



# PROGRAM REVIEW

## Instructional Program Review Template

Year : 
 Plan Type: 
 Program :

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- Program Information
- Data Analysis
- Critical Reflection of Assessment Activities
- Evaluation of Previous Plans
- Planning
- Resource Requests
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### 5.1 Program Plans

Based on data analysis, student learning outcomes and program indicators, assessment and review, and your critical reflections, describe the actions to be taken for the next academic year in order of importance (from #1 at the top = highest priority and down from there).

Please be specific. This section and section 6 should include a detailed justification so that the resource prioritization committees understand your needs and their importance. Plans should be actionable, measurable and not just resource requests.

[List related institutional planning goals.](#)

#	Program Plans	<u>Related Institutional Planning Goals</u>	Relationship to Previous Assessment	Expected Impact on Program/Student Learning	Resources Needed

1	Develop and provide promotional flyers for both the Geology and Physics AS-T degrees. These flyers will list the course requirements and help students understand the necessary course sequences required to earn the degree. This is combined with the request to include "magazine style" racks in the academic buildings to promote these degrees.	2017-2018 Annual Plan "Student Success" goal to increase the number of transfers to 4-year schools.	The dialogue session of Institutional Outcome #1 (ILO #1 dialogue at Spring 2017 Flex session) led to a proposal that all areas with ADTs should come up with a plan for the next program review cycle to promote their ADTs. The Physical Sciences has followed up on this dialogue-derived directive	Expect to increase the number of students enrolling in AS-T programs and program courses. This provides better guidance to these students so they are taking the appropriate courses for successful transfer.	Yes	<a href="#">Edit</a> <a href="#">Delete</a> <a href="#">Raise Priority</a> <a href="#">Lower Priority</a>
2	Augment hands-on learning activities in Del Norte Geology courses. These active-learning methods require additional equipment including pocket transits for lab exercises at the Del Norte Campus.	2017-2018 Annual Plan "Student Success" goal to increase the number of transfers to 4-year schools. Successful transfer requires that students are trained in the use of equipment that is required in their area of transfer.	The assessment of the Scientific Method outcome for the Liberal Arts Science degree (PLO#1, Fall 2016) is the basis of requesting specific course equipment to aid students in exploring the connection of experimentation with scientific inquiry.	Student learning of geology field methods requires use of "industry standard" equipment. Additionally, student understanding of concepts is aided by use of the activity-based learning connected with this equipment. We anticipate a better understanding of scientific inquiry as reflected in the assesment of the scientific inquiry CLOs in geology courses at the Del Norte Campus.	Yes	<a href="#">Edit</a> <a href="#">Delete</a> <a href="#">Raise Priority</a> <a href="#">Lower Priority</a>
3	Investigate implementation of online Chemistry homework system.	Educational Master Plan Goal #3: Deliver strong individual support for students.	The assessment of Chemistry 1B has also led to the suggestion to: "Look for and setup online homework system". This requires research and will be part of a planning item. This was stated in assessment dialogue related to assessment of CLO#1 for Chem-1B, Fall 2016 assessment.	Success rates for students in chemistry is lower than the District for both FTF and online courses. Chemistry programs at other institutions have shown that having an online resource for practicing programs leads to increase success in the course. We anticipate similar results and better achievement of outcomes related to computational methods.	No	<a href="#">Edit</a> <a href="#">Delete</a> <a href="#">Raise Priority</a> <a href="#">Lower Priority</a>

4	<p>Augment the learning experience of Del Norte and Eureka Geology labs. Specific supplies are required to achieve the course outcomes. Specifically, Historical Geology requires analysis of fossils and the District fossil collection is very limited. Purchase of new specimens and related supplies are required to teach this course. Purchase additional rock and fossil samples for the Eureka and Del Norte Campus geology labs.</p>	<p>Educational Master Plan Goal #2: Effectively use all learning modalities to provide students the knowledge and skills they need to succeed. Learning through investigation of fossil and rock samples is a proven modality for learning the sciences.</p>	<p>Assessments of Historical Geology outcomes has led to the following observation: In a couple of cases, low-quality samples were in the lab and students were then less able to identify the same fossil type on the lab exams. A similar experience occurred for some of the rock types. Because many of the good samples are set aside for Physical Geology, there are fewer samples available for Historical Geology. Geol-2, CLO#2, F14 dialogue.</p>	<p>Having a wider range of lab specimens will enable students to understand the variability within specific rock and fossil types. This leads to a fuller understanding of classification and how variations can be interpreted to understand the geologic environment.</p>	<p>Yes</p>	<p>Edit Delete Raise Priority Lower Priority</p>
5	<p>Investigate if the existing chemistry course prerequisite is adequate. Determine if the chemistry prereq is adequate. Call SMJC and get their prereq info. Collect CCDT data and determine if this is a good predictor of success.</p>	<p>Education Master Plan Goal #5: Strive to eliminate achievement gaps across student groups. There is an achievement gap between different demographic groups, and a relatively low success rate among all groups in chemistry courses. This initiative is to close the achievement gap and increase the success of all students (EMP Goal #1).</p>	<p>The assessment results from Chem 1A, CLO #2 (Fall 2017): consider if the existing chemistry course prerequisite is adequate.</p>	<p>The impact on the courses and program is to ultimately increase student success across all groups by identifying the proper preparation required for chemistry courses.</p>	<p>No</p>	<p>Edit Delete Raise Priority Lower Priority</p>
6	<p>Work with life science faculty on faculty resources and training for student "science writing". This includes collecting resources for faculty to teaching effective written communication, and possibly professional development by individuals trained in teaching science writing.</p>	<p>Annual Plan Objective 2. Continuously assess and evaluate programs to provide effective educational programs and services for all learners.</p>	<p>The General Education, Area A assessment (Fall 2016 dialogue and report on PLO #A1) led to dialogue concerning the ability of science students to express themselves in writing.</p>	<p>Improvements in students ability to communicate and express themselves on exams and in written projects. This allows them to better demonstrate their understanding and has the benefit of allowing better assessment of their achievement of learning outcomes.</p>	<p>No</p>	<p>Edit Delete Raise Priority Lower Priority</p>

7	<p>Improve student learning related to thermodynamics in PHYS-2A and -4C. Specifically, CLO#3 from 2A and CLO#2 from 4C assessments identify the need for improvement that could be supported by better demonstrations of the phenomena and better lab activities.</p>	<p>This plan relates to objective EP4.1 since it will require new lab equipment to support instructional needs. It also relates to objective SP4.2 which is about improving instructional labs. It more tangentially relates to SP1.4 and EP1.6 because better lab activities and demonstrations enhance student engagement and also could improve success among underrepresented students by presenting the concepts in multiple ways, particularly with demonstrations that show the phenomenon, which tends to eliminate the effect cultural and socioeconomic background could have on learning the material.</p>	<p>PLO dialog of PLO #1 in LA:Science has identified the relationship of lab activities and demonstration to attainment of the PLO and outcomes that map to it. As well, there are course level assessments of CLO#3 in PHYS 2A that occurred Fall '16 and CLO#2 of PHYS-4C that occurred Spring '17 that suggest the need for improvement based on added activities and demonstrations.</p>	<p>Better performance on future assessments of the CLOs referenced in the plan is expected. This will also map to better attainment of PLOs in LA:Science and the physics ADT.</p>	Yes	<p>Edit Delete Raise Priority Lower Priority</p>
8	<p>Improve student learning of relativity by developing improved activities, particularly in PHYS-4C.</p>	<p>Annual Plan Objective 2. Continuously assess and evaluate programs to provide effective educational programs and services for all learners.</p>	<p>A course level assessment of PHYS-4C identified this issue. It may take some time to develop improvement, since the subject matter is abstract and difficult.</p>	<p>Better performance on future assessments of the CLOs referenced in the plan is expected</p>	No	<p>Edit Delete Raise Priority Lower Priority</p>
9	<p>Improve student learning related to multi-loop circuit analysis using Kirchhoff's rules in PHYS-2B and 4B. Specifically, CLO#2 for 2B had a recent assessment that identified the need for improvement that could be supported by better lab activities based on equipment more suited for students at the beginning level with circuit analysis.</p>	<p>This plan relates to objective EP4.1 since it will require new lab equipment to support instructional needs. It also relates to objective SP4.2 which is about improving instructional labs. It more tangentially relates to SP1.4 because better lab activities enhance student engagement.</p>	<p>PLO dialog of PLO #1 in LA:Science has identified the relationship of lab activities and demonstration to attainment of the PLO and outcomes that map to it. As well, a course level assessment of CLO#2 in PHYS-2B in Spring '17 identified this area for improvement specifically, and makes the recommendation that better developed labs based on more appropriate and pedagogically up to date equipment should help with the attainment of the CLO.</p>	<p>Better performance on future assessments of the CLOs referenced in the plan is expected. This will also map to better attainment of PLOs in LA:Science and the physics ADT.</p>	Yes	<p>Edit Delete Raise Priority Lower Priority</p>

10	<p>Improve student learning related to quantum physics and its applications. Specifically, CLO#5 from PHYS-2B and CLO#4 from PHYS-4C assessments</p> <p>identify the need for improvement that could be achieved by developing new lab activities that see application of quantum principles and the related mathematics.</p>	<p>This plan relates to objective EP4.1 since it will require new lab equipment to support instructional needs. It also relates to objective SP4.2 which is about improving instructional labs. It more tangentially relates to SP1.4 because better lab activities enhance student engagement.</p>	<p>PLO dialog of PLO #1 in LA:Science has identified the relationship of lab activities and demonstration to attainment of the PLO and outcomes that map to it. As well, there are course level assessments of CLO#5 in PHYS-2B that occurred Spring `17 and CLO#4 in PHYS-4C that occurred in Spring `17 that strongly suggest the need for equipment. The 2B assessment specifically calls for X-ray generation equipment, and the 4C assessment suggests equipment that relates to models of how electrons behave in atoms.</p>	<p>Better performance on future assessments of the CLOs referenced in the plan is expected. This will also map to better attainment of PLOs in LA:Science and the physics ADT.</p>	Yes	<p>Edit</p> <p>Delete</p> <p>Raise Priority</p> <p>Lower Priority</p>
11	<p>Investigate Model Engineering Curriculum (MC) for Transfer, and investigate "road blocks" to students completing "pre-engineering degree" curriculum.</p>	<p>This plan is directed related to Educational Master Plan Goal #1: "1) Provide accessible, affordable, high -quality education." A portion of the students in the mathematics program are preparing for entry into engineering programs and rely on CR as a means to do this in an efficient and lower-cost manner.</p>	<p>This plan and associated resource request is directly related to achieving Institutional Learning Outcome #1 (Students will successfully acquire program outcomes and complete degrees and/or certificates). During the January 2016 dialogue session on ILO #1, the discussion included a suggestion that other areas of transfer should be pursued (this is in addition to the existing ADTs).</p>	<p>This investigation has the potential to add a few courses that will allow students to complete the necessary "pre-engineering" course requirements at CR. This will have the impact of retaining students who will then also potentially complete AS-T degrees in Mathematics and/or Physics.</p>	No	<p>Edit</p> <p>Delete</p> <p>Raise Priority</p> <p>Lower Priority</p>
					No ▾	Add

**The vision for success goals are institutional planning priorities for the next several years. You can find the full Vision for success document at this link ([Vision for Success Goals](#)). Please comment on how your area is planning to address the following during this academic year:**

- 1. Increase the number of completers (including AA-T degrees, AA/AS degrees, and certificates)**

- 2. Decrease the number of average total units a student must take to complete (For example, a discussion of Guided Pathways work in your area might be appropriate here, or larger efforts your area is undertaking to decrease total units to completion)**
- 3. Equity (What is your area doing to promote equity across student groups?)**
- 4. Increase the number of students finding living-wage work in a related field of study (CE areas only need to complete this section)**

Plan #1: Develop and provide promotional flyers for both the Geology and Physics AS-T degrees. These flyers will list the course requirements and help students understand the necessary course sequences required to earn the degree.

This plan is designed to provide students with advising materials to help them understand what is required to meet their academic goals (transfer degree). A student who understands the courses sequences (and pathways to courses such as Calculus) will be more likely to persist and see progress in their academic plan.

Plan #5: Investigate if the existing chemistry course prerequisite is adequate.

This plan is designed to help students be successful in chemistry courses. Chemistry can be an impediment for students to persist and complete their academic goals.