

Assurance of Student Learning 2019-2020

College of Health and Human Services

Department of Public Health

B.S. in Environmental and Occupational Health Science (548)

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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: Identify and compile relevant information sources to assess an environmental health problem.

Instrument 1 **Direct:** Comprehensive lab report.

Instrument 2 **Direct:** Internship portfolio.

Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 1.

Met

Not Met

Student Learning Outcome 2: Analyze environmental health data to interpret and present results in writing.

Instrument 1 **Direct:** Comprehensive lab report.

Instrument 2 **Direct:** Internship portfolio.

Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 2.

Met

Not Met

Student Learning Outcome 3: Apply appropriate field methods to collect environmental health data.

Instrument 1 **Direct:** Comprehensive lab report.

Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 3.

Met

Not Met

Program Summary (Briefly summarize the action and follow up items from your detailed responses on subsequent pages.)

The program was reviewed in 2019/20 academic year mainly to meet EHAC accreditation requirements. CHEM 116, GEOL 111, and ENV 423 were added to the program as core courses. The following courses were removed to reduce course substitution needed and remove redundant course – ENV 486, ENV 490, and SFTY 270. We also removed from the list of additional required courses those that does not meet EHAC accreditation requirements, and they include PSY 100, ENG 307, BIOL 131, and PH 100. We added ENV 475, PH 402, and AMS 310 as potential electives to broaden choices in occupational safety and health. The B.S. EOHS program is now (effective Fall 2020) aligned with the EHAC accreditation competencies and standards. EOHS faculty will continue to revisit the program on annual basis to ensure core course SLOs are aligned with the competencies and EHAC accreditation standards. For SLO 1, there have been improvements in the instructions and process for the internship portfolios by developing the internship portfolios and requiring submission through Blackboard. The rubrics for SLO 1 and SLO 2 will be assessed by a team of three EOHS faculty, using a 5-point scale rather than a 4-point scale, to evaluate the learning outcomes while controlling for inter-rater reliability.

Student Learning Outcome 1

Student Learning Outcome	Identify and compile relevant information sources to assess an environmental health problem		
Measurement Instrument 1	Direct measure of student learning: Students in ENV 410 Water Treatment Processes, a senior level course, were required to complete a comprehensive written laboratory report that required them to synthesize their laboratory work from the entire semester. To assess SLO 1 the laboratory report which includes literature review, background, lab result analysis and discussion was evaluated.		
Criteria for Student Success	Students should score between “Proficient” or greater on the Environmental Health Reports Rubric for SLO 1. Scores on the rubric item for this SLO ranged from “Exemplary” (90-100), “Proficient” (Upper 80-89), “Apprentice” (70-79), and “Novice” (60-69).		
Program Success Target for this Measurement	75%	Percent of Program Achieving Target	87.5%
Methods	Direct: Artifacts from the Water Treatment Process course were collected from all students in the course (<i>N</i> = 8). The papers were evaluated according to the Environmental Health Reports Rubric (Appendix 1). Each student paper was scored from 1 to 4 on each of the SLOs in the rubric. Scores represented the following ranges “Exemplary - 4” (90-100), “Proficient - 3” (Upper 85-90) and (Lower 80-84), “Apprentice - 2” (70-79), and “Novice - 1” (60-69). SLO 1 was assessed based on the lab report learning outcome of “Compile Environmental Health Information”. A total of 7 of 8 students scored “Proficient” or greater for SLO 1.		
Measurement Instrument 2	Direct measure of student learning: All students in the Environmental and Occupational Health Science program are required to complete an internship and internship portfolio. The internship portfolio requires that the student collects information about the internship site, objectives, competencies applied, daily and weekly work tasks, methods applied, results, accomplishments, and an evaluation of the internship.		
Criteria for Student Success	Students should score “Proficient” or greater on the Environmental Health Internship Portfolio Rubric for SLO 1. Scores on the rubric item for this SLO ranged from “Exemplary” (90-100), “Proficient” (Upper 80-89), “Apprentice” (70-79), and “Novice” (60-69).		
Program Success Target for this Measurement	80%	Percent of Program Achieving Target	87.5%
Methods	Student portfolios (<i>N</i> =7) were evaluated. The evaluation was divided into categories that evaluated a student’s communication, assessment, and management competencies. These were competencies that were modified from the CDC, EPA, and EHAC competencies for environmental health practitioners. To assess SLO 1 collection of internship site information and development of an introduction was evaluated. Scores on the rubric item for this SLO ranged from “Exemplary” (90-100) to “Novice” (60-69). A total of 6 of 7 students scored at the level of “Proficient” or “Exemplary”. The Environmental Health Internship Portfolio Rubric is attached in Appendix 2.		
Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 1.			Met Not Met

Actions (Describe the decision-making process and actions planned for program improvement. The actions should include a timeline.)

To provide a more comprehensive evaluation of SLO 1 we will continue to conduct a blind assessment, a method where three EOHS faculty members randomly evaluate competencies and compare findings. The assessment will be done in the 2020/21 academic year. Additionally, the rubrics for SLO 1 will be assessed by a team of three EOHS faculty, using a 5-point scale rather than a 4-point scale, to evaluate the learning outcomes while controlling for inter-rater reliability.

Follow-Up (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.)

Data will be collected in the 2020/21 academic year to continue to assess internship portfolio and determine if we have to increase the target to 85% from 80%. Just to note that we have improved the instructions and process for the internship portfolios by developing the internship portfolios and requiring submission through Blackboard. Use of Blackboard has increased the efficiency of students to complete portfolio details, track daily and weekly tasks, and present results. As a follow up, we will maintain a Blackboard site for student portfolio details and assessments.

Next Assessment Cycle Plan (Please describe your assessment plan timetable for this outcome)

Student Learning Outcome 1 will be reassessed in 2021/2022 academic year. Artifacts on assessing environmental health problems will be sampled annually from ENV 410/411, ENV 474, and ENV 491 for the assessment. This effort will be the Program Director and supported by the Instructors of these courses.

Student Learning Outcome 2

Student Learning Outcome	Analyze environmental health data to interpret and present results in writing.			
Measurement Instrument 1	Direct measure of student learning: Students in ENV 410 Water Treatment Processes, a senior level course, were required to complete a comprehensive written laboratory report that required them to synthesize their laboratory work for the entire semester of data collection. The report was broken into five parts to evaluate each program SLO. To assess SLO 2 the analysis of data, interpretation of results, and written discussion were evaluated.			
Criteria for Student Success	Students should score “Proficient” or greater on the Environmental Health Reports Rubric for SLO 2. Scores on the rubric item for this SLO ranged from “Exemplary” (90-100), “Proficient” (Upper 80-89), “Apprentice” (70-79), and “Novice” (60-69).			
Program Success Target for this Measurement	75%	Percent of Program Achieving Target	87.5%	
Methods	Direct: Artifacts from the Water Treatment Process course were collected from all students in the course (<i>N</i> = 8). The papers were evaluated according to the Environmental Health Reports Rubric (Appendix 1). Each student paper was scored from 1 to 4 on each of the SLOs in the rubric. Scores represented the following ranges “Exemplary - 4” (90-100), “Proficient - 3” (Upper 85-90) and (Lower 80-84), “Apprentice - 2” (70-79), and “Novice - 1” (60-69). SLO 2 was assessed based on the lab report learning outcome of “Analyze data, present results, and discuss findings”. Results of the assessment indicated that 7 of 8 students scored proficient or greater on SLO 2.			
Measurement Instrument 2	Direct measure of student learning: All students in the Environmental and Occupational Health Science program are required to complete an internship and internship portfolio. The internship portfolio requires that the student collects information about the internship site, objectives, competencies applied, daily and weekly work tasks, methods applied, analyze data and present results, accomplishments, and an evaluation of the internship.			
Criteria for Student Success	Students should score “Proficient” or greater on the Environmental Health Internship Portfolio Rubric for SLO 1. Possible scores on the rubric item for this SLO were “Exemplary” (90-100), “Proficient” (Upper 80-89), “Apprentice” (70-79), and “Novice” (60-69).			
Program Success Target for this Measurement	75%	Percent of Program Achieving Target	87.5%	
Methods	Student portfolios (<i>N</i> =7) were evaluated. The evaluation was divided into categories that evaluated a student’s analytic, communication, and management competencies. These were competencies that were modified from the CDC, EPA, and EHAC competencies for environmental health practitioners. To assess SLO 2 “Analyze data, present results, and discuss findings” was evaluated for each student. Portfolios were scored on the rubric item for this SLO ranging from “Exemplary” (90-100) to “Novice” (60-69). A total of 6 of 7 students scored at the level of “Proficient” or “Exemplary”. The Environmental Health Internship Portfolio Rubric is attached in Appendix 2.			
Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 2.			Met	Not Met

Actions

To provide a more comprehensive evaluation of SLO 2, we will continue to conduct a blind assessment, a method where three EOHS faculty members randomly evaluate competencies and compare findings. The assessment will be done in the 2020/21 academic year. Additionally, the rubrics for SLO 2 will be assessed by a team of three EOHS faculty, using a 5-point scale rather than a 4-point scale, to evaluate the learning outcomes while controlling for inter-rater reliability.

Follow-Up (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.)

Data will be collected in the 2020/21 academic year to continue to assess the laboratory learning activities and written paper prompt to determine if we have to increase the target to 80% from 75%.

Next Assessment Cycle Plan (Please describe your assessment plan timetable for this outcome)

Student Learning Outcome 2 will be reassessed in 2021/2022 academic year. Artifacts on analyzing environmental health data will be sampled annually from ENV 410/411, ENV 474, and ENV 491 for the assessment. This effort will be led by the Program Director and supported by the Instructors of these courses.

Student Learning Outcome 3

Student Learning Outcome	Apply appropriate field methods to collect environmental health data.		
Measurement Instrument 1	Direct measure of student learning: Students in ENV 410 Water Treatment Processes, a senior level course, were required to complete a comprehensive written laboratory report that required them to synthesize their laboratory work from the entire semester. To assess SLO 3 the “Apply methods to assess the environmental health problem or issue” learning outcome was evaluated.		
Criteria for Student Success	Students should score “Proficient” or greater on the Environmental Health Reports Rubric for SLO 3. Possible scores on the rubric item for this SLO ranged from “Exemplary” (90-100), “Proficient” (Upper 80-89), “Apprentice” (70-79), and “Novice” (60-69).		
Program Success Target for this Measurement	75%	Percent of Program Achieving Target	87.5%
Methods	Direct: Artifacts from the Water Treatment Process course were collected from all students in the course ($N = 8$). The papers were evaluated according to the Environmental Health Reports Rubric (Appendix 1). Each student paper was scored from 1 to 4 on each of the SLOs in the rubric. Scores represented the following ranges “Exemplary - 4” (90-100), “Proficient - 3” (Upper 85-90) and (Lower 80-84), “Apprentice - 2” (70-79), and “Novice - 1” (60-69). SLO 2 was assessed based on the lab report learning outcome of “Apply methods to assess the environmental health problem or issue”. Results of the assessment indicated that 7 of 8 students scored proficient or greater on SLO 3.		
Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 3.			Met
Actions (Describe the decision-making process and actions planned for program improvement. The actions should include a timeline.)			
To provide a more comprehensive evaluation of SLO 2 we will continue to conduct a blind assessment, a method where three EOHS faculty members randomly evaluate competencies and compare findings. The assessment will be done in the 2020/21 academic year. Additionally, the rubrics for SLO 2 will be assessed by a team of three EOHS faculty, using a 5-point scale rather than a 4-point scale, to evaluate the learning outcomes while controlling for inter-rater reliability.			
Follow-Up (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.)			
Data will be collected in the 2020/21 academic year to continue to assess the prompts to collecting environmental health data independently and develop a written paper to determine if we have to increase the target to 87.5% from 75%.			
Next Assessment Cycle Plan (Please describe your assessment plan timetable for this outcome)			
Student Learning Outcome 3 will be reassessed in 2021/2022 academic year. Artifacts on collecting environmental health data will be sampled annually from ENV 410/411, ENV 474, and ENV 475 for the assessment. This effort will be led by the Program Director and supported by the Instructors of these courses.			

APPENDIX 1: Environmental Health Reports Rubric

Learning Outcomes	Exemplary - 4	Proficient - 3	Apprentice - 2	Novice - 1
Compile environmental health information	Information was collected from relevant sources in a manner that provided interpretation of the environmental health issue, problem, or methods applied.	Information was collected from relevant sources in a manner that provided synthesis of the environmental health issue, problem, or methods applied.	Information was collected from relevant sources with some interpretation, but a synthesis of the environmental health issue, problem, or methods applied was not provided.	Information was collected from relevant sources with no interpretation or synthesis of the environmental health issue, problem, or methods applied was not provided.
Explanation of the environmental health problem	Environmental health issue or problem was comprehensively stated and explained.	Environmental health issue or problem was clearly stated and explained.	Environmental health issue or problem was clearly stated but not explained.	Environmental health issue or problem was not clearly stated or explained.
Apply methods to assess the environmental health problem or issue	Field and laboratory methods were applied correctly in a manner that provided a comprehensive analysis of the problem.	Field and laboratory methods were applied correctly in a manner that provided an analysis of the problem.	Field and laboratory methods were applied correctly, yet not in a manner that provided an analysis of the problem.	Field and laboratory methods were not applied correctly, and did not provide an analysis of the problem.
Analyze data, present results, and discuss the findings	Data analysis was correct and presented through a series of graphs and tables that were explained in the report.	Data analysis was correct and presented through a graph or table that that was explained in the report.	Data analysis had errors and a table or graph was presented, yet it was not explained in the text of the report.	Data analysis had errors and a table or graph was not presented nor explained the report.
Develop conclusions and recommendations of the assessment	Conclusions and recommendations were developed that provided a comprehensive solution to the environmental health problem.	Conclusions and recommendations were discussed that provided a solution to the environmental health problem.	Conclusions and recommendations were presented, but did not provide a solution to the environmental health problem.	A Conclusion was presented, with not recommendations, and it did not include a solution to the environmental health problem.

APPENDIX 2: Environmental Health Internship Portfolio Rubric

Learning Outcomes	Exemplary - 4	Proficient - 3	Apprentice - 2	Novice - 1
Compile internship information and develop an internship introduction.	Internship information was compiled by the student, including weekly reports, and was complete. The introduction explained the work site, acquisition of the internship, and the job duties of the internship.	Internship information was compiled by the student, including weekly reports, and was complete. The introduction described the work site, acquisition of the internship, and the job duties of the internship.	Internship site information was compiled by the student, including weekly reports, with some information missing. The introduction discussed some aspects of the work site, acquisition of the internship, and the job duties of the internship.	Internship site information was compiled by the student with errors and omissions. The introduction was limited and mentioned work site and a few job duties of the internship.
Explain the internship objectives.	Objectives of the internship were thoroughly explained by the student. The student's explanation showed a direct link to program competencies of communication, assessment, and management.	Objectives of the internship were explained by the student. The student's explanation showed connection to program competencies of communication, assessment, and management.	Objectives of the internship were somewhat discussed by the student. The student's explanation showed some connection to program competencies of communication, assessment, and management.	Objectives of the internship were listed by the student. The student's explanation showed no connection to program competencies of communication, assessment, and management.
Apply environmental health methods to assess a problem presented in the internship.	Environmental health methods were applied correctly in a manner that provided a comprehensive analysis a problem presented in the internship.	Environmental health methods were applied correctly in a manner that provided an analysis of a problem presented in the internship.	Environmental health methods were applied correctly, yet not in a manner that provided an analysis of the problem presented in the internship.	Environmental health methods were not applied correctly, and did not provide an analysis of the problem presented in the internship.
Analyze data and present results of the internship in writing	Results were presented accurately and were discussed in the internship report and presentation. The analysis was comprehensive and produced results that solved a problem presented in the internship.	Results were presented accurately and somewhat discussed in the internship report and presentation. The analysis was produced results that may be used to address a problem presented in the internship.	Results were presented with errors and some discussion in the internship report and presentation. The analysis was not used to solve a problem and was more of an exercise. Presentation was incomplete.	Results were limited with errors and limited discussion in the internship report and presentation. The analysis was not sufficient to solve a problem and was not shown in the presentation.
Develop an evaluation of	The evaluation provided a comprehensive explanation of the importance of the internship, the	The evaluation provided an explanation of the importance of the internship, the competencies	The evaluation provided a discussion of the importance of the internship. A few	The evaluation provided a limited discussion of the importance of the internship.

the internship	competencies practiced, changes the student would implement at the site, and relation of the internship to the student's professional development.	practiced, a mention of changes the student would implement at the site, and relation of the internship to the student's professional development.	competencies practiced were discussed, as well as a limited discussion of the relation of the internship to the student's professional development.	Competencies practiced were not discussed. The relation of the internship to the student's professional development was mentioned in a sentence or two.
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