

## Annual Reassessment 2019-2020

The purpose of SAC-level assessment at PCC is to identify the levels of student achievement of course- or program-level outcomes in the name of improving those levels of achievement. The second part of that process is the reassessment of an outcome that has been assessed in a previous year.

In an initial assessment of an outcome, a SAC should identify any areas of student achievement of an outcome that could be improved. The SAC should then target those areas with a teaching strategy appropriate to its discipline during the reassessment year. The reassessment of the outcome then determines if the strategy was effective by measuring any changes to student achievement.

This process, of assessing, analyzing, creating a teaching strategy, and reassessing, is called "closing the loop." It is how assessment can be useful for instructors and, by extension, for students.

On completing the form, please e-mail it to [learningassessment@pcc.edu](mailto:learningassessment@pcc.edu).

Note that questions marked with an asterisk\* indicate that the accompanying help document includes information relevant to that question.

The planning section that follows is to be completed and submitted Fall Term. If your SAC is unable to complete it in fall, please fill out the planning section when completing the final report in spring.\*

### Planning Section: To be completed and submitted in Fall Term

SAC Assessment Contact:

| <i>Name</i>    | <i>e-mail</i>          |
|----------------|------------------------|
| Stacey Fiddler | stacey.fiddler@pcc.edu |

#### 1. What SAC do you represent?

|               |
|---------------|
| Chemistry, CH |
|---------------|

#### 2. What outcome(s) do you plan to reassess?

|   |
|---|
| Quantitative Reasoning – Specifically concerning Hydrogen Bonding |
|---|

3a. What were the results of the outcome's initial assessment (in a past year)?

Four course-specific learning objectives were re-examined by the Chemistry SAC in all CH 222 courses. Questions were simplified and keys were created to identify student misconceptions based on the multiple choice answer they selected.

One of the four questions met the 85% benchmark at 94.83% of students getting the correct answer. Students did not meet the 85% benchmark on the remaining questions (65.55%, 62.60%, 73.28%).

3b. What area(s) of outcome achievement did the initial assessment identify that might benefit from additional focus by the SAC?

For one of the questions, one instructor's students achieved the benchmark at >90% while the rest did not meet the benchmark (62.60%). We have chosen to focus on this question for intervention by instructors.

4. What changes to teaching might the SAC explore this year to address the areas in need of additional focus?

Each instructor will decide how to change their lesson plan, with their intervention recorded and accessible to the SAC. This question and teaching methods were discussed in the Fall 2019 SAC meeting, and teaching materials including activities and slides have been shared via GoogleDrive.

5. What course(s) will your assessment focus on?

CH 222 General Chemistry II

6. How will you sample student work?\*

The assessment question agreed upon by the SAC will be included as the first question on final exams being administered by CH222 instructors during Winter Term. The scantrons will be collected and analyzed by the assessment subcommittee. This assessment will sample the complete population: all students taking CH222 Winter Term will be part of the assessment.

7. Will the student work be part of the regular graded assignments for the course(s)?\*

Yes, the student work will be part of the final exam.

8. How will you redact student work (i.e. make it anonymous)?\*

After the scantrons are collected, the results will be downloaded into an Excel document. Neither student's names nor identifying information about the sections they came from will be included in the Excel document. All analysis will be done using the data in the Excel document. Scantrons will be either returned to instructors or shredded, depending on instructor preference.

9. Will your project be a direct or indirect assessment of student work? (Include an explanation if relevant.)\*

Direct assessment.

10. In what term(s) will you collect student work?\*

Winter 2020

11. In general terms, describe the reassessment project for the year. What steps will you take in carrying out the project?

Since multiple choice answers can now be directly tied to common student misconceptions, instructors may choose to implement different methods or materials in their classes to address them. Materials are shared via GoogleDrive, and there was a discussion during the Fall SAC meeting on how instructors teach that material. Instructors will choose how they will change their lesson plan and share that with the SAC. All CH 222 instructors will give the same multiple choice question on their final exam to assess student learning. Results will be compared to the 62.60% of students who got the correct answer in our 2019 assessment.

12a. What are the benchmarks (minimum acceptable level of student outcome achievement)?\*

85%

12b. What percentage or frequency of students do you hope to see achieve the benchmarks?\*

We hope to see an increase from the previous year, with the hope that we reach our benchmark of 85%.

12c. Have your benchmark levels changed based on the results of the initial assessment? If so, why?\*

They have not changed.

13. Describe the tools (e.g. rubrics, checklists, standardized exams) you will use in the project to evaluate student work.

We will use the multiple choice question below with answers keyed to specific student misconceptions.

2. Below are the structures for  $\text{CH}_4$ ,  $\text{CH}_3\text{OH}$ , and  $\text{CH}_2=\text{O}$ . Pure samples of which of these compounds will exhibit hydrogen bonding?

*(structures are not copying correctly here)*

- a.  $\text{CH}_4$  only
- b.  $\text{CH}_3\text{OH}$  only
- c.  $\text{CH}_2=\text{O}$  only
- d. both  $\text{CH}_3\text{OH}$  and  $\text{CH}_2=\text{O}$
- e. all of them

#### Instructional Guidelines

|   |   |   |
|---|---|---|
| a | $\text{CH}_4$ only                                | Filler answer. Trying to keep the three structures and three first responses aligned.                                     |
| b | $\text{CH}_3\text{OH}$ only                       | Correct Answer.   |
| c | $\text{CH}_2=\text{O}$ only                       | Student is confusing dipole-dipole forces with hydrogen bonds.  |
| d | $\text{CH}_3\text{OH}$ and $\text{CH}_2=\text{O}$ | Student does not recognize that the hydrogen participating in a hydrogen bond must be covalently bonded to an O, N, or F. |
| e | all of them                                       | Student thinks that hydrogen bonding occurs whenever a hydrogen is present.   |

14. Describe how the SAC will ensure that the evaluation of student work is consistent (e.g. norming rubrics, verifying inter-rater reliability).\*

Since multiple choice questions are being used, this is not an issue.

15. Different SACs and individuals have different training in assessment. Your LAC coach is available to help with any step. What might you need help with moving forward?

None this year.

**\*STOP\*** This concludes the planning portion of the form.

Please save this document and submit it to [learningassessment@pcc.edu](mailto:learningassessment@pcc.edu) by December 2, 2019.

In the spring, complete the reporting section that continues on the next page.

## Annual Reassessment Report 2019-2020

The purpose of SAC-level assessment at PCC is to identify the levels of student achievement of course- or program-level outcomes in the name of improving those levels of achievement. The second part of that process is the reassessment of an outcome that has been assessed in a previous year.

In an initial assessment of an outcome, a SAC should identify any areas of student achievement of an outcome that could be improved. The SAC should then target those areas with a teaching strategy appropriate to its discipline during the reassessment year. The reassessment of the outcome then determines if the strategy was effective by measuring any changes to student achievement.

This process, of assessing, analyzing, creating a teaching strategy, and reassessing, is called "closing the loop." It is how assessment can be useful for instructors and, by extension, for students. On completing the form, please e-mail it to [learningassessment@pcc.edu](mailto:learningassessment@pcc.edu).

Note that questions marked with an asterisk\* indicate that the accompanying help document includes information relevant to that question.

If your SAC was unable to complete the planning section, above, during Fall Term, please fill that section out before completing the following end-of-year report.

16. Were any changes made to the reassessment plan submitted in Fall Term? If so, please briefly describe them.

Due to the scramble to put our finals online last quarter this question did not make it on to our finals. As such, we have no data to compare to last year. We thought about moving the question to spring finals, but with the move to remote instruction we did not think we would get meaningful data. It would be impossible to tell if changes in student's understanding were from changes we made due to instruction on hydrogen bonding or due to remote instruction. Therefore, the SAC would like to complete the proposed 2019-20 reassessment next year when we feel we could collect meaningful data according to our proposal.

17. Did the SAC implement a teaching strategy and/or curricular change to improve student outcome achievement? If so, describe it here. If not, what were the barriers to such a strategy's development?\*

Instructors had chosen how to change their lesson plans with respect to hydrogen bonding during Winter quarter instruction. The changes implemented were not documented officially with the SAC due to the shift to remote instruction. We plan to implement the same changes next Winter when we can accurately collect data that is not affected by the change to remote instruction.

18. Please provide a summary of your results; include only key data points and your overall findings regarding student learning.

Results delayed one year.

19a. What were the benchmark levels (minimum acceptable level of student achievement of the outcome) for the project?\*

85%

19b. What percentage or frequency of students achieved the benchmark levels?\*

Results delayed one year.

20. Please accompany your report with the actual results of your project as an appendix (i.e. along with this report, send the project results themselves as a spreadsheet or document) if possible. If that is not possible, please explain.\*

Results delayed one year.

21. How did changes to teaching or curriculum affect student outcome achievement?

Results delayed one year.

22. How was student work redacted (i.e. made anonymous)?\*

Results delayed one year.

23. In general terms, describe the level of SAC involvement in the project (e.g. were both PT and FT faculty involved in contributing and/or scoring artifacts? Did all instructors or a representative sample of instructors contribute student work to be evaluated?) Identify any barriers to participation within the SAC.

Results delayed one year.

24. Do the results justify reassessing the outcome again or that the SAC should now move on to another outcome?\*

Results delayed one year.

25. Please explain how results have been shared, or will be shared, with members of your SAC.

Results delayed one year.

26. Please comment briefly on any changes to the reassessment process that would lead to more meaningful results.

Results delayed one year.

27. Based on your experience with reassessment this year, are there any areas that you might want help with from your LAC coach?

Results delayed one year.

28. Is there anything else you want to share with reviewers about your reassessment project that has not been captured in the form?

Results delayed one year.

Please submit your report to [learningassessment@pcc.edu](mailto:learningassessment@pcc.edu) by June 30, 2020