Annual Program Assessment Report

Academic Year Assessed: 2019-2020
College: Agriculture
Department: LRES
Submitted by: Catherine Zabinski

Assessment reports are to be submitted annually by program/s. The report deadline is September 15th .

Program(s) Assessed:

Indicate all majors, minors, certificates and/or options that are included in this assessment:

Majors/Minors/Certificate	Options
Environmental Science undergraduate degree	Environmental Sciences, Environmental Biology, Geospatial & Environmental Analysis, Land Rehabilitation, Soil and Water Sciences

Annual Assessment Process (CHECK OFF LIST)

1. Data are collected as defined by Assessment Plan
   YES___ NO__X___
2. Population or unbiased samples of collected assignments are scored by at least two faculty members using scoring rubrics to ensure inter-rater reliability.
   YES_____ NO__X___
3. Areas where the acceptable performance threshold has not been met are highlighted.
   YES____ NO_____ NA__X___
4. Assessment scores were presented at a program/unit faculty meeting.
   YES__X___ NO_____
5. The faculty reviewed the assessment results, and responded accordingly (Check all appropriate lines)
   Gather additional data to verify or refute the result. _____
   Identify potential curriculum changes to try to address the problem ____
   Change the acceptable performance threshold, reassess _____
   Choose a different assignment to assess the outcome _____
   Faculty may reconsider thresholds__X___
   Evaluate the rubric to assure outcomes meet student skill level __X___
   Use Bloom's Taxonomy to consider stronger learning outcomes _____
   Choose a different assignment to assess the outcome_____
   OTHER: We are revising learning outcomes to be more specific in the hopes that we can generate information that will help us improve the curriculum.
6. Does your report demonstrate changes made because of previous assessment results (closing the loop)? YES__X___ NO____

1. **Assessment Plan, Schedule and Data Source.**
   a. Please provide a multi-year assessment schedule that will show when all program learning outcomes will be assessed, and by what criteria (data). (You may use the table provided, or you may delete and use a different format).

Our undergraduate learning outcomes include the following:
1. An understanding of core theoretical principles and applications in evolutionary, ecological and physical environmental sciences.
2. Ability to access, read, and critically assess the quality and source of environmental information.
3. Knowledge of the theory and practice of data analysis in environmental sciences, including statistical analysis, model building, and graphical presentation of data.
4. The ability to write and present scientific material effectively.
5. An understanding of the ethical implications of conducting and applying environmental science.

ASSESSMENT PLANNING CHART					
PROGRAM LEARNING OUTCOME	2017-2018	2018-2019	2019-2020	2020-2021	***Data Source****
Outcome 1	X				Questions embedded in an exam ENSC 468
Outcome 2	X	X			Student presentations in ENSC 201 Student papers in ENSC 499
Outcome 3		X			Specifically-designed survey in ENSC 448
Outcome 4	X	X			Student presentations in ENSC 201 Student papers in ENSC 499
Outcome 5	X				Student homework assignment in ENSC 245

b. What are your threshold values for which you demonstrate student achievement? (Example provided in the table should be deleted before submission)

Threshold Values		
PROGRAM LEARNING OUTCOME	Threshold Value	Data Source
We have established rubrics for each of the learning outcomes that can be ranked from 1 (low) to 4 (high).	The threshold value for this outcome is for 80% of assessed students to score above 2 on a 1-4 scoring rubric.	The data source varies with the class being used for the assessment, but includes papers, presentations, and embedded questions.

2. What Was Done

a) Was the completed assessment consistent with the plan provided? YES_____ NO___X__

If no, please explain why the plan was altered.

There were two big challenges for outcomes assessment this year. The first is addressing the gap between what is required for our annual assessment report versus what information is useful for the department. We have written learning outcomes for our major, and have revised them to better meet the criteria for effective outcomes. We can follow all the steps in the checkoff list, but the information we gather does not necessarily provide us with specific enough feedback to make any changes in the curriculum that we were not already aware of. The most helpful part of the assessment process has been the discussion of how our courses build skills and knowledge, and understanding where we have gaps that need to be addressed. For example, the capstone topic for Fall 2019 was ethics and environmental science to address Learning Outcome 5. But, we don't need two different faculty independently assessing student papers to see that our students are now better understanding the ethical implications of environmental science practice and policy. So, given we had completed a full cycle of assessing all of our outcomes, we have decided to add more detail to two of our learning outcomes, and build a more specific set of learning outcomes that will provide us with more information. So considering our 3rd and 4th learning outcomes:

3. Knowledge of the theory and practice of data analysis in environmental sciences, including statistical analysis, model building, and graphical presentation of data.

4. The ability to write and present scientific material effectively.

If we fall below the 80% threshold for either one of those outcomes, how do we address that? Without more specificity, for example, what aspect of theory and data analysis students are having a problem with, we can't really "close the loop" and address the issue.

The second big challenge we are experiencing is educating during a pandemic. Teaching methods are changing to adapt to restrictions and conditions related to social distancing, and it takes a lot of time and energy. Optimizing student learning is a moving target and often a struggle for both faculty and students to manage all of the technology in scenarios where electronic bandwidth, either on campus or from student apartments, can't keep up with the demand of livestreaming lectures, and asynchronous teaching doesn't allow for meaningful interaction. Online teaching instruction underscores the importance of keeping class sizes under 30, and many of us are teaching classes larger than that. We're doing the best we can, but the time we would use to do meaningful assessment of our majors and revising our outcomes is spent working with students, modifying our courses, and keeping our research programs moving ahead.

3. How Data Were Collected

a) How were data collected? (Please include method of collection and sample size).

We contacted the Writing Center to find rubrics for written communication that we can use to refine our learning outcome. We also contacted the Math Department to see if they had something comparable, but given the range of skills necessary for different math courses (statistics, calculus, etc.), there is not a similar kind of rubric in place. We will therefore develop our own that works for environmental science.

b) Explain the assessment process, and who participated in the analysis of the data.

We are working on this as a departmental assessment committee.

4. What Was Learned

Based on the analysis of the data, and compared to the threshold values provided, what was learned from the assessment?

a) Areas of strength

Since we are re-writing learning outcomes and generating a new approach to assessment, this question doesn't necessarily apply. But we are moving toward coming up with an assessment process that is more informative for us.

b) Areas that need improvement

Frankly, this is really challenging to take on revising assessment methods during a time when we are trying to navigate new and suboptimal approaches to teaching. But we will try.

5. How We Responded

a) Describe how "What Was Learned" was communicated to the department, or program faculty. Was there a forum for faculty to provide feedback and recommendations?

When the committee has a new set of detailed learning outcomes, we will present that to the rest of the faculty during a faculty meeting, and workshop those outcomes. The next step will be to incorporate that more step-wise approach into our classes and assessment plans.

b) Based on the faculty responses, will there be any curricular or assessment changes (such as plans for measurable improvements, or realignment of learning outcomes)?

YES__X____ NO_____

If yes, when will these changes be implemented?

The timing of all this depends on how feasible it is to get the committee together to work on this, how much "mental band width" we all have left, and whether it is reasonable to ask faculty to modify courses when much of our efforts are spent figuring out how to just teach the courses in mixed modalities.

6. Closing the Loop

a) Based on assessment from previous years, can you demonstrate program level changes that have led to outcome improvements?

The inspiration to make changes to our assessment approach is the result of our learning outcomes being too coarse-grained to pick up fine tuning that could help our students. Our assessment report from the 2018-2019 program deviated from the structure required for our annual reports, but in fact was very helpful for us to understand how students are learning some of the quantitative skills. That report has caused us to rethink our approach to gathering data, to question what data we really need, and to develop a different set of more specific learning outcomes that will inform curriculum modifications.

Submit report to programassessment@montana.edu