

CENTRAL NEW MEXICO COMMUNITY COLLEGE
ASSESSMENT REPORT
Due to SAAC by October 15

PART 1: CONTACT & PROGRAM IDENTIFICATION

Report Year and Contact Information			
<u>2016-2017</u> Academic Year	<u>Erica Voges</u> Contact Person	<u>evoges</u> Email	<u>X52680</u> Phone Number

Subject of this Assessment Report		
Program: _____ <input type="checkbox"/> Certificate <input type="checkbox"/> AA <input type="checkbox"/> AS <input type="checkbox"/> AAS	Gen Ed Area: <u>Astronomy, Physics</u> Applicable to: <input checked="" type="checkbox"/> AA/AS <input type="checkbox"/> AAS	Non-Award, Non-Gen-Ed Discipline Area: _____

PART 2: THE YEAR IN RETROSPECT

Program/Area Highlights (Including, wherever applicable, course completion, job placement, and licensing examination information)
<p>Our general education assessment results indicate that, overall, our program is serving our students well. In previous years we obtained data from our PHYS 1510 courses that showed our students could successfully use mathematical techniques to evaluate and solve scientific problems. This year we assessed that same learning outcome in our ASTR 1110 courses and did not achieve results that were as good. However, we see this as an opportunity to improve our instruction with respect to teaching quantitative skills in our astronomy courses. This year’s results from our PHYS 1010 courses indicate that those students are very proficient at relating science to personal, social, or global impact.</p>

Changes Made in Support of Student Learning
<p>Topics within our astronomy curriculum were identified as good places to increase our practice of quantitative skills with our gen ed students.</p>

PART 3: REPORT ON RECENT ASSESSMENT OF STUDENT LEARNING

Student Learning Outcome(s) Assessed <small>To add rows: right-click in cell below and select "Insert," "Insert Rows Above"</small>	Classes/Cohorts Assessed
SLO 4: Utilize mathematical techniques to evaluate and solve scientific problems.	ASTR 1110

SLO 6: Relate science to personal, social, or global impact.	PHYS 1010
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Measurement Tool(s) Used <i>To add rows: right-click in cell below and select "Insert," "Insert Rows Above"</i>	Enter X's for type of tool				Initial Achievement Target or Expectation
	Internal	External	Direct	Indirect	
SLO 4: Test on final exam.	x		x		At least 60% of the students to correctly plug numbers into an equation.
SLO 6: Test on final exam	x		x		At least 75% of the students can correctly answer a multiple-choice question relating science to society.

Assessment Findings
<p>ASTR 1110 students were asked to: a) find the gravitational force between the Sun and Jupiter, and then b) use proportional reasoning to find the force between them if the distance to Jupiter were half its normal average distance. A rubric was used that assigned points on a scale from 0 to 3: 0) no work or completely incorrect; 1) correct formula and/or correctly plugged in data; 2) correct numerical answer for part 'a'; 3) correct answer for part 'b', by using proportional reasoning.</p> <p>Of the 96 ASTR 1110 students assessed, 29% earned 0s, 27% earned 1s, 15% earned 2s, and 29% earned 3s. This means 44% of the ASTR 1110 students assessed were able to correctly plug numbers into an equation, so we did not hit our target of at least 60% achieving this level of proficiency.</p> <p>PHYS 1010 students were asked to answer a multiple choice question about the nature of scientific theories. Of the 89 students tested, 75 answered correctly. This means that 84% of the students passed the assessment, so we easily met our target of 75% proficiency.</p>

Analysis and Interpretation of Assessment Findings
<p>It appears that a large percentage of the ASTR 1110 students did not know where to start. Of the 71% that did successfully get started on part a, only 44% got the correct numerical answer. So it seems that we have two goals to focus on: helping students feel confident writing down equations rather than getting overwhelmed and not even attempting the problem, and helping them gain facility with their calculators so that they generate correct answers.</p>

Action Plan in Support of Student Learning
<p>Our results indicate that we need to spend more time emphasizing mathematical techniques in our ASTR 1110 courses. We have located topics in our</p>

curriculum that provide good opportunities to emphasize these techniques with our students. We will reassess in Fall 2017.

Please indicate with an X all of the following that characterize the types of changes described in the above action plan:

- Pedagogical change
 Course revision
 Process revision
 Curricular revision
 Budgetary reallocation
 Faculty training/development
 Assessment criteria revision
 Assessment methodology revision

Recommendations, Proposals, and/or Funding Requests

PART 4: ASSESSMENT CYCLE PLAN UPDATE (Copy and paste from original plan if unchanged)

Cycle Years	Description of Changes Made (if applicable)
2015-2020	

Student Learning Outcomes	When Measured	Where Measured	How Measured
1. Employ critical thinking skills to judge the validity if information from scientific perspective.	Fall 20 – Spring 22	PHYS 1010	Final exam question
2. Apply the scientific method to formulate questions, analyze information/data, and draw conclusions.	Fall 20 – Spring 22	PHYS 1092, ASTR 1192	Instructor observation/Lab report
3. Properly operate laboratory equipment to collect relevant and quality data.	Fall 18 – Spring 20	PHYS 1692	Instructor observation/Lab report
4. Utilize mathematical techniques to evaluate and solve scientific problems.	Fall 14 - Spring 16 Fall 16 – Spring 18	PHYS 1510 ASTR 1110	Final exam question
5. Communicate effectively about scientific ideas and topic, in both oral and written formats	Fall 18 – Spring 20	PHYS 1692	Instructor observation/Lab report
6. Relate science to personal, social, or global impact.	Fall 16 – Spring 18	PHYS 1010	Final exam question.