

Natural Sciences Minor

ASSESSMENT REPORT ACADEMIC YEAR 2017 – 2018

I. LOGISTICS & PROGRAM LEARNING OUTCOMES

1. Please indicate the name and email of the program contact person to whom feedback should be sent (usually Chair, Program Director, or Faculty Assessment Coordinator).

Biology Assessment Coordinator

Scott Nunes (nunes@usfca.edu)

Biology Assessment Committee

Leslie Bach (lbach@usfca.edu)

Louise Goupil (lgoupil@usfca.edu)

Brian Young (byoung3@usfca.edu)

2. Were any changes made to the program mission statement since the last assessment cycle in October 2017? Kindly state “Yes” or “No.” NO

Please provide the current mission statement below. If you are submitting an aggregate report, please provide the current mission statements of both the major and the minor program.

Mission Statement: The core mission of the University of San Francisco is to educate students in the knowledge and skills required to succeed as professionals and as persons, while also teaching the sensitivity and values necessary to participate in a world shared by all people. The Department of Biology particularly emphasizes the core Jesuit value of advancing the freedom and responsibility to pursue truth and to follow evidence to its conclusion. In pursuit of these values, the faculty of the Department of Biology educates undergraduate students in current biological concepts, methodologies, and ethical practices in the laboratory and the natural environment to prepare them to succeed personally and professionally with the potential for advanced training in the sciences.

3. Were any changes made to the program learning outcomes (PLOs) since the last assessment cycle in October 2017? Kindly state “Yes” or “No.” NO

Please provide the current PLOs below. If you are submitting an aggregate report, please provide the current PLOs for both the major and the minor programs.

Program Learning Outcomes: Upon graduation, students who complete the Natural Sciences minor requirements should be able to meet the following program learning outcomes:

- 1) Demonstrate broad knowledge of the concepts that comprise the natural sciences of biology, chemistry, and physics.
- 2) Perform laboratory techniques used to evaluate and explore scientific problems.
- 3) Apply the scientific process.

4. Which particular Program Learning Outcome(s) did you assess for the academic year 2017-2018?

For the 2017-2018 academic year, program learning outcome #1 was assessed: Demonstrate broad knowledge of the natural sciences of biology, chemistry, and physics. We focused broad knowledge in biology, and will assess knowledge in chemistry and physics in future years.

II. METHODOLOGY

5. Describe the methodology that you used to assess the PLO(s).

Important: Please attach, at the end of this report, a copy of the rubric used for assessment.

1. Final exams were collected from the following foundation courses, which are taken by all students completing the Natural Sciences minor:

BIOL 105-General Biology I (20 exams)

BIOL 106-General Biology II (20 exams)

2. For each course, a panel of two people was formed to evaluate the final exams. Panels consisted of full-time faculty members in the Biology Department who had taught the course within the past two years and therefore had the knowledge to evaluate the exams.
3. Exams were rated on students’ demonstration of knowledge in a broad range of biological topics. Faculty members rated each measure for each exam on a scale of 1-4, with numerical ratings indicating the following performance standards: 4—exceeds expectations, 3—meets expectations, 2—needs improvement, 1—below expectations. A rubric summarizing the criteria for determining performance standards is included at the end of this report under “Additional Materials.”

III. RESULTS & MAJOR FINDINGS

6. **What are the major takeaways from your assessment exercise?**

Students were somewhat split between meeting expectations and needing improvement with the regard to the breadth of knowledge they were able to express. Ideally a larger proportion of students should meet expectations. At least half of students were able to express broad knowledge of biological concepts and principles at the expected level in (Table 1). The remainder of students were rated as needing improvement rather than below expectations (Table 1). We note that work was evaluated from the general population of students in General Biology I and II and was not restricted to Natural Sciences minors. However, results of this assessment provide an estimate of the breadth of knowledge attained by students who complete General Biology I and II, which are required in the Natural Sciences minor.

Table 1. Ratings of students' breadth of knowledge of biological topics.

	BIOL 105-General Biology I (% of students)	BIOL 106-General Biology II (% of students)
Meets or exceeds expectations	65	50
Needs improvement	35	50
Below expectations	0	0

I. CLOSING THE LOOP

7. **Based on your results, what changes/modifications are you planning in order to achieve the desired level of mastery in the assessed learning outcome? This section could also address more long-term planning that your department/program is considering and does not require that any changes need to be implemented in the next academic year itself.**

A committee of Biology faculty members has been formed to discuss the content of General Biology I and II. Part of the discussion will involve whether changing the amount of detail with which topics are covered in these courses might enhance students' understanding and retention of material and improve their assimilation of information across a range of topics in biology.

8. **What were the most important suggestions/feedback from the FDCD on your last assessment report (for academic year 2016-2017, submitted in October 2017)? How did you incorporate or address the suggestion(s) in this report?**

Direct evidence was collected to assess program learning outcomes in the Natural Sciences minor.

ADDITIONAL MATERIALS

(Any rubrics used for assessment, relevant tables, charts and figures should be included here)

The following rubric was used to evaluate the final exams collected in each of the foundations courses included in the assessment.

RUBRIC CRITERIA	PERFORMANCE STANDARDS			
	<i>Exceeds Expectations (4)</i>	<i>Meets Expectations (3)</i>	<i>Needs Improvement (2)</i>	<i>Below Expectations (1)</i>
Expresses knowledge in a broad range of biological topics.	Expresses comprehensive knowledge within a wide variety of areas in biology.	Expresses competent knowledge within a wide variety of topics, with comprehensive knowledge of some topics.	Expresses competent knowledge within a range of biological topics, with limited knowledge of some topics.	Expresses knowledge within a limited range of topics.