

**Assurance of Student Learning
2018-2019**

College of Health and Human Services

Department of Public Health

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

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**

Instrument 3

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**

Instrument 3

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**

Instrument 2

Instrument 3

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.)

This assessment indicates that the mean scores for all SLOs meets program success targets. Adjustments in course offerings have helped strengthen program goals and outcome and are better preparing students for jobs in the field, as indicated by a greater than 95% employment rate in the field. Changes will be made to core course requirements in Spring 2019 to meet the current accreditation standards for National Environmental Health Science and Protection Accreditation Council. This includes demonstrated assessment of SLOs in the overarching competencies of communication, assessment, and management. Currently, SLOs 1, 2, and 3 meet these overarching competencies. The following recommendations came out of this year's assessment:

- Examination of learning outcomes for the core course and program outcomes:
 - Do learning outcomes in core courses align with core competencies of the program? Curriculum mapping will take place in Spring/Summer 2020.
 - Are the learning outcomes measurable? Faculty in the program will use the curriculum mapping and ensure measurable outcomes.

- Establish a more comprehensive rubric to measure learning from the comprehensive laboratory reports in senior level courses:
 - Establish a rotating block assessment method with three faculty members in the EOHS program.
 - Reevaluate rubrics to assess measuring on a 5-point scale rather than a 4-point scale while controlling for inter-rater reliability.
 - Evaluate program changes needed to meet accreditation and student learning outcome requirements.
- Revisit the program on an annual basis to ensure core course SLOs are aligned with program competencies and EHAC accreditation standards. The evaluation will assess student opportunities to attain required competencies in core course.
 - Review EHAC accreditation standards.
 - Review program mission, competencies and outcomes.
 - Review SLOs and outcomes for core courses.
 - Ensure program competencies and SLOs are met through core courses.

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. The report was broken into five parts to evaluate each program SLO. To assess SLO 1 the introduction of the report, that included a literature review and background, 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). This is for the introduction, literature review, and background.		
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 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	89%		
Methods	Student portfolios (N=9) were evaluated. The evaluation was divided into categories that evaluated a student’s communication, assessment, and management competencies. These were competencies that have been developed by the CDC and other organizations for environmental health practitioners. The competencies guide development of SLOs for the program and are the basis for accreditation. 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 8 of 9 students scored at the level of “Proficient” or “Exemplary”. The Environmental Health Internship Portfolio Rubric is attached in Appendix 1.				
Measurement Instrument 3					
Criteria for Student Success	The final preceptor evaluation should indicate that the student’s academic training was “good” or “excellent”.				
Program Success Target for this Measurement		Percent of Program Achieving Target			
Methods					
Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 1.			<table border="1"> <tr> <td>Met</td> <td>Not Met</td> </tr> </table>	Met	Not Met
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 establish a blind assessment method with three faculty members in the EOHS program. This will be instated for the 2019-2020 program assessment. Additionally, the rubrics for SLO 1 will be assessed by a team of three EOHS faculty to evaluate measuring on a 5-point scale rather than a 4-point scale 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.)					
The percentage of students that achieved the target for SLO1 related to the Internship Portfolio has increased to 89% during this program assessment, compared to the target of 80%. 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. During the 2019-2020 assessment SLO 1 will be evaluated at a target of 85%.					

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 from the entire semester. 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 was 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	75%
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 “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	78%
Methods	Student portfolios ($N=9$) were evaluated. The evaluation was divided into categories that evaluated a student’s communication, assessment, and management competencies. These were competencies that have been developed by the CDC and other organizations for environmental health practitioners. These competencies guide development of SLOs for the program and are the basis for accreditation. 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 7 of 9 students scored at the level of “Proficient” or “Exemplary”. The Environmental Health Internship Portfolio Rubric is attached in Appendix 1.		
Measurement Instrument 3			
Criteria for Student Success			
Program Success Target for this Measurement		Percent of Program Achieving Target	
Methods			
Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 2.			Met
Actions			

To provide a more comprehensive evaluation of SLO 2 we will establish a blind assessment method with three faculty members in the EOHS program. This will be instated for the 2019-2020 program assessment. Additionally, the rubrics for SLO 2 will be assessed by a team of three EOHS faculty to evaluate measuring on a 5-point scale rather than a 4-point scale while controlling for inter-rater reliability.

Additionally, students assessed just met the target of 75%. Students need additional instruction and development of data analysis and writing skills. To meet this need, instruction in research methods, data analysis, and developing written results will be added to ENV 460 Environmental Management. To assess these skills, a final course assignment in ENV 460 will require conducting data analysis of air quality data and reporting the results in writing.

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

Review of actions above to ensure these occur during 2019-2020.

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. The report was broken into five parts to evaluate each program SLO. 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.		
Measurement Instrument 2			
Criteria for Student Success			
Program Success Target for this Measurement		Percent of Program Achieving Target	
Methods			
Measurement Instrument 3			
Criteria for Student Success			
Program Success Target for this Measurement		Percent of Program Achieving Target	
Methods			

Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 3.	Met	Not Met
Actions (Describe the decision-making process and actions planned for program improvement. The actions should include a timeline.)		
<p>To provide a more comprehensive evaluation of SLO 2 we will establish a blind assessment method with three faculty members in the EOHS program. This will be instated for the 2019-2020 program assessment. Additionally, the rubrics for SLO 2 will be assessed by a team of three EOHS faculty to evaluate measuring on a 5-point scale rather than a 4-point scale while controlling for inter-rater reliability.</p> <p>Additionally, the faculty will determine another direct measurement instrument for SLO 3. The internship portfolio was not used for this SLO as students apply many different methods within internships, thus creating assessment issues.</p>		
Follow-Up (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.)		
Review of actions above to ensure these occur during 2019-2020.		

APPENDIX 1

Environmental Health Reports Rubric

Learning Outcomes	Exemplary - 4	Proficient - 3	Apprentice - 2	Novice - 1	Score
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 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.	

Environmental Health Internship Portfolio Rubric

Learning Outcomes	Exemplary - 4	Proficient - 3	Apprentice - 2	Novice - 1	Score
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 internship	The evaluation provided a comprehensive explanation of the importance of the internship, the competencies practiced, changes the student would implement at the site, and relation of the internship to the student's professional development.	The evaluation provided an explanation of the importance of the internship, the competencies practiced, a mention of changes the student would implement at the site, and relation of the internship to the student's professional development.	The evaluation provided a discussion of the importance of the internship. A few competencies practiced were discussed, as well as a limited discussion of the relation of the internship to the student's professional development.	The evaluation provided a limited discussion of the importance of the internship. Competencies practiced were not discussed. The relation of the internship to the student's professional development was mentioned in a sentence or two.	