Assurance of Student Learning Report 2023-2024	
College of Health and Human Services	Department of Public Health
Master of Science (M.S.) in Environmental and Occupational Health Science (0473)	
Edrisa Sanyang	
Is this an online program? ☒ Yes ☐ No	Please make sure the Program Learning Outcomes listed match those in CourseLeaf . Indicate verification here ☒ Yes, they match! (If they don't match, explain on this page under **Assessment Cycle)**

Use this page to list learning outcomes, measurements, and summarize results for your program. Detailed information must be completed in the subsequent pages. Add more Outcomes as needed.			
Program Student Learning Outcome 1: Develop insight into environmental and occupational health exposures and apply appropriate solutions to assess and reduce these exposures.			
Instrument 1	EOHS 550 Hazard analysis and risk assessment**.**		
Instrument 2			
Instrument 3			
Based on your results, check whether the program met the goal Student Learning Outcome 1.		☒ **Met**	☐ **Not Met**
Program Student Learning Outcome 2: Develop research proposal, analyse data, interpret results, and present the results in writing.			
Instrument 1	EOHS 572 NIH Standard Research Proposal.		
Instrument 2	EOHS 577 Environmental toxicology data analysis report.		
Instrument 3			
Based on your results, check whether the program met the goal Student Learning Outcome 2.		☒ **Met**	☐ **Not Met**
Program Student Learning Outcome 3: Communicate environmental health risks and exchange information through public speaking, written reports, and interpersonal skills.			
Instrument 1	PH 584 Environmental health term paper.		
Instrument 2			
Instrument 3			
Based on your results, check whether the program met the goal Student Learning Outcome 3.		☒ **Met**	☐ **Not Met**
Assessment Cycle Plan:			
All Program Student Learning Outcomes for 2023-2024 academic year has been assessed and met. In 2023-2024 AY, the revised MS in EOHS curriculum was implemented. EOHS 572 was offered in Spring 2024 to students. One of the major learning outcomes is the ability of students to develop a research proposal focus on environmental and/or occupational health issue. Competency was assessed and reported. The timeline will remain the same for next year.			

Program Student Learning Outcome 1				
Program Student Learning Outcome	Develop insight into environmental and occupational health exposures and apply appropriate solutions to assess and reduce these exposures.			
Measurement Instrument 1	**Direct**: Students in EOHS 550 Principles of Occupational Safety and Health, a core required course, were required to complete a comprehensive hazard analysis and risk assessment for a workplace hazard. Students developed a spreadsheet to review and rate the hazards and assign risks. The risk assessment required analysis of potential routes of exposure, creation of a risk decision tree, and development of a control strategy to eliminate and manage the hazards. To assess SLO 1 the "Hazard Analysis and Risk Assessment Rubric" was used to score the assignment for each student.			
Criteria for Student Success	Students should score "Competent" or greater on the "Hazard Analysis and Risk Assessment Rubric" for each learning outcome to meet SLO 1.			
Program Success Target for this Measurement	75%	**Percent of Program Achieving Target**	89%	
Methods	**Direct**: Artifacts from the EOHS 550 Principles of Occupational Safety and Health course were collected from all students (n=9). The Hazard Analysis and Risk Assessment exercise was evaluated according to the "Hazard Analysis and Risk Assessment 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 "Proficient - 6" (90-100), "Competent - 5" (80-89), "Novice - 0" (70-79), and "Incoomplete - 0" (60-69). SLO 1 was assessed based on the total score for the rubric. A total score of 80 points or greater on the rubric would indicate "Competent" performance on the exercise. Eight students in the class scored "Competent" or greater for SLO 1, only one student received a total score less than 80 points.			
Measurement Instrument 2	Do you have other measures of assessment for SLO 1? If so, please add those here along with all the information below. If not, you may delete this section and move on to **"… whether the program met the goal Student Learning Outcome 1."**			
Criteria for Student Success				
Program Success Target for this Measurement		**Percent of Program Achieving Target**		
Methods				
Measurement Instrument 3	Do you have other measures of assessment for SLO 1? If so, please add those here along with all the information below. If not, you may delete this section and move on to **"… whether the program met the goal Student Learning Outcome 1."**			
Criteria for Student Success				
Program Success Target for this Measurement		**Percent of Program Achieving Target**		
Methods				
Based on your results, highlight whether the program met the goal Student Learning Outcome 1.			☒ **Met**	☐ **Not Met**

Results, Conclusion, and Plans for Next Assessment Cycle (Describe what worked, what didn't, and plan going forward)

Results: The results is what is expected. Both online and face-to-face students performed successfully in the assessment, and there is no marked different between the two provisions.

Conclusions: The assessment method for this important program student learning outcome seems to be working well for both the online and face-to-face classes.

Plans for Next Assessment Cycle: There is no planned changes for this SLO. EOHS 570 Industrial Hygiene, another core required course, reinforces the learning outcome as well to meet the industry demands and to maintain Qualified Academic Program status by the Board of Certified Safety Professionals. The course will not impact the SLO or the assessment currently being used.

Program Student Learning Outcome 2			
Program Student Learning Outcome	Develop research proposal, analyse data, interpret results, and present the results in writing.		
Measurement Instrument 1	**Direct**: Students in EOHS 572 (Environmental and Occupational Epidemiology) a core required course, were required to develop NIH standard proposal including specific aims page, significance and innovation, and approach section (methods, analysis plan, timeline, and future research . In developing research proposal, students applied epidemiologic design considerations while maintaining scholarly integrity and research ethics. The "Final Proposal Rubric" (Appendix 2) was used to assess first part of SLO2.		
Criteria for Student Success	Students should score "Competent" or greater.		
Program Success Target for this Measurement	75%	**Percent of Program Achieving Target**	100%
Methods	**Direct:** Artifacts from the EOHS 572 Environmental and Occupational Epidemiology were collected from all students (*N* = 9). The Final Proposal was evaluated according to the "Final Proposal Rubric" (Appendix 2). Each student report was scored from 1 to 4 on each of the learning outcomes in both rubrics. Scores represented the following ranges "Proficient - 12" (90-100), "Competent - 0" (80-89), "Novice - 0" (70-79), and "Incoomplete - 0" (60-69). SLO 2 was assessed based on the total scores on rubrics. A total score of 80% or greater on the rubrics would indicate "Competent" performance on the exercise. All the 9 students scored "Competent" or greater for SLO 2.		
Measurement Instrument 2	**Direct**: Students in EOHS 577 (Environmental Toxicology), a core required course, were required to complete an analysis of an environmental toxicology data set, present the results, discuss the results, and write a technical repport based on the analysis. Students applied Microsoft Excel and a statistical software of their choice to develop, organize, and analyze the dataset. The "Environmental Toxicology Data Report Rubric" (Appendix 3) was also used to assess the other part of SLO 2.		
Criteria for Student Success	Students should score "Competent" or greater.		
Program Success Target for this Measurement	75%	**Percent of Program Achieving Target**	100%
Methods	**Direct:** Artifacts from the EOHS 577 Environmental Toxicology were collected from all students (*N* = 5). The Environmental Toxicology Data Report exercise was evaluated according to the "Environmental Toxicology Data Report Rubric" (Appendix 3). Each student report was scored from 1 to 4 on each of the learning outcomes in both rubrics. Scores represented the following ranges "Proficient - 12" (90-100), "Competent - 0" (80-89), "Novice - 0" (70-79), and "Incoomplete - 0" (60-69). SLO 2 was assessed based on the total scores on the rubric. A total score of 80% or greater on the rubrics would indicate "Competent" performance on the exercise. All the 5 students scored "Competent" or greater for SLO 2.		
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**	☐ **Not Met**

Results, Conclusion, and Plans for Next Assessment Cycle (Describe what worked, what didn't, and plan going forward)

Results: The results are what is expected. Both online and face-to-face students performed successfully in the assessment, and there is no marked different between the two provisions.

Conclusions: The revised SLO is now comprehensive. Though assessed in different courses, students now have the ability to design a study, analyse data, interpret results, and present results in writing.

Plans for Next Assessment Cycle: There is no plan to change this SLO. The program faculty will continue to in current form with continuing improving by incoperating students feedbacks.

Program Student Learning Outcome 3			
Program Student Learning Outcome	Communicate environmental health risks and exchange information through public speaking, written reports, and interpersonal skills.		
Measurement Instrument 1	**Direct**: Students in PH 584 Principles of Environmental Health, a core required course, were required to complete a comprehensive written term paper that requires synthesis of environmental and occupational health and safety information from the US Healthy People Initiative. Students developed a comprehensive report including information and data systhesis, critique of related-policies, program outcome assessment, and provide conclusions and recommendations. The Term Paper is then orally presentated to colleagues students as lay individuals and professionals. To assess SLO 3 the "Environmental Health Term Paper and Presentation Rubric" was used to score the assignment for each student.		
Criteria for Student Success	Students should score "Competent" or greater		
Program Success Target for this Measurement	75%	**Percent of Program Achieving Target**	100%
Methods	**Direct**: Artifacts from the course were collected from the course in each semester (Fall 2023, N=3) (Spring 2024, N=4). The papers were evaluated according to both the Environmental Health Term Paper Rubric and Presentation Rubric (Appendix 4). Each student paper was scored from 1 to 4 on each of the SLOs in the rubric. Scores represented the following ranges "Proficient - 21" (90-100), "Competent - 5" (80-89), "Novice - 0" (70-79), and "Incomplete - 0" (60-69). SLO 3 was assessed based on the total score for the rubric. A total score of 80% or greater on the rubric would indicate "Competent" performance on both the Term Paper and the Oral Presentation. All 7 students scored "Competent" or greater for 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**

Results, Conclusion, and Plans for Next Assessment Cycle (Describe what worked, what didn't, and plan going forward)

Results: The results is what is expected. Both the online and face-to-face students performed successfully in the learning outcome, and there is no marked differences between the two provisions.

Conclusions: The assessment method seems to be working well for both the online and face-to-face provisions.

Plans for Next Assessment Cycle: There is no planned changes for this SLO.

CURRICULUM MAP – Master of Science in Environmental and Occupational Health

Program Name	Master of Science (M.S.) in Environmental and Occupational Health Science (0473)
Department	Public Health
College	Health and Human Services
Contact Person:	Edrisa Sanyang
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KEY:
I = Introduced
R = Reinforced/Developed
M = Mastered
A = Assessed

			Program Student Learning Outcomes			
			LO1	**LO2**	**LO3**	**LO4**
			Develop insight into environmental & occupational health exposures & apply appropriate solutions to assess and reduce these exposures.	Develop proposal, analyze data, interpret results, and present the results in writing.	Communicate environmental health risks and exchange information through public speaking, written reports, and interpersonal skills.	Identify sources of data and compile information on environmental and occupational exposures.
Course Subject	**Number**	**Course Title**				
EOHS	502	Health Promotion in the Workplace	R		R	
EOHS	550	Principles of Occupational Safety & Health	IRMA		IR	I
EOHS	560	Environmental Management & Risk Assessment	IR		IR	RM
EOHS	572	Environmental and Occupational Epidemiology	R	MA	R	IR
EOHS	577	Environmental Toxicology	R	MA	R	IR
PH	520	Biostatistics for Public Health	I	R	R	
PH	584	Principles of Environmental Health	I		MA	
EOHS	546	Internship	M	M	M	M
PH	588	Public Health Capstone	M	M	M	M
PH	599	Research Thesis/Writing	M	M	M	M

Appendix 1: Hazard Analysis and Risk Assessment Rubric

Learning Outcomes	Proficient - 4	Competent - 3	Novice - 2	Incomplete - 1	Score
Identify and assess the hazard	The hazard was identified and explained. An explanation was provided that detailed the hazard type and impacts of exposure.	The hazard was identified and explained. An explanation was provided that listed the hazard type and an impact of exposure.	The hazard was identified. The explanation was limited and provided the hazard type and listed some potential impacts.	The hazard was identified.	
Assess the potential routes of entry	Routes of entry were evaluated based on the hazard and the workplace conditions. The evaluation investigated how the hazard was created and the exposure pathways.	Routes of entry were evaluated based on the hazard and the workplace conditions. The evaluation discussed the exposure pathways.	Routes of entry were described based on the hazard and the workplace conditions. The evaluation listed the exposure pathways.	Routes of entry were listed based on the hazard and the workplace conditions.	
Develop a risk assessment	A risk assessment was created based on severity, frequency, possibility, and likelihood. The risk assessment was accurate without errors.	A risk assessment was created based on severity, frequency, possibility, and likelihood. The risk assessment was accurate minimal errors.	A risk assessment was created based on severity, frequency, possibility, and likelihood. The risk assessment had several errors.	A risk assessment was incomplete based on severity, frequency, possibility, and likelihood. The risk assessment if attempted had many errors.	
Create a risk assessment decision tree for hazard reduction	Management of the hazard was developed through a risk assessment decision tree. The decision tree detailed the elimination of the hazard. A thorough justification and discussion was provided.	Management of the hazard was developed through a risk assessment decision tree. The decision tree detailed the reduction of the hazard. A discussion was provided.	Management of the hazard was attempted through a risk assessment decision tree. The decision tree was not clear on how the hazard would be reduced.	The decision tree was incomplete. The student did not provide an indication that the hazard would be reduced.	
Develop a control strategy or method	A control strategy was explained and applied to the workplace hazard. A clear method was developed that would eliminate the hazard and potential exposures.	A control strategy was applied to the workplace hazard. A method was shown that would reduce the hazard and potential exposures.	A control strategy was described for the workplace hazard. A method was listed to reduce the hazard.	A control strategy was listed for the workplace hazard.	

Appendix 2: Final Proposal Rubric

Competencies	Proficient - 4	Competent - 3	Novice - 2	Incomplete - 1	Score
Specific Aims Page	Ability to proficiently demonstrate reflection and deep thinking of gap in knowledge on the research focus area, identify the who, what, how about the study population, and develop succinct aims to address the gap.	Showing satisfactory ability to relate the gap in knowledge of study focus, and the well structured specific aims.	Only includes mere description of the research focus; not well structures and flow to demonstrate beyond description.	No critical analysis of the research focus and gap in knowledge not link to specific aims.	
Significance and Innovation	Points well articulates that demonstrate the imporrance of the research focus. Ideas /concepts are well articulated with a common 'thread' from beginning to end. Succinct innovation statement that impact public health is provided.	Concepts are generally Connected, and supported by secondary data to show the importance of research focus area but no depth thought and innovative approach is provided.	Little or no analysis literature to demonstrate the importance of field. No clear innovation is provided.	No analysis is demonstrated, and no clear benefit to public health is illustrated.	
Approach/Methodology	Ability to proficiently demonstrate design of a method that is most appropriate to meet the study specific aims, and access the study populations. Ability to demonstrate a succinct plan that attains the anticipated research outcomes including ability to identify exposure and outcome variables, as well as the associated coviates.	Showing satisfactory ability in applying study design that are related to specific aims. No thorough synthesis of the analysis plan.	The methodology only includes mere description of study variables without a well focus analysis plan.	The methodology lacking design considerations and other major componenets.	
Responsible Conduct of Research and Ethics	Ability to demonstrate a responsible conduct of research by adequately citing all refernce materials, and describing or demonstrating roles of the project team. Protection of study participants is well demonstrated. Writing is well focused. Paper well cited using APA referencing format, and few to no typos or grammatical errors.	Human subject protection is stated but not adequate; some indication of efforts to organize the paper but not deep enough to be very insightful. Paper cited using APA referencing format, and few typos or grammatical errors.	Human subject protection barely mentioned. Do not show any original thinking or perspectives; chaotic on organization and presentation of ideas. Paper not cited with many typos and grammatical errors. Abstract not provided.	Basic structure of the paper is not met.	

Appendix 3: Environmental Toxicology Data Report Rubric

Learning Outcomes	Proficient - 4	Competent - 3	Novice - 2	Incomplete - 1	Score
Develop background on the problem	A background analysis of the environmental toxicology problem was developed and thoroughly discussed. The student developed a detailed research question.	A background analysis of the environmental toxicology problem was developed and discussed. The student developed a research question.	A background analysis of the environmental toxicology problem was discussed.	A background analysis of the environmental toxicology problem was insufficient.	
Explanation of the dataset and methods of data analysis	Environmental toxicology dataset was explained. The methods for data analysis were correct and constructed for each step of the analysis.	Environmental toxicology dataset was explained. The methods for data correctly discussed.	Environmental toxicology dataset was described. The methods for data analysis were incorrectly discussed.	Environmental toxicology dataset was described.	
Results	Results of the analysis were presented as a series of tables and graphs. Tables and graphs were correctly formatted and complete. The analysis had no errors. Tables and graphs were described.	Results of the analysis were presented as a series of tables and graphs. Tables and graphs were correctly formatted and complete. The analysis had few errors. Tables and graphs were described.	Results were presented as a series of tables and graphs. Tables and graphs were incorrectly formatted and not complete. The analysis had several errors.	Results were presented as in a few tables and graphs. Tables and graphs were incorrectly formatted and not complete. The analysis had many errors.	
Discussion	A discussion was authored that addressed the research questions. Results were explained and applied to evaluate the environmental toxicology problem.	A discussion was authored that addressed the research questions. Results were explained.	A discussion was authored yet did not address the research questions. Results were not fully explained.	A discussion was authored that did not address the research questions or results.	
Conclusion	Conclusions and recommendations were developed that provided a comprehensive solution to the environmental toxicology problem.	Conclusions and recommendations were discussed that provided a solution to the environmental toxicology problem.	Conclusions and recommendations were presented, but did not provide a solution to the environmental toxicology problem.	A Conclusion was presented, without recommendations, and it did not include a solution to the environmental toxicology problem.	

Appendix 4: Environmental Health Term Paper Rubric

Competencies	Proficient - 4	Competent - 3	Novice - 2	Incomplete - 1	Score
Reflection	Ability to proficiently demonstrate reflection and deep thinking of acquired knowledge and concepts, and integrate them into different issues from a wide range of perspectives (e.g. different contexts, cultures, disciplines, etc.); demonstrate critical thinking skills in writing.	Showing satisfactory ability to relate acquired knowledge to the chosen State's healthy people 2020 initiative; demonstrating attempt to analyze from a number of different perspectives.	Only includes mere description of theoretical knowledge; no reflection is demonstrated beyond description.	No critical analysis of the written report is demonstrated.	
Analysis & Integration	Points well articulates and supported by figures and charts analyzed from secondary data. Ideas /concepts are well articulated with a common 'thread' from beginning to end. Succinct strategy provided coherently supported by data on the chosen objective.	Concepts are generally Connected, and supported by secondary data to show the state of progress made in achieving the chosen objective. Still able to observe how the student develops during the learning process.	Little or no analysis and poorly integrated. No data presented to show the progress made in achieving the chosen objective or goal areas.	No analysis is demonstrated, merely copying and pasting primary source data tables and not fully intergrating in the work.	
Presentation	Slides are professionally prepared with tables, charts and pictures. Coherent flow if information linking different sections of the talk. Presenter manages time efficiently, maintains eye contact with audience, show mastery of slides, and professionalism in handling audience questions.	Presentation professionally prepared with tables, charts, and pictures. Information not well coordinated. Presenter evidently seen struggling to communicate well prepared slides, and audience questions not well handled.	Presentation poorly organized filled with text mostly from the term paper. Presenter uses numerous technical jargons not easily understood by lay audience, mostly reading slides or notes, and audience questions not well handled.	Presenter only reading slides without discussing them.	
Format & Professionalism	Writing is well focused; arguments and perspectives are precisely defined; coherent in developing an insightful idea is demonstrated. Paper well cited using APA referencing format, and few to no typos or grammatical errors.	Arguments and perspectives are clearly stated; some indication of efforts to organize the paper but not deep enough to be very insightful. Paper cited using APA referencing format, and few typos or grammatical errors.	Do not show any original thinking or perspectives; chaotic on organization and presentation of ideas. Paper not cited with many typos and grammatical errors. Abstract not provided.	Basic structure of the paper is not met.	