Assessment: Course Four Column

Fall 2018

El Camino: Course SLOs (NSC) - Astronomy

ECC: ASTR 12:Astronomy Laboratory

Course SLOs	*Assessment Method Description*	*Results*	*Actions*
SLO #1 Scientific Method - Students will be able to apply the Scientific Method to the solution of astronomical problems. **Course SLO Status:** Active **Course SLO Assessment Cycle:** 2014-15 (Fall 2014), 2018-19 (Fall 2018) **Input Date:** 11/12/2013	**Exam/Test/Quiz -** Using a drawing of Jupiter and its Galilean satellites, students need to identify the satellites by name and explain their reasoning based on size, color, and distance. **Standard and Target for Success:** 4 points will be given. 1/2 point for each correct identification and 1/2 point for each correct explanation. It is expected 80% of the students receive at least 3 points.	**Semester and Year Assessment Conducted:** 2015-16 (Spring 2016) **Standard Met? :** Standard Not Met Two professors assessed the SLO. Professor A / Professor B Total students: 26 / 28 at least 3 points: 14 (53.8%) / 3 (11%) Breakdown by points 4 points: 7 (27%) / 2 (7%) 3.5 points: 3 (12%) / 0 (0%) 3 points: 4 (15%) / 1 (3.5%) 2.5 points: 0 (0%) / 0 (0%) 2 points: 5 (19%) / 4 (14%) 1.5 points: 3 (12%) / 1 (3.5%) 1 point: 1 (4%) / 3 (11%) 0.5 points: 3 (12%) / 7 (25%) 0 points: 0 (0%) / 10 (36%) The percentages are very low, especially for Professor B. It was professor B's first time teaching Astronomy 12 and did not realize what content to stress and cover with importance. Professor A needed 7 more students in order to meet the standard. Both professors' results indicate a need for improvement.	**Action:** Emphasizing to the students the importance in noting details and understanding what they are observing would greatly improve the results. The students may have been able to identify the images at the time, but may not have had a thorough understanding of the reasons for the identification. The students may have copied their peers or guessed. So instead of just identifying the objects, noting reasons would be helpful. Also, including questions from previous labs week-after-week can help the retention rates. (09/16/2017) **Action Category:** Teaching Strategies

Course SLOs	Assessment Method Description	Results	Actions
	Exam/Test/Quiz - Reading a short paragraph, students should be able to identify different parts of the scientific method and use their astronomy knowledge to answer additional questions. **Standard and Target for Success:** 7 points are given. 1 for each question. We will also focus on three specific questions (#1, 2 and 7). Target: Overall, 70% of the students should get a 70% or higher. For each focused question, it is expected each question has a 70% correct rate.	The SLO was given on the final week, while the lab for Jupiter was performed much earlier. Perhaps the retention rate is reflected more in the results. Professor B had many students who forgot the names of Jupiter's moons. (09/17/2016) **Faculty Assessment Leader:** Shimonee Kadakia **Faculty Contributing to Assessment:** Perry Hacking **Semester and Year Assessment Conducted:** 2018-19 (Fall 2018) **Standard Met? :** Standard Not Met	**Action:** Come up with a better assessment. (03/02/2020) **Action Category:** SLO/PLO Assessment Process

	Professor A 28 students total	Professor B 15 students total
7 points	7%	40%
6 points	18%	20%
5 points (70% mark)	25%	13%
4 points	14%	13%
3 points	7%	13%
2 points	18%	0
1 points	7%	0
0 points	4%	0
	% correct	% correct
3 specific questions		
question 1	89%	66%
question 2	46%	86%
question 7	46%	53%

Professor B met the first standard of having at least 70% of the students get 70% or higher, but looking at the focused questions, the standard was not met.

Professor A did not meet either standards.

The three focused questions are to identify specific aspects of the scientific method. Question 1 asked students to identify the hypotheses, question 2 was to identify the observations, and question 7 was to have students state the next steps in the scientific method. Overall, these are low number statistics, and does not really reflect their

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		understanding of the scientific method. The lab is not designed to lecture on the scientific method, but rather use it on their observations. A better SLO should be implemented that targets the usage of the scientific method rather than stating the different aspects. (03/02/2019) **Faculty Assessment Leader:** Shimonee Kadakia **Faculty Contributing to Assessment:** Perry Hacking	

ECC: ASTR 20:The Solar System

Course SLOs	*Assessment Method Description*	*Results*	*Actions*
SLO #3 Planet Origins - Students will be able to describe the modern theory of the origin of the planets and discuss the evidence that supports the theory. **Course SLO Status:** Active **Course SLO Assessment Cycle:** 2014-15 (Fall 2014), 2018-19 (Fall 2018) **Input Date:** 11/12/2013	**Essay/Written Assignment -** In a short essay, describe the nebular theory of the formation of the planets. Discuss the evidence that supports the theory. **Standard and Target for Success:** 4 points: The student's explanation includes a description of the collapse of a molecular cloud, formation of a proto-star, condensation, accretion, and collisions. The motions of the planets and the composition of terrestrial vs. giant planets is discussed. 3 points: The process of planet formation is well-described, but the discussion of the evidence is incomplete. 2 points. The process of planet formation is fairly-well described, but no supporting evidence is mentioned. 1 point. The process of collapse is mentioned, but several steps are omitted. No supporting evidence is presented. Target 80% of students will score 3 or 4.	**Semester and Year Assessment Conducted:** 2014-15 (Fall 2014) **Standard Met? :** Standard Not Met Points / Instructor A / Instructor B 0 / 6 (25%) / 19 (33%) 1 / 0 (0%) / 36 (62%) 2 / 2 (8%) / 1 (2%) 3 / 5 (20%) / 1 (2%) 4 / 11 (44%) / 1 (2%) Analysis The two instructors got strikingly different results. One reason could be that Instructor A did the assessment as a take-home assignment while Instructor B put it on an in-class exam. Based on this result, it appears that students benefit from doing a written assignment before taking an exam. (04/10/2015) **Faculty Assessment Leader:** Vincent Lloyd **Faculty Contributing to Assessment:** R. Shirvanian	**Action:** Administer the assessment in a consistent way. Give the students a written assignment. (12/01/2015) **Action Category:** SLO/PLO Assessment Process **Follow-Up:** In Spring 2015 and Fall 2015 students were given a homework assignment to diagram the steps of the formation of the planets. They were evaluated by an essay question on an exam. On the exam, the median score was 1.5 (out of 4). These data are telling us that this learning goal is more challenging than we had at first supposed. After discussion, we have realized that there are many science concepts involved (elements, phase change, angular momentum, etc.) and students can easily get lost. We think we need, on the one hand, to simplify the theory and reduce our expectations somewhat, and, on the other hand, give the students more hands-on practice, as lecture clearly isn't getting the point across. (12/14/2015)
	Exam/Test/Quiz - Assessment consisted of six questions. The questions covered the formation order of our solar system, formation temperatures, and solar system patterns. Assessment is attached.	**Semester and Year Assessment Conducted:** 2018-19 (Fall 2018) **Standard Met? :** Standard Not Met Professor A / Professor B 66 students / 33 students % correct / % correct	**Action:** Give students more multiple select and ordering questions throughout the semester. (03/02/2020) **Action Category:** Teaching Strategies

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	Standard and Target for Success: The percent correct for each question will be reported. Target: It is expected that 70% of the students should answer each question correctly.	Question 1	33%	6%	
		Question 2	80%	64%	
		Question 3	80%	55%	
		Question 4	36%	12%	
		Question 5	80%	45%	
		Question 6	79%	60%	
	Related Documents: A20 planet origins SLO.pdf	Both professors' results exhibit similar trends. Number 1 was the lowest scoring followed by number 4. The better scores are for questions that were multiple choice, while question 1 was an ordering question and question 4 was a multiple select. When it came to ordering the formation process (question 1), the students seemed to understand the starting step and the ending step, but they switched one or two steps around in the middle. Perhaps it was the wording of the steps being different than used during class lectures. Question 4 dealt with solar system patterns. It was a multiple select, with the answer being 3 out 5 choices. The majority of the students got at least one of the three correct, but struggled to get all three. Almost 100% of the students knew it was NOT one of the choices (choice B), as only less than 1 percent chose B. Based on the student answers, most know the order of the types of planets in our solar system, and a good amount knew the shape of our solar system. Less students knew the direction the planets revolve. Perhaps they got that confused with rotation direction. The highest scoring question for both professors was number 2, which shows students have a good understanding on how the temperature of our early solar system varied with distance to the Sun and it is nice to note they were able to read a graph. (03/02/2019) **Faculty Assessment Leader:** Shimonee Kadakia **Faculty Contributing to Assessment:** S. Vincent Lloyd		