FALL 2014 SLO/PLO ASSESSMENT REPORT

Date: January 9, 2015

Name of Person Reporting: Said Pazirandeh

Name of Department and/or Discipline: Physical Sciences

1. a. List the courses/certificates/programs your discipline/department assessed in the fall 2014 semester.
b. For each one, indicate whether the benchmark (standard for student success) was reached.

The following courses and SLOs (with benchmarks) were assessed during Fall 2014 semester:

- Astronomy 5-SLO #3 (83%)
- Chemistry 51-SLO #1 (74%)
- Chemistry 65-SLO #1 (55%), #2, (67%), #3 (75%)
- Chemistry 101-SLO #2 (73%)
- Chemistry 102-SLO #1 (58%), #2 (79%)
- Chemistry 211-SLO #1 (80%), #2 (50%), #3 (75%)
- Geography 1-SLO #2 (57%), #3 (88%)
- Geography 7-SLO #2 (67%)
- Geography 15-SLO #2 (75%), #3 (69%)
- Physical Science 1-SLO #1 (74%)
- Physics 7-SLO #1 (62%)
- Physics 37-SLO #2 (92%)
- Physical Science AA-PLO #1 (74%), PLO #2 (73%)

2. Summarize the major assessment results for courses/programs in your area.

Assessment results in chemistry and physics courses indicate that students need more writing opportunities in class in order to master conceptual concepts and explain macroscopic events in terms of theoretical models. In addition, students lack depth in understanding and explaining the theoretical concepts behind experimental results in the laboratory, and have difficulty relating the causes for these results. Students in both disciplines have adequate mastery of mathematical concepts and can utilize their knowledge to reason and solve problems using mathematical equations and relationships.

Assessment results in geography indicate knowledge of basic and introductory
concepts, but show lack of depth of knowledge in more complex materials.

Assessment of 2 PLOs in the Physical Science AA indicate average results close to the benchmark of 70%. The AA degree will be reviewed by department faculty to properly align courses in various disciplines to improve student success in future PLO assessments.

3. **Summarize what changes have been made or are planned to be made as a result of the assessments.**

Some of the changes planned based on this semester’s assessments are:

- Addition of 1 hour of instruction to lecture for Chem 65 by adopting Chem 60 course.
- Use of additional conceptual and writing exercises in class to aid students in developing stronger connections between theoretical concepts and experimental results and more clear writing skills.
- Continuation of use of carbon-less laboratory notebooks in chemistry labs to help students develop proper record keeping techniques.
- The Physical Science AA will be evaluated to include more chemistry and physics courses now available at the college.

4. **Follow up on previous assessments:**

   (1) If an SLO was assessed previously, compare the results with the earlier assessments:

   (a) **Have the recommended changes been implemented?**

   All SLOs assessed this semester were assessed for the first time. The department will develop a matrix to schedule assessment of each SLO in each course within a 3-yr cycle. Follow-up comments will be provided when the next assessment cycle is completed.

   (b) **Has the follow-up textbox been filled in on the SLO online system?**

   Several previous assessments from Astronomy 1 and 5, Chemistry 51 and Physics courses were completed with follow-up comments. Other follow-up comments will be completed as the assessment cycle repeats.

   (2) **How have the findings led to improved student learning?**

   In Astronomy courses, use of Clickers in class has increased student participation, enthusiasm and engagement in class. The effect of use of this tool in class will be evaluated during the next assessment cycle.

   In Chemistry 51 courses, use of carbon-less laboratory notebooks has improved student data recording skills by requiring students to prepare prelab write-ups before coming to class.
Other curriculum modifications (such as laboratory modifications) and use of new instructional techniques (such as groupwork, etc.) are being evaluated in some of the courses in the department.
5. **Have the results of your assessments been shared and discussed among the members of your program?** (Provide dates and any minutes of meetings as evidence. Please also post relevant minutes in the Department Notes section of the SLO Online system.)

The Chemistry discipline faculty met on Flex day at the beginning of semester (8/28/14) and discussed consolidation and revision of the SLOs for all chemistry courses. In addition, a matrix of assessment was developed for all SLOs not assessed yet. Similar revisions and consolidations were done by Astronomy & Physics and Geography instructors in order to meet expected deadline for all assessments.

6. **Have the results of your assessments been shared and discussed with members of your advisory committee (if vocational program)?** NA

7. **What resource requests are planned as a result of the assessments?**

Some of the resources requested include (1) telescopes for Astronomy classes, (2) electrical field apparatus and, (3) moment of inertia equipment for Physics classes, (4) software for spectroscopy analysis for organic classes.

8. **Have the assessment results been posted on the online system?** Yes