

**Assurance of Student Learning  
2019-2020**

College of Health and Human Services

Department of Public Health

Occupational Safety and Health Certificate (0427)

Edrisa Sanyang

*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:** Term Paper

**Instrument 2**

**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:** Interpret and communicate occupational safety and health regulations.

**Instrument 1**    **Direct:** Analysis of occupational safety and health regulations

**Instrument 2**

**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 occupational safety and 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 outcomes. The program is preparing students for jobs in the field, as indicated by a greater than 95% employment rate in the field. This includes the B.S. in EOHS, as well. Changes will be made to core course requirements in Spring 2021 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 2021.
  - 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 method for multiple faculty to evaluate the comprehensive lab reports.
- 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.
- Program changes:
  - Program changes were made to meet EHAC accreditation standards in the Spring of 2020. Specifically, CHEM 116, a geology course, and other specific EOHS electives were added to the required courses in the B.S. in EOHS program to meet accreditation standards.
  - Courses were removed from the B.S. in EOHS that did not support the competencies of the program or that did not meet accreditation standards.
  - Changes to the OSH certificate will be made in Spring 2021 to align with the B.S. in EOHS.
- Although SLO 2 was determined to be met, the faculty assessed that students need additional skills in developing research and project objectives and goals, conducting environmental and occupational health sampling, and analyzing data. The faculty will assess adding ENV 495 Environmental Measurement to the core course requirements in the program to further enhance the SLO 2 learning objective.
- 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.

<b>Student Learning Outcome 1</b>			
<b>Student Learning Outcome</b>	Identify and compile relevant information sources to assess an occupational safety and health problem.		
<b>Measurement Instrument 1</b>	Direct measure of student learning: Students in ENV 480 Hazardous and Solid Waste, an online senior level course in the certificate, were required to complete a term paper that required them to assess a hazardous waste issue by collecting background information, reviewing pertinent references, and providing a detailed discussion. 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.		
<b>Criteria for Student Success</b>	Students should score “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).		
<b>Program Success Target for this Measurement</b>	75%	<b>Percent of Program Achieving Target</b>	75%
<b>Methods</b>	<b>Direct:</b> Direct: Artifacts from the ENV 480 Hazardous and Solid Waste 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 6 of 8 students scored “Proficient” or greater for SLO 1.		
<b>Measurement Instrument 2</b>			

<b>Criteria for Student Success</b>			
<b>Program Success Target for this Measurement</b>		<b>Percent of Program Achieving Target</b>	
<b>Methods</b>			
<b>Measurement Instrument 3</b>			
<b>Criteria for Student Success</b>			
<b>Program Success Target for this Measurement</b>		<b>Percent of Program Achieving Target</b>	
<b>Methods</b>			
<b>Based on your results, highlight whether the program met the goal Student Learning Outcome 1.</b>		<b>Met</b>	<b>Not Met</b>
<b>Actions</b> (Describe the decision-making process and actions for program improvement. The actions should include a timeline.)			
To provide a more comprehensive evaluation of SLO 1 we will evaluate the rubric for SLO 1. This will be assessed by a team of three EOHS faculty to evaluate measuring on a 5-point scale rather than a 4-point scale.			
Changes will be made to the certificate in Spring 2021 to meet accreditation guidelines.			
<b>Follow-Up</b> (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.)			
Changes to the program will be submitted through the curriculum process in the Spring 2021 semester.			
<b>Next Assessment Cycle Plan</b> (Please describe your assessment plan timetable for this outcome)			
This outcome will be assessed in 2021/2022. Specifically, we need to assess SLO 1 after the Fall 2021 offering of ENV 120.			

<b>Student Learning Outcome 2</b>			
<b>Student Learning Outcome</b>	Interpret and communicate occupational safety and health regulations		
<b>Measurement Instrument 1</b>	<b>Direct:</b> Students in ENV 120 Occupational Safety and Health, a required course in the certificate, completed an analysis of an occupational safety and health regulation. This required each student to interpret the regulation and communicate the regulation through a discussion. The assignment met SLO 2 by requiring students to analyze a scenario at a workplace and develop a discussion based on interpretation and application of the regulation.		
<b>Criteria for Student Success</b>	Students should score "Lower Distinguished" (80%) or greater on the assignment.		
<b>Program Success Target for this Measurement</b>	75%	<b>Percent of Program Achieving Target</b>	75%
<b>Methods</b>	<b>Direct:</b> Artifacts from the Occupational Safety and Health course were collected from all students in the course ( $N = 28$ ). Analyses were evaluated according to the rubric in the course. Each student analysis was scored from Novice, Competent, and Distinguished. on each of the SLOs in the rubric. SLO 2 was assessed based on score for the assignment, based on the rubric. Results of the assessment indicated that 21		

	of 28 students met the criteria for SLO 2.		
<b>Measurement Instrument 2</b>			
<b>Criteria for Student Success</b>			
<b>Program Success Target for this Measurement</b>		<b>Percent of Program Achieving Target</b>	
<b>Methods</b>			
<b>Measurement Instrument 3</b>			
<b>Criteria for Student Success</b>			
<b>Program Success Target for this Measurement</b>		<b>Percent of Program Achieving Target</b>	
<b>Methods</b>			
<b>Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 2.</b>			<b>Met</b>
<b>Not Met</b>			
<b>Actions</b> (Describe the decision-making process and actions planned for program improvement. The actions should include a timeline.)			
The target for meeting SLO 2 was achieved, yet indicated students needed improvement in researching regulations. Changes will be made to include PH 385 in the program. This course will provide a broader overview of environmental health and regulations. This will increase the ability of students to interpret and communicate regulations. Changes to the program will be made in Spring 2021.			
<b>Follow-Up</b> (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.)			
Changes will be made to the program in Spring 2021. PH 385 will be added to the core. PH 385 Environmental Health examines the environment and its relationship to health status. Areas of emphasis include food protection, air, water and land pollution, hazardous wastes, and noise and radiation hazards			
<b>Next Assessment Cycle Plan</b> (Please describe your assessment plan timetable for this outcome)			
This outcome will be assessed in 2021/2022. Specifically, we need to assess SLO 2 after the Spring 2022 offering of ENV 120. This will provide time for the PH 385 course to be added to the core and instruction to be provided to students in the program. The instructor of the course will maintain the artifacts. The instructor and the program director will evaluate the scores on the rubric.			

<b>Student Learning Outcome 3</b>	
<b>Student Learning Outcome</b>	Apply appropriate field methods to collect occupational safety and health data.
<b>Measurement Instrument 1</b>	<b>NOTE: Each student learning outcome should have at least one direct measure of student learning. Indirect measures are not required.</b>
<b>Criteria for Student Success</b>	<b>Direct:</b> Artifacts from ENV 321 Industrial Hygiene course were collected from all students in the course ( $N = 8$ ). The presentations were

	evaluated according to the course rubric. Each student presentation was scored from on each of the SLOs in the rubric. Scores represented the following ranges “Proficient (80-100), “Competent” (70-79), and “Novice” (Less than 70). SLO 3 was assessed based on the presentation of methods to conduct the noise assessment.		
<b>Program Success Target for this Measurement</b>	75%	<b>Percent of Program Achieving Target</b>	88%
<b>Methods</b>	<b>Direct:</b> Artifacts from the course were collected from all students in the course ( $N = 8$ ). The papers were evaluated according to the Environmental Health Term Paper Rubric (Appendix 1). Each student paper was scored on the term paper according to the rubric. Total scores on the rubric were rated from Poor to Excellent. SLO 3 was assessed based on the total score. Results of the assessment indicated that 7 of 8 students (87.5%) scored “Proficient” on SLO 3.		
<b>Measurement Instrument 2</b>			
<b>Criteria for Student Success</b>			
<b>Program Success Target for this Measurement</b>		<b>Percent of Program Achieving Target</b>	
<b>Methods</b>			
<b>Measurement Instrument 3</b>			
<b>Criteria for Student Success</b>			
<b>Program Success Target for this Measurement</b>		<b>Percent of Program Achieving Target</b>	
<b>Methods</b>			
<b>Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 3.</b>			<b>Met</b>
<b>Not Met</b>			
<b>Actions</b> (Describe the decision-making process and actions for program improvement. The actions should include a timeline.)			
To provide a more comprehensive evaluation of SLO 3 a blind assessment method will be established with three faculty members in the EOHS program. This will be instated for the 2021-2022 program assessment. This course is offered every third semester. The next offering is Fall 2021. Additionally, the rubrics for SLO 3 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.			
<b>Follow-Up</b> (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.)			
Follow-up will occur by the end of the Spring 2022 semester.			
<b>Next Assessment Cycle Plan</b> (Please describe your assessment plan timetable for this outcome)			
This outcome will be assessed in 2021/2022. Specifically, we need to assess SLO 3 after students have had time to take PH 385 as part of the core. This will allow time for the impacts of adding PH 385 Environmental Health to the core to be assessed. PH 385 examines the environment and its relationship to health status. Areas of emphasis include food protection, air, water and land pollution, hazardous wastes, and noise and radiation hazards. The instructor of the course will maintain the artifacts, as well as the Program Director. The instructor and the program director will evaluate the scores on the rubric and report these to the EOHS faculty for review.			

## 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.	

## **Final Assignment – Hazardous & Solid Waste Topic Discussion – ENV 480**

### Requirements for Term Papers

1. 10 page maximum, not including a title page, references, or material in an appendix (for figures and tables).
2. Double spaced, 1” margins, 12 point font, pages numbered.
3. The text should avoid technical jargon and be written under the assumption that the reader has no prior knowledge of the subject.
4. Figures and Tables may be included in the body of the text or attached as an appendix but must be numbered and referred to in the text. Figures and Tables in the text will obviously shorten the amount of written material in the 10 pages allowed.
5. Ten references is considered a minimum number. References from Peer-reviewed journals are highly recommended. Cite all references in the body of the text using the APA style. The “Reference” section must include all references given in the paper (no more, no less) with proper citations for books, articles, etc. All information obtained from web sites should be referenced by the URL address of the site (page title, URL address, date if known).
6. Any figures taken from journals, books, or web sites should contain a reference under the figure as it appears in the text or the appendix.
7. The text should be thoroughly checked and proofread for spelling and grammatical errors, the word processor’s spell-checker should be used to eliminate all spelling errors.
8. Maintain consistency through the text when dealing with commonly used expressions (for example, don’t mix 3%, three percent, and 3 percent interchangeably in the paper.)

The term paper grades will be based on: (1) relevance to hazardous and solid wastes, (2) accuracy of information and depth of understanding demonstrated (3) how well you demonstrate organization, cohesiveness, and give a concise, but inclusive, summary of the topic; and (4) the extent to which the specified requirements are followed.

	<b>Novice</b>	<b>Competent</b>	<b>Proficient</b>	
<b>Formatting</b>	Points: <b>1</b> (1.00%) Student does not follow any of the formatting guidelines but does complete a paper	Points: <b>5</b> (5.00%) Student follows half of the formatting guidelines	Points: <b>8</b> (8.00%) Student follows all but one or two of the formatting guidelines	Points: <b>10</b> (10.00%) Student follows all formatting guidelines
<b>Organization</b>	Points: <b>1</b> (1.00%) Paper is not organized in any recognizable manner but paper is completed	Points: <b>2</b> (2.00%) Paper is somewhat organized but hard to follow	Points: <b>4</b> (4.00%) Paper has subject headings to delineate sections but some information is not in the correct sections	Points: <b>5</b> (5.00%) Student uses subject headings to delineate sections and all information is given in the correct sections.
<b>Content</b>	Points: <b>0</b> (0.00%) Student's paper in no way relates to hazardous and solid waste	Points: <b>25</b> (25.00%) Student's paper relates to hazardous and solid waste but the student does not seem to understand the subject matter	Points: <b>50</b> (50.00%) Student's paper shows relevance to hazardous and solid waste and the student seems to understand some of the given points but not all	Points: <b>75</b> (75.00%) Student's paper is relevant to hazardous and solid waste and the student shows a thorough understanding of the topic
<b>References</b>	Points: <b>1</b> (1.00%) 1 to 2 references are given	Points: <b>4</b> (4.00%) 3 to 5 references are given	Points: <b>7</b> (7.00%) 6 to 9 references are given	Points: <b>10</b> (10.00%) 10 or more references are given