Assessment: Assessment Unit Four Column

Fall 2016

El Camino: PLOs (NSC) - Astronomy

PLOs	*Assessment Method Description*	*Results*	*Actions*
PLO #2 Applications - Students will be able to identify and appreciate ways in which astronomy affects their daily lives. **PLO Status:** Active **PLO Assessment Cycle:** 2016-17 (Fall 2016), 2020-21 (Fall 2020) **Input Date:** 11/12/2013	**Exam/Test/Quiz -** A short 3 question quiz was administered. Questions consisted of fill-in the blanks. See attached assessment, questions 5-7. **Standard and Rubric:** Standard: It is expected each question has 70% or above correct on this PLO. **Related Documents:** PLO fall 2016.pdf	**Semester of Current Assessment:** 2016-17 (Fall 2016) **Standard Met:** Standard Not Met Question 5 correct: 40% total (1 course: 44% 2 course: 21% 3 courses:25%) Question may be better as multiple-choice. Students do not seem to have a good understanding of infrared radiation. The concept does not connect with their understanding of the real world. No sense of visualization. Need some sort of demonstration or experience with infrared light. Question 6 correct: 85% total (1 course: 84% 2 course: 85% 3 courses:100%) Too easy of a question. The answer may have been too obvious. Need to change question. Question 7 correct: 7% total (1 course: 6% 2 course: 11% 3 courses:25%) This question was harder than expected. The answer related to infrared light, which was a concept from #5 they did not understand. The question also demonstrated planets have the same physical laws as stars, but that concept seemed to get lost. Perhaps changing the question may be a solution. (06/02/2017) **Faculty Assessment Leader:** Shimonee Kadakia	**Action:** Question 6: Need to change question to a more general question on what affects intrinsic brightness of stars. Question 7: Replace the question. (06/02/2017) **Action Category:** SLO/PLO Assessment Process **Action:** Question 5: Introduce an activity/demonstration/hands-on experience with infrared radiation. Use of an infrared camera may help with showing how temperature is related to light. (06/02/2017) **Action Category:** Teaching Strategies

PLOs	Assessment Method Description	Results	Actions
		Faculty Contributing to Assessment: Vincent Lloyd **Courses Associated with PLO Assessment:** Astronomy 20, 25, 12	
PLO #4 Physical Laws - Students will explain how the application of the laws of physics reveals the properties of stars, planets, and galaxies. **PLO Status:** Active **PLO Assessment Cycle:** 2016-17 (Fall 2016), 2020-21 (Fall 2020) **Input Date:** 11/12/2013	**Exam/Test/Quiz -** A short 3 question quiz was administered. Questions consisted of multiple-choice and fill-in the blanks. See attached assessment, questions 2- 4. **Standard and Rubric:** It is expected each question has 70% or above correct on this PLO. **Related Documents:** PLO fall 2016.pdf	**Semester of Current Assessment:** 2016-17 (Fall 2016) **Standard Met:** Standard Not Met Question 2 correct: 69% total (1 course: 71% 2 course: 59% 3 courses:100%) Standard almost met. Students are thinking one dimensional: warm means longer days. Question 3 correct: 27% total (1 course: 26% 2 course: 28% 3 courses:50%) Depressing results. Students do not seem to understand the concept of hours of day length and how it changes throughout the year. Need an activity that connects hours of day and night to months. Question 4 correct: 30% total (1 course: 31% 2 course: 24% 3 courses:50%) Question asked for when the Sun is highest in the sky. 75% of students understood it would occur in the summer months, but only 30% answered June. The concept is correct but the fact is not. Making it a multiple-choice question may clear up any confusion. (06/02/2017) **Faculty Assessment Leader:** Shimonee Kadakia **Faculty Contributing to Assessment:** Vincent Lloyd **Courses Associated with PLO Assessment:** Astronomy 20, 25, 12	**Action:** Improvement can be made by having more activities or demonstrations on seasons, in particular length of day changes. Perhaps having the students make a table by recording hours of daylight once a month for a year using data from timeanddate.com to discover the changes themselves. Having in-class discussions among the students can help us recognize their confusions. (06/02/2017) **Action Category:** Teaching Strategies

Assessment: Assessment Unit Four Column

Fall 2016

El Camino: PLOs (NSC) - Biology

PLOs	*Assessment Method Description*	*Results*	*Actions*
PLO #2 Tools - The student will master the use of appropriate biological tools and evaluate evidence gathered to explain biological principles. **PLO Status:** Active **PLO Assessment Cycle:** 2016-17 (Fall 2016), 2018-19 (Fall 2018) **Input Date:** 11/12/2013	**Performance -** Students are asked to prepare a wet mount slide of a specimen and then focus on the specimen using low and high power. The slide preparation, focus and lighting were evaluated on a 4 point rubric. **Related Documents:** Biology SLO Proficiency with the Microscope 2016.doc	**Semester of Current Assessment:** 2016-17 (Fall 2016) **Standard Met:** Standard Met A total of 441 Biology students were assessed for their ability to use the microscope. 371 students, 84%, scored a 3 or 4 on the rubric. Level 3 is considered competence, while level 4 indicates the ability to resolve the specimen with the highest level of resolution and contrast. The remaining students were evenly divided between scores of 2 and 1. Students in the Majors Biology courses outperformed students in the non-majors courses. 92% of the majors Biology students scored 3 or 4 while 78% of the non-majors Biology students scored a 3 or 4. This is not an unexpected result. Students taking majors Biology courses have more experience using the microscope because they take multiple courses in the majors sequence that all require microscopic analysis. Our non-majors students may be using the microscope for the first time in some cases and often have very little experience with the microscope when they enroll in our courses. In general, the scores represent a high level of success for most of the students in the non-majors biology courses. (04/26/2017) **Faculty Assessment Leader:** Nancy Freeman **Faculty Contributing to Assessment:** Karla Villatoro, Bryan Carey, Jessica Padilla, Chi Lew, Sanda Oswald, Laurie Len, A. Wellday, A. Qian, and Samual Lee **Courses Associated with PLO Assessment:** Bio 10 (9 sections), Bio 101 (3 sections), Bio 102 (2 sections), Bio 16 (1 section) and Bio 8 (1 section)	**Action:** The Biology faculty met to update the printed materials illustrating how to use the microscope. We recently purchased new microscopes for the Biology labs and the new microscopes design is not reflected in the handouts and lab manuals. This can be a source of confusion for the students who rely on these materials and reference them while working with the microscope. these updated materials will be included in the lab manual revisions for Bio 10 and made available to students in the majors biology labs. In addition, posters will be printed and posted in the labs so that all students have access to the correct picture with labels regardless of what lab classroom they are in and what instructor they have. (04/26/2017) **Action Category:** Teaching Strategies

Assessment: Assessment Unit Four Column

Fall 2016

El Camino: PLOs (NSC) - Chemistry

PLOs	*Assessment Method Description*	*Results*	*Actions*
PLO #1 Equation Writing - Students will be able to express chemical reaction word problems in the correct format. **PLO Status:** Active **PLO Assessment Cycle:** 2016-17 (Fall 2016), 2020-21 (Fall 2020) **Input Date:** 11/12/2013	**Exam/Test/Quiz -** Students will be given a word problem (a pair of reactants). They must write the correct reactant formulas, states of matter (when required), identify reaction type, predict the product formulas and balance the chemical equation. **Standard and Rubric:** Level 1 indicates no formulas (reactants or products) are correct. Level 2 indicates that there are formula errors, but at least one formula is correct (not including regiochemistry, if applicable). Level 3 indicates all formulas are correct, but there is at least one error in states (if applicable), balancing, or regiochemistry (if applicable). Level 4 indicates no errors. It is expected that 75% of all students will score a Level 3 or higher.	**Semester of Current Assessment:** 2016-17 (Fall 2016) **Standard Met:** Standard Not Met The chemistry faculty did a comprehensive job assessing students in Fall 2016. 677 students were assessed from Chem 4, Chem 20, Chem 1A, Chem 1B, Chem 7A, Chem 7B, Chem 21A, and Chem 21B. Of these students, 59 scored rubric level 1 (8.7%), 266 students scored rubric level 2 (39.3%), 101 scored rubric level 3 (14.9%), and 251 scored rubric level 4 (37.1%). Overall, 52.0% of students scored rubric level 3 or higher. Although this percentage is well below the target (75% scored rubric level 3 or higher), we believe this to be a fault of the rubric and not student understanding. Instructors in 1B, 20, 21A, 7A, and 7B all commented that it was nearly impossible for students to score a “3” because balancing the chemical equation was trivial. This meant that if the student made any other sort of mistake at all, they would score a “2” by default. As such, we plan on adjusting the level 3 rubric for each course to better distinguish between a level 2 and a level 3 understanding. Likewise, instructors from 21B, 7A, and 7B noted that level 1 errors were impossible for organic chemistry courses (since the reactants were given). For organic courses, we made changes to all rubric levels. (06/13/2017) **Faculty Assessment Leader:** Ryan Turner **Faculty Contributing to Assessment:** Mohamad Abbani, Bob Altermatt, Premilla Arasasingham, Peter Doucette, Pasha Ebrahimi, Matthew Gard, Miguel Jimenez, Mel Kantz,	**Action:** Make changes to the assessment rubric level 3 for Chem 4, Chem 20, Chem 1A, Chem 1B, Chem 21A, Chem 21B. Make changes to all rubric levels for Chem 7A and Chem 7B. (06/13/2017) **Action Category:** SLO/PLO Assessment Process **Follow-Up:** Changes were made to the rubrics as described. (03/01/2018)

PLOs	Assessment Method Description	Results	Actions
		Morshed Khandoker, Alan Khuu, Lida Latifzdeh, Troy Moore, Laura Neurauter, Shanna Potter, Vineeta Sachdev, Laura Saldarriag **Courses Associated with PLO Assessment:** Chem 4, Chem 20, Chem 1A, Chem 1B, Chem 7A, Chem 7B, Chem 21A, and Chem 21B	

Assessment: Assessment Unit Four Column

Fall 2016

El Camino: PLOs (NSC) - Earth Sciences (Geography, Geology, Oceanography)

PLOs	*Assessment Method Description*	*Results*	*Actions*
PLO #1 Basic Knowledge - Students can identify the salient features of the basic concepts of earth science and geography. This includes the ability to recall the definitions of the specialized vocabulary of earth science and geography. **PLO Status:** Active **PLO Assessment Cycle:** 2016-17 (Fall 2016), 2020-21 (Fall 2020) **Input Date:** 11/12/2014	**Exam/Test/Quiz -** A quiz was developed for each course. Each quiz included a survey question that allows us to identify students whose first contact is with our program and students who have had more experience in our program. **Standard and Rubric:** 70% of the questions assessed should be answered satisfactorily (70% or more of the students answered it correctly).	**Semester of Current Assessment:** 2016-17 (Fall 2016) **Standard Met:** Standard Met Data can be found in the document repository in the 2016 Basic Knowledge folder. About 64% of the questions assessed were answered satisfactorily (70% or more of the students answered correctly). It is noteworthy that the lowest performance tended to come from courses in which some or all of the sections were taught by less-experienced part-time faculty. We have had difficulty recruiting experienced part-time faculty. It is likely that we would easily have met the standard had more sections been taught by more-experienced part-time faculty or full-time faculty. In the future, we decided that we should include some questions that are the same on all assessments or give out a PLO assessment, at least within a particular program (physical geography, geology, etc.), just as we do when assessing the other PLOs. This will give us more data on these questions and allow us to see how performance varies on them with experience in our classes. (02/20/2017) **Faculty Assessment Leader:** Thomas Noyes **Faculty Contributing to Assessment:** Chuck Herzig, Sara DiFiori, Julienne Gard, Rebecca Donegan, Matt Ebiner, Joe Holliday, Robin Bouse **Courses Associated with PLO Assessment:** Geography 1, 2, 5, 6, 7, and 9; Geology 1, 3, 6, and 15; and Oceanography 10	**Action:** Develop an PLO assessment for the whole department or for programs within the department. (06/08/2018) **Action Category:** SLO/PLO Assessment Process **Follow-Up:** An assessment has been developed. (12/11/2017)