On this question, several more, while unable to fully explain the concept, may not have understood the question completely, but could provide some details to explain the relationship. I think they may have not fully grasped what type of answer I was looking for, and I will try re-wording the question in the future to see if the results are better. (RB W14) **Result:**	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
		Target Met **Year This Assessment Occurred:** 2013-2014	
Department - Biological Sciences (BIOL) - BIOL 40C - HUMAN ANATOMY & PHYSIOLOGY III - SLO 1 - Homeostasis - The student can identify how the urinary system and endocrine system contributes to homeostasis. (Created By Department - Biological Sciences (BIOL)) **Start Date:** 03/03/2014 **End Date:** 03/03/2016 **Course-Level SLO Status:** Active	**Assessment Method:** Embedded question on an exam (Bio 40C). **Assessment Method Type:** Exam - Course Test/Quiz **Target for Success:** 80% of the class will correctly answer the question on the exam (Bio 40C).	10/13/2014 - For both of these questions students failed to reach the standard of 80% set for this SLO. There were two questions designed to test for the question of homeostasis. One question was specific for how the urinary system contributes to homeostasis and a second question looked at the connection between homeostasis and the endocrine system. The interesting thing is that students did very well in understanding how both of these systems work - the nuts and bolts of the systems work - but failed to understand the bigger picture of how each system contributes to the larger picture of homeostasis. More emphasis needs to be placed on making this connection to the students in both lecture and lab. In lab new exercises should be designed to help focus student's minds on this connection. This would require more money for some models and equipment. **Result:** Target Not Met **Year This Assessment Occurred:** 2013-2014 **Resource Request:** Monsy for lab equipment and supplies	
		04/02/2014 - There were a significant number if homeostasis questions on exam 2 regarding the negative feedback control of the hypothalamic-pituitary axis & the target organs, hormone receptors, regulation of GFR, renal reabsorption, & electrolyte balance. At least 80% of students answered 4 of these questions correctly. Fewer than 80% of students did not answer the	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
		remaining 6 correctly. I think several students still don't connect the dots regarding negative feedback. Other students simply forget the primary actions of some hormones and therefore, incorrectly identify the body's compensatory mechanisms to changes in blood chemistry. For "Result", the target was less than half met. **Result:** Target Not Met **Year This Assessment Occurred:** 2013-2014	
Department - Biological Sciences (BIOL) - BIOL 40C - HUMAN ANATOMY & PHYSIOLOGY III - SLO 2 - Structure and function - The student can identify the importance of structure/ function relationship. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** Embedded question on an exam (Bio 40C). **Assessment Method Type:** Exam - Course Test/Quiz **Target for Success:** 80% of the class will correctly answer the question on the exam (Bio 40C).	10/13/2014 - For this SLO the 83% of the class was able to identify the importance of form and structure and the connection between the two ideas. **Result:** Target Met **Year This Assessment Occurred:** 2013-2014	
		04/03/2014 - BIOL 40C SLO 2 - Structure and function: The student can identify the importance of structure/ function relationship. The following four exam questions were selected for SLO review. 88% of students answered correctly: During deglutition, the soft palate and epiglottis… a. secrete saliva b. help propel food along the esophagus c. block airways d. guide the wad of food into the trachea e. help chemically digest food particles 87% of students answered correctly: During peristalsis in the esophagus, which layer of the muscularis contracts behind the ingested food material? a. the oblique layer	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
		b. the circular layer c. the longitudinal layer 79% of students answered correctly: Where in the GI tract does the MOST absorption occur? a. mouth b. stomach c. small intestine d. large intestine e. rectum 92% of students answered correctly: Which of the following contributes to the large surface area of the small intestine? a. ileocecal sphincter (valve) b. brush-border enzymes c. contraction and relaxation of the muscularis (smooth muscle) d. circular folds (plicae), villi, and microvilli e. the hepatopancreatic ampulla The target of 80% was exceeded for all but one question. Only 79% of students correctly identified the small intestine as the organ where the greatest amount of absorption occurs. **Result:** Target Met **Year This Assessment Occurred:** 2013-2014	
		04/02/2014 - On exam 3, there were 2 fill-in questions regarding the importance of the scrotal muscles and the role of the ciliated epithelium in the uterine tubes. Most of the students answered them correctly. **Result:** Target Met **Year This Assessment Occurred:** 2013-2014	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Department - Biological Sciences (BIOL) - BIOL 41 - MICROBIOLOGY - SLO 1 - Disease Prevention - Students will discuss the role of the health care practitioner in prevention of nosocomial infection (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** Written and multiple-choice questions on midterm and final exams **Assessment Method Type:** Exam - Course Test/Quiz **Target for Success:** 80% of students will answer the test questions correctly	10/09/2014 - While I ask many questions and we do lab activities related to this SLO throughout the quarter, my assessment comes from a written question on the final in which I describe an outbreak at a hospital and the students have to identify this as a nosocomial infection as well as give 3 ways they could help stop the spread of the infection. Of the 41 students who took the final, only one did not get this question correct and this person left the entire written portion of the test blank. So, every student who attempted the question was successful. **Result:** Target Met **Year This Assessment Occurred:** 2013-2014	
	Assessment Method: Written questions answered during in-class activities **Assessment Method Type:** Essay/Journal **Target for Success:** 100% of students will be able to answer these written activities correctly		
Department - Biological Sciences (BIOL) - BIOL 41 - MICROBIOLOGY - SLO 2 - Compare healthy and disease states - Students will compare and contrast the role of normal flora, opportunistic and obligate pathogens in both health and disease states (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** Embedded exam questions **Assessment Method Type:** Exam - Course Test/Quiz	10/09/2014 - Many activities including discussions of the Human Microbiome and all the various pathogens help get students to understand the differences that are important for this SLO. For the final assessment of this SLO, I ask a question on the final exam about a nosocomial infection that is spreading and only people who are patients in the hospital are getting sick. They must describe this as an opportunistic pathogen that is causing an illness due to the decreased immunity, increased number of microbes, etc. found in hospital settings. To receive full credit, they must discuss both how an opportunistic pathogen	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
		becomes dangerous as well as why this is not an obligate pathogen. 71% of students received full credit on this question. The ones that, while 22% missed just one component about an opportunistic pathogen becoming dangerous. While overall, I believe this is a satisfactory result, I also think I can do a couple more activities in class to help the students who still don't understand the key components of an opportunistic pathogen. I do an activity in which different groups work on various pathogens and have to identify each pathogen as opportunistic or obligate, but I could add more details about specific characteristics of each and why they fall into each category. **Result:** Target Met **Year This Assessment Occurred:** 2013-2014	
Department - Biological Sciences (BIOL) - BIOL 41 - MICROBIOLOGY - SLO 3 - Treatments of Bacterial and viral infections - distinguish between bacterial and viral pathogens in terms of structure and chemotherapeutic interventions (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** Embedded exam questions **Assessment Method Type:** Exam - Course Test/Quiz	10/08/2014 - This question focuses in on one of the main "big picture" ideas that I hope to get across to my students- one of those things I hope they remember years into the future; bacteria and viruses have some similarities, but also many differences. I asked many multiple choice questions on both my second midterm and final exam that were concerned with these similarities and differences as well as how these characteristics affected which treatments could be used for each. Overall 79% of these questions were answered correctly. That is a slight improvement over last year and a large improvement over previous quarters and, I hope, is indicative of the fact that I have incorporated more in class activities related to looking at these important characteristics- drawing both side by side, discussing case studies of various diseases and how they should be treated, etc. On the final, I also had a written question that asked them to compare and contrast the structures of bacteria	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
		and viruses and a separate question (see previous reflection) that asked about which we have mored medications against and why. These 2 questions really get at the crux of the differences between the two. A full 86% of the students were able to draw and describe the main differences/similarities between the two with 54% identifying every characteristic. This is a very satisfying result because last year only 45% got the entire question correct. This question was completely open-ended since it said to draw and compare/contrast, so the fact that 86% got the main differences was great! Last year, 89% of the class identified the main differences, so this is a slight decrease in understanding. I will continue to try to come up with even more in class activities aimed at highlighting the important differences between these pathogens. **Result:** Target Met **Year This Assessment Occurred:** 2013-2014	
Department - Biological Sciences (BIOL) - BIOL 45 - INTRODUCTION TO HUMAN NUTRITION - BIO 45 CL-SLO Food Labels - Upon successful completion of the course, students will be able to interpret food labels, explain the rationale for the information, and teach a potential patient how to use the labels to make informed dietary choices. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** Exam **Assessment Method Type:** Exam - Course Test/Quiz	06/25/2014 - More than 95% of students are able to correctly answer quiz and exam questions regarding food labels. However, I realize that quizzes and exams aren't probably the most authentic assessment of their understanding of these food label concepts. **Result:** Target Met **Year This Assessment Occurred:** 2013-2014	06/25/2014 - Would like to develop a more authentic assessment of student ability to interpret and apply a food label. Consider adding a discussion forum assignment?
Department - Biological Sciences (BIOL) - BIOL 45 - INTRODUCTION TO HUMAN NUTRITION - BIO 45 CL-SLO DGAs - Upon successful completion of the course, students will be able to utilize the dietary	**Assessment Method:** Students participate in a quarter-long written analysis project in which they analyze their dietary intake (period of five days). Prompts are included asking students to address how		

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Guidelines for Americans to plan a diet for both healthy individuals as well as individuals at increased risk for chronic illnesses such as heart disease and type 2 diabetes. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	modifications/analysis might vary if they had heart disease or diabetes. **Assessment Method Type:** Case Study/Analysis **Target for Success:** More than 85% of students will consistently suggest appropriate modifications.		
	Assessment Method: One of the midterm exams asks several questions requiring the students to recall and apply the DGAs **Assessment Method Type:** Exam - Course Test/Quiz **Target for Success:** About 85% of students will answer these questions with 90% accuracy.		
Department - Biological Sciences (BIOL) - BIOL 45 - INTRODUCTION TO HUMAN NUTRITION - BIO 45 CL-SLO Dietary Analysis & Planning - Upon successful completion of the course, students will be able to utilize dietary analysis software to analyze current dietary intake and subsequently make suggestions for appropriate dietary modifications, and explain the rationale for these recommendations. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** Students participate in a quarter-long written analysis project where they analyze their own five-day intake. Weekly written assignments prompt them to make appropriate suggestions to modify their intake to reduce their risk for diet-related disease. **Assessment Method Type:** Case Study/Analysis	06/25/2014 - 100% of students who completed Bio 45 were able to keep a food diary and utilize the NCP-O software to generate data about their nutrient intake. Broadly speaking, students demonstrate at least minimum competence in analyzing their intake based on the foundational knowledge in the course. However, noticing trends over time: each quarter students have similar challenges. Difficulty reading the NCP-O reports - much information on them and they don't know how to approach it from even basic point of reading labels and units on table columns and rows. Difficulty interpreting pie graphs, percentage values vs. absolute values. I worry that a student may have a decent grasp on sound dietary practices but their inability to interpret their own data gets in the way of their being able to make personalized, data-driven changes as opposed to "this is generally good for most people so I'm going to make this change even though I don't know if I really need to, personally, because I am not sure what my intake truly is." **Result:**	10/10/2014 - I would like to develop an additional resource for the students to use to help them learn to read data, specifically the NCP-O reports. Would like to develop a written guide as well as a YouTube(?) video walking them through it with voice-over narrative to incorporate human connection. This will require a significant investment of time.

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
		Target Met **Year This Assessment Occurred:** 2013-2014 **Resource Request:** eventually, assistance with making a video tutorial compliant with accessibility standards **Related Documents:** Sample NCP-O All Daily Reports	
Department - Biological Sciences (BIOL) - BIOL 54H - HONORS INSTITUTE SEMINAR IN BIOLOGY - SLO 1 - Critical Thinking - The student can critically analyze a topic covered in the course. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** Students will write a reflection paper indicating their understanding and biases prior to the course and how those have evolved by the end of the course. **Assessment Method Type:** Essay/Journal **Target for Success:** All students will demonstrate improvement by the end of the course. **Related Documents:** Holcroft Bio 54H Final Reflection Paper Prompts	03/28/2014 - After reading the students' final reflection papers for Winter 2014, I feel ecstatic that 100% of students submitting a paper (n=15) achieved this outcome with excellence. (One student did not turn in the assignment.) The topic this quarter was exploring the biology of the top 15 causes of death in the U.S. and their relationship (if any) with socioeconomic status. Probably the most striking consistency among all was that most had never previously considered whether there was a relationship between health/disease risk and SES. They all commented that their awareness has been raised dramatically, and their papers indeed provided evidence that they have carefully considered the topic and are articulate in expressing their new found understanding and opinions. Perhaps the most obvious prompt to elicit critical analysis ability was in asking the students to propose what new rule or law they would enact, and think about potential obstacles to implementing their plan. All were able to propose potential interventions and identify ways they thought SES differences might color public opinion thus making their ideas more or less difficult to bring to fruition. **Result:** Target Met **Year This Assessment Occurred:**	03/28/2014 - No changes in pedagogical approach seem warranted at this time. It is important to note, however, that probably the biggest factor in the success rate is the small class size which makes it possible for the instructor to interact closely with each individual student.

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
		2013-2014 **Resource Request:** Nothing new needed **GE/IL-SLO Reflection:** The reflection at the course-level (above) also speaks explicitly to the Institution-level SLO for Critical Thinking **Related Documents:** Holcroft Bio 54H Final Reflection Paper Prompts	
Department - Biological Sciences (BIOL) - BIOL 54H - HONORS INSTITUTE SEMINAR IN BIOLOGY - SLO 2 - Communication - The student can use new vocabulary relevant to topic covered in the course. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** Students will be given weekly vocabulary lists pertinent to the assigned readings and course topic. Questions on the readings/vocabulary will measure understanding. **Assessment Method Type:** Discussion/Participation **Related Documents:** Holcroft Diabetes Pre Class Homework	03/28/2014 - Each week students were asked to read a short web resource and/or watch a YouTube video about the pathophysiology behind one of the top 15 causes of death in the U.S. and then complete a short worksheet. A sample of one of the worksheets is attached. This quarter, no student failed to complete the worksheets using appropriate vocabulary. However, in the final two weeks 6 of the students used language that was nearly identical to that used in the assigned resources. This does leave some room to wonder whether they truly understood the terminology or were only copying/pasting words from sources. **Result:** Target Met **Year This Assessment Occurred:** 2013-2014 **Resource Request:** None needed at this time **Related Documents:** Holcroft Diabetes Pre Class Homework	03/28/2014 - Continue to use pre-class study assignments and worksheets but make explicit the requirement that students must write using their own words.
	Assessment Method: Short (three to five) question clicker quiz given at the very beginning of each class. Questions test understanding of basic biology concepts relevant to the discussion	03/28/2014 - Students typically scored 100% on these quizzes, or missed only one question. It was rare that a student missed more than one. This gives me confidence that they did indeed complete the pre-class preparation and had at least basic	

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	topic that week. **Assessment Method Type:** Pre/Post Test	understanding. This was reassuring in the cases where students used words from the readings/videos on their worksheets. **Result:** Target Met **Year This Assessment Occurred:** 2013-2014 **Resource Request:** Continue to support instructors with Clicker technology and training.	
Department - Biological Sciences (BIOL) - BIOL 54H - HONORS INSTITUTE SEMINAR IN BIOLOGY - SLO 3 - Information Literacy - The student can identify and critically evaluate appropriate sources of information. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** Final reflection paper will include a component asking students to find and evaluate information from 1) a website and 2) a publication. **Assessment Method Type:** Essay/Journal	03/28/2014 - Students achieved this outcome with strong competence. Although finding additional sources was presented as optional on the final reflection paper, those that did were able to locate reliable sources and evaluate them appropriately. Perhaps a better indicator was their success in finding credible sources for their poster presentations. I must admit that although I had planned to increase the opportunities for students to practice these skills, this did not actually occur this quarter. Thus, I propose the increase in success rate this quarter (as compared to last) could be attributed to the different resources presented this quarter - I did switch the background reading re: evaluating sources this quarter. (see attached.) **Result:** Target Met **Year This Assessment Occurred:** 2013-2014 **Resource Request:** None needed **Related Documents:** Identify scholarly journals What is a Primary Source	

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Department - Biological Sciences (BIOL) - BIOL 58 - FUNDAMENTALS OF PHARMACOLOGY - SLO 1 - Physiological Processes - The student will be able to describe the basic functions and mechanism of action of drugs and the physiologic responses of various body systems (Created By Department - Biological Sciences (BIOL)) **Start Date:** 04/08/2012 **End Date:** 06/28/2012 **Course-Level SLO Status:** Active	**Assessment Method:** Midterm #1 100 points Midterm #2 100 points Final Exam 200 points Top 50 Drugs 100 points _____ TOTAL POINTS 500 points **Assessment Method Type:** Exam - Course Test/Quiz **Target for Success:** 80% of students will score 70% or better	06/30/2014 - 100% of the students score a 75% or better for a Final Grade in the class. Total class average for Final Grades of 50 students: 88.4% 13A's, 5 B's, 7 C's **Result:** Target Met **Year This Assessment Occurred:** 2013-2014	
Department - Biological Sciences (BIOL) - BIOL 58 - FUNDAMENTALS OF PHARMACOLOGY - SLO 2 - Drug interactions - The student will be able to list the side effects, desirable and undesirable actions and the appropriate remedies of drug interaction. (Created By Department - Biological Sciences (BIOL)) **Start Date:** 04/08/2012 **End Date:** 06/28/2012 **Course-Level SLO Status:** Active	**Assessment Method:** Midterm #1 100 points Midterm #2 100 points Final Exam 200 points Top 50 Drugs 100 points _____ TOTAL POINTS 500 points **Assessment Method Type:** Exam - Course Test/Quiz **Target for Success:** 80% of the students will receive a 70% or higher on all methods of assessment	06/30/2014 - 100% of the students score a 75% or better for a Final Grade in the class. Total class average for Final Grades of 50 students: 88.4% 13A's, 5 B's, 7 C's **Result:** Target Met **Year This Assessment Occurred:** 2013-2014	
Department - Biological Sciences (BIOL) - BIOL 8 - BASIC NUTRITION - BIO 8 CL-SLO Food Labels - Upon successful completion of Bio 8, students will be able to interpret food labels and use them to make informed dietary choices. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** Short answer exam questions **Assessment Method Type:** Exam - Course Test/Quiz		
	Assessment Method: Students examined food labels in class and worked in pairs to address a series of prompts about interpreting the information. **Assessment Method Type:** Case Study/Analysis **Target for Success:**	04/22/2014 - Of the students who were present to complete the assignment, 100% demonstrated at least minimum competence (and most showed good or excellent competence) in evaluating a food label. **Result:** Target Met	09/18/2014 - Continue to utilize this assessment going forward. Continue to request a classroom with mobile desks and computers for students. Consider an English writing prerequisite to the course.

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	90% of students will demonstrate at least minimum competence in evaluating a food label.	**Year This Assessment Occurred:** 2013-2014 **Resource Request:** This assessment strongly benefits from a classroom that can be easily configured for group work (e.g. rolling chairs, tables instead of desks fixed in rows). Student learning also benefits from having in-class computer access during the exercise. **Resource Request:** Success on assessment strongly benefits from a classroom that can be easily configured for group work (e.g. rolling chairs, tables instead of desks fixed in rows). Stdt. learning also benefits from having in-class computer access during the exercise. **Resource Request:** Success on assessment strongly benefits from a classroom that can be easily configured for group work (e.g. rolling chairs, tables instead of desks fixed in rows). Stdt. learning also benefits from having in-class computer access during the exercise. **GE/IL-SLO Reflection:** Beyond content knowledge, this assignment requires good written communication skills as well as basic computation and critical thinking skills. It is possible that some students may be having difficulty demonstrating their competency because their writing skills prevent them from expressing themselves clearly. **GE/IL-SLO Reflection:** Beyond content knowledge, this assignment requires good written communication skills as well as basic computation and critical thinking skills. It is possible that some students may be having difficulty	

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		demonstrating their competency because their writing skills prevent them from expressing themselves clearly. **GE/IL-SLO Reflection:** Beyond content knowledge, this assignment requires good written communication skills as well as basic computation and critical thinking skills. It is possible that some students may be having difficulty demonstrating their competency because their writing skills prevent them from expressing themselves clearly. **Related Documents:** Food Label Prompts	
Department - Biological Sciences (BIOL) - BIOL 8 - BASIC NUTRITION - BIO 8 CL-SLO DGAs - Upon successful completion of Bio 8, students will be able to utilize the Dietary Guidelines for Americans to plan a diet for themselves and their family. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** Students complete a self-dietary analysis using a four-day food diary and analyze their intake as it compares to the recommendations in the DGAs. Their analysis is written as a formal report. **Assessment Method Type:** Case Study/Analysis	05/06/2014 - During the spring quarter of 2014, the students were required to complete an analysis of a personal 4-day dietary intake. Of those who answered the prompts, 100% earned a "C" or better suggesting they at least meet minimum competence. **Result:** Target Met **Year This Assessment Occurred:** 2013-2014 **Resource Request:** Nothing new needed **Resource Request:** Nothing new needed **Related Documents:** Bio 8 Dietary Guidelines Analysis	09/18/2014 - Continue to utilize current activities and assessments, as they seem to be effective.
Department - Biological Sciences (BIOL) - BIOL 8 - BASIC NUTRITION - BIO 8 CL-SLO Dietary Analysis & Planning - Upon successful completion of Bio 8, students will be able to analyze their current dietary intake and use this information to make suggestions for appropriate dietary	**Assessment Method:** Students complete a self-dietary analysis and make written recommendations for appropriate dietary modifications. **Assessment Method Type:** Case Study/Analysis	06/17/2014 - Of those students who submitted this required assignment, 100% of them successfully identified specific areas of their diet that would benefit from modification, as well as propose a plan to implement those modifications. **Result:** Target Met	09/18/2014 - Plan to continue with current approach and assessments.

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modifications. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active		**Year This Assessment Occurred:** 2013-2014 **Resource Request:** Nothing new needed	
Department - Biological Sciences (BIOL) - BIOL 9 - ENVIRONMENTAL BIOLOGY - SLO 1 - Global/Community Conciousness - Student will evaluate environmental issues and describe possible solutions at both the local and global level (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** Advocacy Campaign Assignment. I have found that one of the biggest obstacles to change is that generally people are uninformed about how their behavior affects the environment. I would like each person (or you may work in groups of two to three) to come up with an advocacy campaign that ties together the environmental consequences of human actions at both the local and global levels Criteria for picking topic include: you feel passionate about the topic, you want to learn more about it, and you want to share that knowledge with others. Your grade will be based upon three things: 1. Research on your topic: (worth 50% of your grade) ? Notes from your research ? info and facts in your words or properly cited. This will be research you have completed on the topic from the internet, books etc? Your textbook website has long lists of resources related to each chapter so you might find some resources there. (30 pts) ? Research could also include interview with a person of authority (a scientist working on the problem, a local farmer etc?), or volunteering (for example if you wanted to talk about invasive species you could volunteer for a day on a restoration project). ? A summary (one page is fine) on gathered info and your interview ? tie your research together. This can be a bulleted list that is to help you focus your advocacy campaign (10		

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	pts) ? One paragraph summary on how this info relates to you, your family, and/or society. If working in a group, each person should turn this in separately (10 pts) ? A presentation for the class (25 points) ? The presentation should overview your topic. This should be a 5-10 minute PowerPoint presentation. You should see me for help if you are unfamiliar with PowerPoint. I will post a list of helpful PowerPoint tips on the ETUDES website. 2. A method for sharing your advocacy campaign with the campus. (25 points) ? Possible methods of sharing include posters, a YouTube video, create a website or other methods of getting information out to the public . **Assessment Method Type:** Presentation/Performance		
Department - Biological Sciences (BIOL) - BIOL 9 - ENVIRONMENTAL BIOLOGY - SLO 2 - Ecosystem Processes - The student will be able to explain and provide examples of the movement of energy and matter through ecosystems and discuss human impacts that disrupt these processes. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** Student will be given two to three exam questions in which they distinguish between the flow of energy and the cycling of matter (biogeochemical cycles). Students must also evaluate human impacts and disruptions of these processes and describe possible solutions. **Assessment Method Type:** Exam - Course Test/Quiz		
Department - Biological Sciences (BIOL) - BIOL 9 - ENVIRONMENTAL BIOLOGY - SLO 3 - Global/Community Conciousness - Student will evaluate their personal impact on the earth. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:**	**Assessment Method:** Student will be required to carry out a three day project in which they track all of their resource use (energy, material goods, food etc...). On the first day, they will be required to simply record all of the energy and matter that they use. On the second day, they will be required to reduce their resource use by		

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Active	50%. By the third day, they will be required to reduce their impact by 100%. Students will be graded upon the quality of their reporting (with full recognition that 100% is probably impossible to obtain) and their self reflection of their impacts and their discussion evaluating wants and needs and how their lifestyle reflects wants and needs. **Assessment Method Type:** Class/Lab Project		
Department - Biological Sciences (BIOL) - BIOL 9L - ENVIRONMENTAL BIOLOGY LABORATORY - SLO 1 - Scientific Process - Students will be able to apply the scientific process to evaluating environmental issues. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** Students will design a research project on a local environmental issue related to a threatened or endangered species. They will be required to research causes and conflicts related to the listing of the species and then to report out to the other students in the class. At the end of the quarter, students have a mini conference to decide which of the researched species can be "funded. Essentially they have to act as experts and be prepared to argue for their own species in a time of limited budget and management resource availability. Criteria considered include species biology and population dynamics, effects on human/economic factors, feasibility of mitigating causes of loss. The students are each then required to write a short opinion on which three species should be saved and why based upon what they heard in the mini -conference. **Assessment Method Type:** Case Study/Analysis **Target for Success:** 90% of the students should be able to think and adequately argue with reasons why their three choices are the best in times of limited resources for mitigation.		

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Department - Biological Sciences (BIOL) - BIOL 9L - ENVIRONMENTAL BIOLOGY LABORATORY - SLO 2 - Scientific Process - Students will demonstrate proficiency in research and sampling techniques to evaluate a local ecosystem and impacts upon that ecosystem. (Created By Department - Biological Sciences (BIOL)) **Course-Level SLO Status:** Active	**Assessment Method:** Over the course, students will be taught standard environmental sampling techniques for water quality and biodiversity assessment. They will be required to apply these techniques in their research projects due at the end of the course. **Assessment Method Type:** Class/Lab Project **Target for Success:** 100% of the students should be able to adequately use basic instruments for testing environmental samples.		