Assurance of Student Learning 2018-2019	
College of Health and Human Services	Department of Public Health
M.S. in Environmental and Occupational Health Science (0473)	

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:** Develop insight into environmental and occupational health exposures and apply appropriate solutions to assess and reduce these exposures.		
Instrument 1	**Direct: Hazard analysis and risk assessment**	
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:** . Analyze data, interpret results, and present the results in writing		
Instrument 1	**Direct: Environmental Toxicology Data Report**	
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: Communicate environmental health risks and exchange information through public speaking, written reports, and interpersonal skills.		
Instrument 1	**Direct: Environmental Health Term Paper**	
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 core course offerings have helped strengthen program goals and outcomes. The program is accredited through the National Environmental Health Science and Protection Accreditation Council through 2026. The program has met required competencies and means of assessment. Changes will be made to core course requirements in Spring 2020 to meet the current changes in accreditation standards. The courses that will be added to the core offerings are EOHS 501 Research Methods and EOHS 502 Health Promotion in the Workplace. EOHS 501 will strengthen the primary competency areas of communication, assessment, and management. Inclusion of EOHS 502 will strengthen the competency areas of communication and management. Likewise, each of these courses will strengthen the SLOs for the program.

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/Fall 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 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	Develop insight into environmental and occupational health exposures and apply appropriate solutions to assess and reduce these exposures		
Measurement Instrument 1	Direct measure of student learning: Students in EOHS 550 Principles of Occupational Safety and Health, a core 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 hazard and assign risks. The risk assessment required assessment of potential routes of exposure, creation of a risk decision tree, and development of a control strategy to eliminate and manage the hazard, and exposure risks. 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 between "Proficient" 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**	77%

Methods	Direct: Artifacts from the EOHS 550 Principles of Occupational Safety and Health course were collected from all students in the course (*N* = 13). 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 "Exemplary - 4" (90-100), "Proficient - 3" (80-89), "Apprentice - 2" (70-79), and "Novice - 1" (60-69). SLO 1 was assessed based on the total score for the rubric. A total score of 15 (80) or greater on the rubric would indicate "Proficient" performance on the exercise. A total of 10 of 13 students scored "Proficient" or greater for SLO 1.		
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 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 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.

To improve research capabilities of students and meet updated accreditation standards EOHS 501 Research Methods will be added to the core of the program.

Follow-Up (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.)
Curriculum revision will be submitted in Spring 2020.

Student Learning Outcome 2				
Student Learning Outcome	Analyze data, interpret results, and present the results in writing			
Measurement Instrument 1	Direct measure of student learning: Students in EOHS 577 Environmental Toxicology, a core course, were required to complete an analysis of an environmental toxicology data set, present the results, discuss the results, and write a conclusion based on the analysis. Students applied Excel and statistical software to develop, organize, and analyze the dataset. The "Environmental Toxicology Data Report Rubric" (Appendix 1) was used to assess SLO 2.			
Criteria for Student Success	Students should score "Proficient" (Total Score of 15 or greater) or greater on the "Environmental Toxicology Data Report Rubric" (Appendix 1).			
Program Success Target for this Measurement	75%		**Percent of Program Achieving Target**	83%
Methods	Direct: Artifacts from the EOHS 577 Environmental Toxicology course were collected from all students in the course (N = 12). The Environmental Toxicology Data Report exercise was evaluated according to the "Environmental Toxicology Data Report Rubric" (Appendix 1). Each student report was scored from 1 to 4 on each of the learning outcomes in the rubric, which all pertain to SLO 2. Rubric scores represented the following ranges "Exemplary - 4", "Proficient - 3", "Apprentice - 2", and "Novice - 1". SLO 2 was assessed based on the total score for the rubric. A total score of 15 (80) or greater on the rubric would indicate "Proficient" performance on the exercise. A total of 10 of 12 students scored "Proficient" or greater for SLO 2.			
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 2.			**Met**	**Not 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. To improve data analysis and reporting capabilities of students, and meet updated accreditation standards, EOHS 501 Research Methods will be added to the core of the program.
Follow-Up (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 made by the end of the Spring 2020 semester.

Student Learning Outcome 3				
Student Learning Outcome	Communicate environmental health risks and exchange information through public speaking, written reports, and interpersonal skills.			
Measurement Instrument 1	Direct measure of student learning: Students in PH 584 Environmental Health, a core course in the program, were required to complete a comprehensive written term paper that required them to synthesize the information from the course. The paper required reflection, analysis and integration, and a verbal presentation. To assess SLO 3 the "Environmental Health Term Paper Rubric" was used.			
Criteria for Student Success	Students should score "Excellent" on the Environmental Health Term Paper Rubric for SLO 3.			
Program Success Target for this Measurement	75%	**Percent of Program Achieving Target**	76%	
Methods	Direct: Artifacts from the course were collected from all students in the course (N = 21). 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 of were rated from Poor to Excellent. SLO 3 was assessed based on the total score. Results of the assessment indicated that 16 of 21 students (76%) scored "Excellent" 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.)
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, 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.
Follow-Up (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 Fall 2020 semester.

APPENDIX 1

Hazard Analysis and Risk Assessment Rubric

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

Environmental Health Term Paper Rubric

The Term Paper is designed to integrate lessons learned in class to actual health issues identified and strategized by the individual States in their Healthy People 2020 Initiative. The paper also entails review of literature and analysis of secondary data relevant to your chosen State and Healthy People 2020 Environmental and Occupational Health goal area or objective.

	Poor	Proficient	Excellent
Reflection	***Score (0 – 1.5)*** Only includes mere description of theoretical knowledge; no reflection is demonstrated beyond description.	***Score (1.6 – 3.0)*** 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.	***Score (3.1 – 5.0)*** 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.
Analysis & Integration	***Score (0 – 4.0)*** Little or no analysis and poorly integrated. No data presented to show the progress made in achieving the chosen objective or goal areas.	***Score (4.1 – 8.0)*** 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.	***Score (8.1 – 12.0)*** 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.
Presentation	***Score (0 – 1.5)*** 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.	***Score (1.6 – 3.0)*** 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.	***Score (3.1 – 5.0)*** 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.
Format & Professionalism	***Score (0 – 1.0)*** 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.	***Score (1.1 – 2.0)*** 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.	***Score (2.1 – 3.0)*** 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.

Environmental Toxicology Data Report Rubric

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