

## **2023-24 LBHC Program Review Report – Science (Natural)**

1. Date: July 8, 2024
2. Program name(s) (combine all degree options in one report): Associates of Science in Science: Natural Resources/ Environmental Science, Biology, Tribal Natural Resources/ Environmental Science, and Environmental Health
3. People who contributed to this report (preferably 2 or more): Sara Plaggemeyer

## Reflections on Data

Go to lbhc.edu > DATA & REPORTS > Student Success Data

Reflect on the data in the links below and describe what the data tell you about student success. Avoid restating the data; rather report the significant themes, stories, and trends reflected in the data.

4. **Course data (by discipline):** Under the heading, "Course success", click on the link that says, "By discipline".

Over the years of 2012-2023, the science (SC) courses offered at LBHC have had an average of 55% success rate, with 5,794 enrollments in these courses. The number of students each year has varied, currently there is a slight decrease in the number of students enrolled.

5. **Course data (all courses):** Under the heading, "Course success", click on the link that says, "All courses".

SC courses include program courses for the associates of science in science and courses that are required in core curriculum for all students receiving a degree from LBHC. Courses taken as core courses by non-major students include SC 114/115, SC 116/117, SC 132/133, and SC 244. The data shows an average of a 49% success rate in these courses. The success rates varied from 44%-71%. Program courses for the four programs included in this review were broken down into entry level courses and courses considered capstone courses. Program entry level courses included SC 160/161, SC 121/125 and SC 141/142 had an average of a 52% success rate. Capstone course had an average of a 69% success rate and included the data from the courses: SC 242/243, SC 211, SC 143/144, SC 122/123, and SC 250/251. The range of average success for these capstone courses as a range of 53%-83%. The average success rate in entry level program and capstone program courses was higher than that of core courses, with an increase also in the program courses over the progression of students through the science programs.

6. **Course data (discipline by demographics):** Under the heading, "Course success", click on the link that says, "Discipline by demographics"

The data included in this analysis, discipline by demographics were success rates of students from the school years of 2017/2018- 2022/2023 focused on science courses. During this time period the average success rate was 51% (2, 798 science course enrollments during this time). The age group that had the lowest success rate were the students that fell into the 30-39 years with an average of 40%. The largest age group enrolled in these courses was the age range of 20-29 with around three times as many students as the other age groups. There was an overall lower success rate for males. There wasn't a significant difference in the success rate of first-generation students and students not first-generation students. There were almost as twice as enrollments in the science course of not first-generation students than first-generation. Success of students without dependents was higher with a 63% success rate than those with dependents (50%).

7. **Retention rates:** Under the heading, "Retention rates", click on the link that says, "Fall-to-spring and fall-to-fall retention rates"

The data for the retention rates for science courses were taken from the years of 2012-2023. The data shows that the fall-to-fall retention rates were lower than the fall-to-spring retention rates. Part time students tended to have the lowest retention rates for both fall-to-fall and fall-to-spring. Students with dependents had retention rate drop more from fall-to-fall (26%) than retention rates from fall-to-spring (47%).

8. **Graduation rates and numbers:** Under the heading, "Graduation rates and numbers", click on the link that says, "Graduation rates and numbers"

The data for the graduation rates for science programs were taken from the school years of 2012-2023. There were 134 students that graduated in all of the science programs this includes biology, natural resources / environmental science, environmental health, tribal natural resources / environmental science, pre-med, pre-nursing and community health. The most drastic changes in graduation rates were during the school years of 2018-19- 2020-21. Males and part-time students had the lowest 3-year graduation rates of all groups for the last five years.

## Reflections on Integrating Apsáalooke Perspectives and Knowledge

9. Do you feel you are integrating Apsáalooke perspectives and knowledge into your classes more, the same, or less than you did in 2019?

More

10. In 2023-24, estimate the % of your class time you feel you integrated Crow perspectives and knowledge.

In the program option of natural resources/environmental science over the 2023-2024 school year around 10% of class time across all of the program courses taken by students in this program.

11. Provide examples of **new ways** you integrated Crow perspectives and knowledge in your classes in 2023-24 that you had not done before.

The biggest increase in the integration of Crow perspectives and knowledge into our classes was at the program level. A new course, CS 140 Apsáalooke science, was added to the program of study of the natural resources / environmental science.

12. Provide examples of how you integrated Crow perspectives and knowledge in your classes in 2023-24.

Examples of integration of Crow perspectives and knowledge was the addition of the CS course to a program, placed-based case study assignments, and student discussion forum assignments.

13. What do you plan to do in 2024-25 to increase the integration of Crow perspectives and knowledge into your classes?

Plans to increase the integration of Crow perspectives into the science curriculum include the increase of ethnobotany content into the range science curriculum, laboratory student driven research projects in SC 161 and SC 243, additional of new modules focused on case studies that focus on community concerns to SC 244 and SC 242. Students in the programs included in this review will be advised to take CS 140 as their Crow studies core course.

## Reflections on Integrating Active Learning, Teaching, and Assessment Strategies

Active teaching, learning, and assessment strategies include times where faculty are not lecturing and where students are actively doing something interactive, meaningful, and relevant (including in their assessments).

Examples of active teaching, learning, and assessment strategies include think-pair-share, one sentence summaries, role plays, case studies, problem-solving, the muddiest point, game-based learning, labs, creating something, etc.

14. Do you feel you are using active teaching, learning, and assessment strategies in your classes more, the same, or less than you did in 2019?

More

15. In 2023-24, estimate the % of your class time you feel you used active teaching, learning, and assessment strategies.

50-60% active teaching through laboratory courses and classroom activities and homework.

16. Provide examples of **new ways** you used active teaching, learning, and assessment strategies in your classes in 2023-24 that you had not done before.

In 2023-24, the strategies used for active teaching, learning, and assessment didn't change from previous years, the number of activities/assignments that included these strategies increased. A specific example of this is that the number of assignments for active learning increased to 100% in SC 236 in the year 2023-24.

17. Provide examples of how you used active teaching, learning, and assessment strategies in your classes 2023-24.

Active teaching, learning, and assessment strategies have increased over the past five years in science program courses and will continue to be a major component of those courses. Forms of active learning include case studies, in class assignments, laboratory activities, discussion forums, and response papers. For example, the percentage of active teaching/learning assignments and activities in SC 132 is currently 73%, out of 22 assignments 16 of them are active teaching/learning assignments. Other examples include SC 236 with 100%, SC 242 with 32%, and SC 244 with 56%. All labs are 100% active learning.

18. What do you plan to do in 2024-25 to increase the use of active teaching, learning, and assessment strategies in your classes?

Curriculum additions in the school year 2024-2025 will include new modules on experimental design in which students design research projects, new data analysis modules and new case studies.

## Program Reflections

### 19. Program **areas of strength**

Program areas of strength include a significant amount of active learning strategies already implemented and program coursework aligns with transfer to 4-year schools.

### 20. Program **areas for improvement**

Areas of improvement include increasing Crow knowledge in all courses, updating modules with new information and technologies always being developed in science fields, increase student numbers in the program, increase graduation rates, decrease number of years students are in the program to graduate, and increase active learning to be part of every program course.

### 21. Program **next steps**

Develop new curriculum for student-based research in SC 161 and 242/243. Increase the number of 2+2 agreements with 4-year schools.

### 22. Suggestions for improving this report or process (if any)

None