BS in Environmental Science
Annual Program Report Template

Year:	**2022-2023**
Program:	**BS in Environmental Science**
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Summary of Continuous Improvement Efforts Since Last Report

Provide a brief description of how assessment results have been used for program improvement. Point to a specific example of how an assessment provided the program with data it could use for improvement and what that improvement was, if possible, also show evidence of the improvement. You may look at data from the two previous academic years to support this case.

Respond here:

Achievement targets were met for all outcomes for the 2022-2023 assessment cycle. Target thresholds were increased and new learning outcomes adopted for the 2023-2024 assessment cycle.

Assessment Cycle Results and Measurable Improvements

Instructor	**Course and Course number**	**Assessment type**	**How have assessment results been used for program improvement? Point to a specific example of how an assessment provided the program with data it could use for improvement and what that improvement was, if possible, also show evidence of the improvement. You may look at data from the two previous academic years to support this case.**
Matthew Pyne	BIOL 4430 - Limnology	Rubric Graded Class Research Project	The desired level of performance for Environmental Science students in the Limnology class was increased from 2.5 to 3.0 on a four-point scale for the 2023-2024 cycle.
Matthew Pyne	BIOL 4460 - Ecology	Rubric Graded Scientific Report	The desired level of performance for Environmental Science students in the Limnology class was increased from 2.5 to 3.0 on a four-point scale.
James Armacost	BIOL 4300 – Undergraduate Problems – Environmental Science Internship	Assessment rubric for journals and summary reports	The desired level of performance for Science students in the internship program was increased from 2.5 to 3.0 on of a four-point scale on the Environmental Science Internship Experience rubric.

Program Highlights Since Last Report

Identify and briefly discuss any programmatic curriculum changes made since the last report (e.g. new courses, course changes, SLO changes, course deletions).

Course Changes

- BIOL 2420 (Microbiology for Non-Science Majors) changed to BIOL 2421 (Microbiology for Science Majors)
- CVEN 3310 (Water Chemistry for Environmental Engineering) changed to BIOL 3450 (General Botany); this change required a reduction in the number of free elective credits from four to three
- Elimination of BULW 3330 (Environmental Law) and increase the number of free elective credits from three to six.

Table 1. Assessment Results and Analyses for Current Cycle.

STAGE 1: PLAN				**STAGE 2: DO**		**STAGE 3: STUDY**
Departmental Student Learning Goal	**Program Student Learning Outcome**	**Assessment**	**Assessment Method/Location**	**Benchmark Expectations**	**Data Results**	**Actions/Goals Based on Data Results*** What do the data tell you? How will you use this data? How were data from the last cycle used to make changes during this cycle, and What were the results of those changes?
Students will perform limnological field and laboratory protocols with technical accuracy.	Environmental Science students enrolled in Limnology (4430) will: 1. Collect field and laboratory data, 2. Analyze and interpret the data using acceptable techniques, and 3. Develop written reports that are well organized and clear to a layperson.		Rubric Graded Class Research Project	The desired level of performance for Environmental Science students in the Limnology class was 2.5 out of a four point scale on the Limnology rubric. **Limnology Rubric: Assessment Dimensions** 4.0 Outstanding 3.0 Good 2.0 Mediocre 1.0 Unacceptable	Achievement targets were met for all outcomes for the 2022-2023 assessment cycle.	The desired level of performance for was increased from 2.5 to 3.0 on a four-point scale for the 2023-2024 cycle.

				Collect and record field samples and data according to standard procedures. 4 Student was able to collect and enter the data in the correct format 3 Student was able to collect and record data with minimal guidance. 2 Student needed significant help collecting and recording data. 1 Student did not aid in data collection or recording data. Conduct laboratory analyses and record data according to standard procedures 4 Student was able to conduct lab analyses and enter the data in the correct format		

				3 Student was able to conduct lab analyses and record data with minimal guidance. 2 Student needed significant help conducting lab analyses and recording data. 1 Student did not aid in lab analyses or recording data. Apply critical thinking to the interpretation of these data. 4 Student analyzed and interpreted the data correctly. 3 Student needed minimal assistance in either analyzing or interpreting the data correctly. 2 Student needed assistance in analyzing and interpreting the data correctly. 1 Student did not analyze or		

				interpret the data correctly. Communicate these results clearly in a scientific report. 4 Student clearly interpreted the results in a report using class and other published information. 3 Student clearly interpreted the results in a report using class information. 2 Student attempted to interpret the data in a report, but failed to do so clearly using class information. 1 Student did not attempt to interpret the data in a report.		
Students will perform field and laboratory protocols for studying populations and community structure and	Environmental Science students enrolled in Ecology (Biology 4460) during Fall semester will perform field and laboratory methods used to describe		Rubric Graded Scientific Report	The desired level of performance for Environmental Science students in the Ecology class was 2.5 out	Achievement targets were met for all outcomes for the 2022-2023 assessment cycle.	The desired level of performance was increased from 2.5 to 3.0 on a four-point scale for the 2023-2024 cycle.

interpret these data in a scientific report	community structure of a tree and shrub community in southeast Texas.			of a four-point scale on the Ecology rubric. **<u>Ecology Rubric: Assessment Dimensions</u>** **<u>Assessment Dimensions</u>** 4.0 Outstanding 3.0 Good 2.0 Mediocre 1.0 Unacceptable Use of the accepted methods to collect and record data used to study populations and communities. 4 Student efficiently collected and recorded the appropriate data. 3 Student needed minimal help collecting and recording data. 2 Student needed significant help collecting and recording data. 1 Student did not contribute to		

				data collecting or recording. Calculate the common statistics describing populations and community structure. 4 Student was able to calculate all statistics independently. 3 Student was able to calculate all statistics with minimal assistance. 2 Student was able to calculate all statistics significant assistance. 1 Student did not calculate all of the statistics. Describe populations and community structure using the statistics and interpret their status. 4 Student was able to interpret the status of populations and		

				community using the statistics. 3 Student partially misinterpreted the status of populations and community using the statistics. 2 Student misinterpreted the status of populations and community using the statistics. 1 Student was unable to or did not interpret the status of populations and community using the statistics Communicate these results clearly in a scientific report. 4 Student clearly interpreted the results in a report using class and other published information. 3 Student clearly interpreted the results in a report using class information.		

				2 Student attempted to interpret the data in a report, but failed to do so clearly using class information. 1 Student did not attempt to interpret the data in a report.		
Students will apply the knowledge gained from the environmental science curriculum in a one-term internship in which they must learn the duties of their internship and conduct themselves in a professional manner.	Apply knowledge in environmental science internship experience		Assessment rubric for journals and summary reports	The desired level of performance for Environmental Science students in the Environmental Science Internship class was 2.5 out of a four-point scale on the Internship Experience rubric. **Internship Experience Rubric: Assessment Dimensions** Assessment Dimensions 4.0 Outstanding 3.0 Good 2.0 Mediocre 1.0 Unacceptable	Achievement targets were met for all outcomes for the 2022-2023 assessment cycle.	The desired level of performance was increased from 2.5 to 3.0 on a four-point scale for the 2023-2024 cycle.

				Describe the working environment of the internship. 4 Student had a positive attitude, enjoyed their interaction,and worked successfully and with other employees. 3 Student had a positive attitude and worked successfully with other employees. 2 Student had an ambivalent attitude but worked successfully with other employees. 1 Student had a negative attitude and interacted poorly with other employees. Describe your first expectations of the internship and whether those expectations were either met or not met. 4 Student described their expectations and		

				thoughtfully critiqued those expectations. 3 Student described their expectations and critiqued those expectations. 2 Student described their expectations but minimal thought was put into any critique. 1 Student did not describe their expectations. Describe your professional development. 4 Student exhibited significant professional development and maturity. 3 Student exhibited moderate professional development and maturity. 2 Student exhibited minimal professional development and maturity.		

				1 Student exhibited insignificant professional development and immaturity. Describe any improvements in the data collection, procedures, or analysis that occurred to you during your internship. 4 Student thoughtfully considered the protocols and suggested improvements or why improvements could not be made. 3 Student considered the protocols and suggested minor improvements. 2 Student was content to follow protocols. 1 Student negatively evaluated protocols with no thoughts on		

				their improvements. Summarize your accomplishments during your internship. 4 Student listed a significant number of accomplishments 3 Student listed a moderate number of accomplishments 2 Student listed minimal accomplishments. 1 Student did not summarize their accomplishments.		

Summary of Continuous Improvement Efforts since Last Report:

Achievement target thresholds were increased for all student learning outcomes.

Table 2. Continuous Improvement Results Since Last Report

Stage 4: ACT		
Actions/Goals Based on Data Results **Copy last cycle's actions/goals and report on progress toward continuous improvement on those here.*	**Status** *C=Complete* *P=Progressing* *N=No Action Taken*	**Discussion of Status** *If C, describe efforts that led to accomplishment of actions/goals.* *If P, provide update on progress made toward accomplishing actions/goals and what tasks remain* *If N, discuss why action toward accomplishing actions/goals has been delayed and what work will be initiated toward accomplishment.*
The desired level of performance was increased from 2.5 to 3.0 on a four-point scale for the 2023-2024 cycle for all rubric graded learning outcomes.	P	Ongoing