

**Student Learning Assurance Report
Minor in Natural Sciences
Department of Biology
College of Arts and Sciences
2016-2017
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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.

Last review and revision: Spring 2017.

Program Learning Outcomes

Upon graduation, students who complete the 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 principles.
3. Apply the scientific process.

Last review and revision: Spring 2017.

Summary of Assessment Plan

- **2016-2017**
 - **Assessment via methods used for Core or Major assessment.**
- 2017-2018
 - Review of learning outcomes to align with existing assessment methods used of included courses.
 - Assessment via methods used for Core or Major assessment.
- 2018-2019
 - Assessment via methods used for Core or Major assessment.

Academic Program Review

The Natural Sciences Minor is a minor, and as such has not undergone a separate program review. For information about the Department of Biology program review, see the Biology Major Assessment Report.

Methods: Program Learning Outcomes Assessment

—Assessment via methods used for Core or Major assessment

The Natural Sciences Minor is granted on completion of a set of lab courses in the natural sciences: General Biology, Organic Chemistry and Introductory Physics. General Chemistry, though not a formal part of the minor, will also be completed since it is a prerequisite for Organic Chemistry. These courses include multiple examples of Major and Core B1 courses that are independently evaluated for meeting Core and Major learning outcomes, which generally align with the learning outcomes of the minor. So long as these courses remain in compliance with learning outcomes for the core and their respective majors, they will be in compliance with learning outcomes for the minor.

Results: Program Learning Outcomes Assessment

— Assessment via methods used for Core or Major assessment

See the assessment reports for the Biology, Chemistry and Physics majors, as well as the reports from Core B2 assessment, for evaluations of how these courses meet the learning outcomes of the minor. Students who complete the minor will have completed these courses.

Closing the Loop

- Assessing the Natural Sciences minor should be accomplished through the routine assessment of these required major courses by their respective programs. The number of minors is relatively small (approximately (7 total minors in Fall 2017), so assessing registered Natural Science minors is impractical.
- The Biology Faculty will review the program learning outcomes for the Natural Sciences minor and where necessary change them to align with assessment methods being used for these courses by Core Assessment or Major Assessment by the departments that are offering the courses.

Curriculum Maps

Curriculum maps aligning the Natural Science Minor program learning outcomes with institutional learning outcomes are included as Appendix A.

Natural Sciences Minor Assessment Report – Appendix A

	PLO1	PLO2	PLO3
Institutional Learning Outcomes X Program Learning Outcomes	Demonstrate broad knowledge of the concepts that comprise the natural sciences of biology, chemistry, and physics.	Perform laboratory techniques used to evaluate and explore scientific principles.	Apply the scientific process.
Institutional Learning Outcomes			
1. Students reflect on and analyze their attitudes, beliefs, values, and assumptions about diverse communities and cultures and contribute to the common good.			
2. Students explain and apply disciplinary concepts, practices, and ethics of their chosen academic discipline in diverse communities.	X		X
3. Students construct, interpret, analyze, and evaluate information and ideas derived from a multitude of sources.	X		X
4. Students communicate effectively in written and oral forms to interact within their personal and professional communities.			
5. Students use technology to access and communicate information in their personal and professional lives.		X	X
6. Students use multiple methods of inquiry and research processes to answer questions and solve problems.		X	X
7. Students describe, analyze, and evaluate global interconnectedness in social, economic, environmental and political systems that shape diverse groups within the San Francisco Bay Area and the world.			