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| **Assurance of Student Learning Report****2020-2021** |
| Ogden College of Science and Engineering | Department of Chemistry |
| Chemistry, Ref. 059 |
| Eric Conte, Professor, Department of Chemistry |

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| ***Use this page to list learning outcomes, measurements, and summarize results for your program. Detailed information must be completed in the subsequent pages.*** |
| **Student Learning Outcome 1:**  Our graduates will have the ability to communicate effectively in written form. |
| **Instrument 1** | **Literature reviews written by the students in CHEM 516 (Chemical Literature Review)** |
| **Based on your results, check whether the program met the goal Student Learning Outcome 1.** | **[x]  Met** | **[ ]  Not Met** |
| **Student Learning Outcome 2:** Our graduates will have the ability to communicate effectively in oral form. |
| **Instrument 1** | **Oral presentation of literature review in CHEM 598 (Graduate seminar)** |
| **Instrument 2** | **Oral presentation of students’ research results in CHEM 598 (Graduate seminar)** |
| **Based on your results, check whether the program met the goal Student Learning Outcome 2.** | **[ ]  Met** | **[x]  Not Met** |
| **Student Learning Outcome 3:** Our graduates will have the ability to design and propose effective experiments. |
| **Instrument 1** | **Research proposals written by the students in CHEM 588 (Research Proposal)** |
| **Based on your results, check whether the program met the goal Student Learning Outcome 3.** | **[x]  Met** | **[ ]  Not Met** |
| **Program Summary (Briefly summarize the action and follow up items from your detailed responses on subsequent pages.)**  |
| 1. Evaluation of first draft vs. final report using the Written Communication Rubric (Outcome 1; Instrument 1 and Outcome 3; Instrument 1)
2. Evaluation of literature oral presentation vs. research presentation using the Oral Communication Rubric (Outcome 2; Instrument 1 and 2)
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| **Student Learning Outcome 1** |
| **Student Learning Outcome**  | Our graduates will have the ability to communicate effectively in written form. |
| **Measurement Instrument 1**  | Our graduates will have the ability to communicate effectively in written form.First drafts and final reports will be scored for students taking CHEM 516 Chemical Literature Review using a Written Communication Rubric. The instructors that taught this course will score their respective students.  |
| **Criteria for Student Success** | There should be an increase in rubric scores from the first paper drafts to the final paper. Students should score an average of 2.6 out of 4 on the final report. |
| **Program Success Target for this Measurement** | 75% | **Percent of Program Achieving Target** | 100% |
| **Methods**  | All 6 students that took this course during the 2020-2021 AY were evaluated by their respective instructor of record. |
| **Based on your results, highlight whether the program met the goal Student Learning Outcome 1.** | **[x]  Met** | **[ ]  Not Met** |
| **Actions** (Describe the decision-making process and actions for program improvement. The actions should include a timeline.) |
| The modified AACU rubric for this course was developed to help students improve in scientific literature writing. This rubric will be given to the student at the first meeting of this course. The instructor will explain this rubric to the students. Draft papers will be scored using this rubric and students will have a chance to meet with the instructor to make improvements for the final draft. |
| **Follow-Up** (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.) |
| A modified AACU rubric that better coincides with the requirements for scientific writing in CHEM 516 has been completed. This rubric will be provided to CHEM 516 students on the first meeting of this course. |
| **Next Assessment Cycle Plan** (Please describe your assessment plan timetable for this outcome) |
| We expect to re-assess next year.  |

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| **Student Learning Outcome 2** |
| **Student Learning Outcome**  | Our graduates will have the ability to communicate effectively in oral form. |
| **Measurement Instrument 1** |  **Oral presentation of literature review in CHEM 598 (Graduate Seminar)**Students taking CHEM 598 will be scored using an Oral Communication Rubric. The instructors that teach this course and audience faculty will score these students |
| **Criteria for Student Success** | Students will receive an average rubric number that will be compared to their research presentation rubric number from Instrument 2. |
| **Program Success Target for this Measurement** | 75% | **Percent of Program Achieving Target** | 100% |
| **Methods**  | Five students presented literature seminars for this course during the 2020-2021 AY and were evaluated by faculty that attended the respective seminar presentation. |
| **Measurement Instrument 2** | **Oral presentation of students’ research results in CHEM 598 (Graduate Seminar)** |
| **Criteria for Student Success** | **There should be an increase in rubric scores from the** **literature review presentation compared to the research presentation. Students should score an average of 2.6 out of 4 on the research presentation.** |
| **Program Success Target for this Measurement** | 75% | **Percent of Program Achieving Target** | 67% |
| **Methods**  | Six students presented research seminars for this course during the 2020-2021 AY and were evaluated by their respective instructor of record. |
| **Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 2.** | **[ ]  Met** | **[x]  Not Met** |
| **Actions** (Describe the decision-making process and actions planned for program improvement. The actions should include a timeline.) |
| The modified AACU rubric for this course was developed to help students improve in scientific presentations. This rubric will be given to the student at the first meeting of this course. The instructor will explain this rubric to the students. A student’s second presentation (a research presentation) will be compared to his/her first presentation using this rubric.  |
| **Follow-Up** (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.) |
| A modified AACU rubric that better coincides with the requirements for CHEM 598 has been completed. This rubric will be provided to CHEM 598 students on the first meeting of this course.  |
| **Next Assessment Cycle Plan** (Please describe your assessment plan timetable for this outcome) |
| We plan to assess this outcome again next year. |

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| **Student Learning Outcome 3** |
| **Student Learning Outcome**  | Our graduates will have the ability to design and propose effective experiments. |
| **Measurement Instrument 1** | **Research proposals written by the students in CHEM 588 (Research Proposal)**Students will demonstrate though a written report and an oral research proposal defense their ability to formulate independent experimental plans based on their thesis topic.  |
| **Criteria for Student Success** | Students scoring and A or B in this class will be considered achieving this outcome.  |
| **Program Success Target for this Measurement** | 100% | **Percent of Program Achieving Target** | 100% |
| **Methods**  | Five students took this course during the 2020-2021 AY and grades were tabulated. |
| **Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 3.** | **[x]  Met** | **[ ]  Not Met** |
| **Actions** (Describe the decision-making process and actions for program improvement. The actions should include a timeline.) |
| The modified AACU rubric for this course was developed to help students improve in scientific proposal writing. This rubric will be given to the student at the first meeting of this course. The instructor will explain this rubric to the students. Draft papers will be scored using this rubric and students will have a chance to meet with the instructor to make improvements for the final draft. |
| **Follow-Up** (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.) |
| A modified AACU rubric that better coincides with the requirements for scientific writing in CHEM 588 has been completed. This rubric will be provided to CHEM 588 students on the first meeting of this course. |
| **Next Assessment Cycle Plan** (Please describe your assessment plan timetable for this outcome) |
| We plan to reassess this outcome next year. |