SPRING 2012 SLO/PLO ASSESSMENT REPORT

Date: June 22, 2012

Name of Person Reporting: Said Pazirandeh

Name of Department and/or Discipline: Physical Sciences (Chemistry and Geography)

1. What courses/certificates/programs have you assessed this past semester?

   Astronomy 1 and 5
   Chemistry 51, 65, 101 and 102
   Geography 1
   Physics 6 and 7
   Physical Science 1 and 14

2. Summarize the analysis of your assessment results for courses in your area.

   Assessment results for Astronomy, Physics and Physical Science courses listed above were summarized in a separate report submitted by Richard Rains.
   Assessment results for Chemistry and Geography courses are listed below:

   Chemistry 51 (Spring 2012)
   One SLO was assessed on properties and behaviors of solids, liquids and gases, by imbedding of an essay question in the final exam. Three sections of the course were assessed on this SLO. Questions were assessed using a rubric developed by both instructors teaching the course (S. Pazirandeh and M. Fenton).
   Initial evaluation of results for one section of the course indicate that most students knowledge and communication skills of abstract concepts in chemistry remains equal or below developing stage and needs to be further improved. Initial recommendations for improvement include plans to use more essay writing questions as exercises in class and assignment for home to better develop student skills necessary to explain and relate conceptual ideas in chemistry. These recommendations will be implemented in Fall 2012 by both instructors teaching the course.
   Evaluation of results of other sections assessed will be completed in summer and changes and recommendations for curriculum improvement modified accordingly.
Chemistry 65 (Spring 2012)
One SLO was assessed on accurately maintaining a laboratory notebook according to standard scientific guidelines, by collecting and assessing student laboratory notebooks. One section of the course was assessed on this SLO. Notebooks were assessed using a rubric developed by 3 discipline instructors (J. Cassara, M. Fenton and S. Pazirandeh). Evaluation of results and recommendations based on this assessment are planned to be completed by end of July.

Chemistry 101 (Spring 2012)
One SLO was assessed on solving quantitative chemistry problems through integration of multiple ideas and demonstrating reasoning clearly and completely, by imbedding questions on the final exam. Two sections of the course were assessed on this SLO. Exam questions were assessed using a rubric developed by 3 discipline instructors (A. Qureshi, M. Fenton and S. Pazirandeh). Evaluation of results and recommendations based on this assessment are planned to be completed by end of July.

Chemistry 102 (Spring 2012)
One SLO was assessed on extracting appropriate information, analyzing and synthesizing experimental results to reach correct conclusions, by assessing student lab reports. One section of the course was assessed on this SLO. Lab reports for one experiment were assessed using a rubric developed by the lab and lecture instructors (M Fenyes and S. Pazirandeh).

Evaluation of results for this assessment indicate that the majority of students are proficient in (a) collecting all the necessary raw data, (b) collecting correct data (close to what is normally expected), and (c) presenting the raw data in detail (including units and the proper number of significant figures). However, also based on this assessment it was found that the majority of students (a) present some sample calculations, but the calculations are incomplete, disorganized and often do not include units, and (b) have difficulty interpreting the agreement/disagreement of experimental data with predicted results.

The plan of action aiming to overcome the deficiencies addressed above are:

1. For every single or series of required calculations that students are asked to perform, some prompts will be provided. These prompts will vary depending on the laboratory activity performed and may be in the form of: (a) a sample calculation, or (b) a template that includes the format of the required .

2. Questions that ask students to provide statements linking the experimental data to the theoretical outcome: (a) will be less general in nature; (b) will be broken down in several parts; (c) will guide the students through a step-by-step approach in logical thinking, and (d) will ask for the general statement, only at the end, in the form of a summary of the step-by-step approach, previously completed.
Geography 1 (Spring 2012)
One SLO was assessed on understanding the interrelationships among the earth system's major spheres; the atmosphere, lithosphere, hydrosphere, and the biosphere, by imbedding questions on the final exam. Two sections of the course were assessed on this SLO. Exam questions were assessed using a rubric developed by 2 discipline instructors (C. Khan and V. Drake).
Preliminary evaluation of results for this assessment have been completed by the faculty, and review and recommendations of these are planned to be completed by end of July.

3. How have the results of your assessments been shared and discussed among the members of your program? (Provide dates and any minutes of meetings.)

Chemistry SLO assessment were developed and evaluated by chair (S. Pazirandeh) and vice chair (M. Fenton) with consultation with adjuncts teaching the particular courses. Email communications and informal meetings took place between faculty teaching each course to implement the assessment and evaluate the results.

Geography 1 SLO assessment was planned and evaluated by 2 adjunct faculty teaching the course through email communications.

4. How have the results of your assessments been shared and discussed with members of your advisory committee (if vocational program)?

Not applicable

5. Based on the discussion and analysis of your assessment results, what changes have you made or do you plan to make? (Please provide dates, description of changes, and person responsible.).

Recommendations for changes in Astronomy, Physics and Physical Science courses listed above were summarized in a separate report submitted by Richard Rains. Recommended changes for the chemistry courses assessed and evaluated are listed below:

Chemistry 51: Recommended actions include plans to use more essay writing questions as exercises in class and assignment for home to better develop student skills necessary to explain and relate conceptual ideas in chemistry. These recommendations will be implemented in Fall 2012 by both instructors teaching the course (M. Fenton and S. Pazirandeh)

Chemistry 102: Recommended actions include plans to use guided directions for sample calculations and evaluating experimental results and conclusions. These recommendations will be implemented in Fall 2012 by both instructors teaching the laboratory course (M. Fenton and M. Fenyes)
The recommendations for other chemistry and geography courses that completed assessment during Spring 2012 will be provided once the assessments have been evaluated by end of July.

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

No resource requests have been planned for the chemistry and geography courses assessed during Spring 2012.

7. Have the assessment results been posted on the online system?

Chemistry 51 and 102 assessments have been posted online. Chemistry 65 and 101 assessments will be posted online after the assessments have been completed by end of July. Geography 1 assessments have been completed and will be posted online by end of June.

Written responses to these questions are due by Friday, June 22, 2012. These answers will be important evidence for accreditation.